

Oral And Maxillofacial Surgery

Board and Certification Review

350 Questions and Explanations

2021 edition

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Section 1

Question 1: An 18-month-old male presents with a burn of the left oral commissure after chewing through an electrical cord. Loss of consciousness is suspected. The commissure is not bleeding, and no burns of the feet or buttocks are apparent. The child has normal ECG results, and immunizations are confirmed to be up-to-date. He is drinking liquids quite well. Which of the following medications is most appropriate?

Choices:

1. Oral amoxicillin-clavulanate for 14 days
2. Topical bacitracin to the commissure until the eschar is replaced by epithelium
3. Topical silver sulfadiazine cream until the wound heals
4. Tetanus toxoid and topical bacitracin



Photo: Contributed by Scott Dulebohn, MD

Answer: 2 - Topical bacitracin to the commissure until the eschar is replaced by epithelium

Explanations:

- Empiric broad-spectrum antibiotics have not proven useful for routine burns.
- Silver sulfadiazine should not be used on mucous membranes because of possible systemic absorption and toxicity.
- If this child has up-to-date immunizations, he should have adequate tetanus coverage, and a booster is unnecessary.
- Burns to the oral commissure may result in immediate or delayed labial artery bleeding if the eschar breaks down. As a result, these patients should be observed.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Electrical Burns



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Question 2: A 66-year-old man presents to the clinic for a follow-up exam. He describes changes in his swallowing and in talking as if his tongue was "tied" or being "held down". On physical exam, you notice that he cannot fold the sides of his tongue upward. The rest of the exam is unremarkable. Which muscle and nerve pair are responsible for the finding on physical exam?

Choices:

1. Styloglossus muscle: Facial nerve (CN VII)
2. Palatoglossus: vagus nerve (CN X)
3. Styloglossus: hypoglossal nerve (CN XII)
4. Genioglossus: hypoglossal nerve (CN XII)

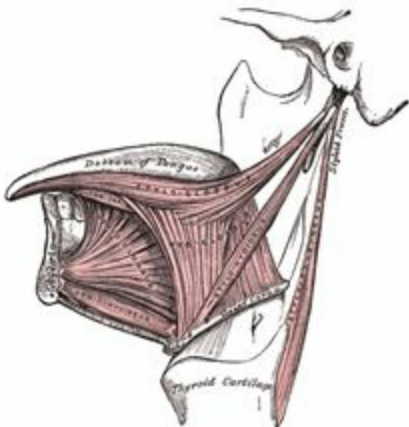


Photo: Contributed by Gray's Anatomy Plates

Answer: 3 - Styloglossus: hypoglossal nerve (CN XII)

Explanations:

- The styloglossus muscle is one of the four extrinsic tongue muscles (genioglossus, hyoglossus, styloglossus, and palatoglossus), and its origin arises from the styloid process. The styloglossus muscle is innervated by the hypoglossal nerve (CN XII) and functions by drawing the sides of the tongue up and in to create a conduit for swallowing.
- The styloid process gives origin to three muscles: the styloglossus, stylohyoid, and stylopharyngeus, which are innervated by the hypoglossal (CN XII), facial (CN VII), and the glossopharyngeal nerve (CN IX), respectively.
- The hypoglossal nerve (CN XII) innervates the genioglossus, which protrudes the tongue, the hyoglossus which retracts and depresses the tongue, and the styloglossus as described previously.
- The innervation of palatoglossus muscle is engendered by the vagus nerve (CN X) and elevates the posterior tongue during swallowing.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

[Anatomy, Head and Neck, Styloid Process](#)



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Question 3: A 66-year-old female with a history of hypertension presents to the emergency department with jaw pain. Her vital signs include a temperature of 101.5 F, heart rate of 105/min, blood pressure of 120/80 mmHg, respiratory rate of 18 breaths per minute, and oxygen saturation of 99% on room air. On exam, she has a decayed, left mandibular premolar with purulent discharge. She is tender to palpation in her jaw and has overlying erythema that is warm to palpation. What is the most sensitive imaging modality for the patient's suspected condition?

Choices:

1. Ultrasound
2. CT with contrast
3. X-rays
4. MRI

Answer: 4 - MRI

Explanations:

- This patient's presentation is concerning for osteomyelitis of the jaw following a dental infection.
- MRI is the most sensitive imaging modality in diagnosing osteomyelitis.
- Furthermore, this patient is stable enough for an MRI.
- Ultrasound is insufficient to rule out the diagnosis. CT with contrast is a good modality to evaluate for osteomyelitis. However, it is not the most sensitive. X-rays have a low sensitivity in detecting osteomyelitis.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Dental Infections



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Question 4: A 14-year-old girl presents with persistent firm swelling of the lower lip for one year that prevents her from fully opening the mouth. She also looks underweight and gives a history of intermittent pain abdomen and diarrhea with occasional blood in stools. Examination reveals firm swelling of the lower lip with moderately deep longitudinal fissures and few resolving aphthae. Anthropometry shows that she is underweight and short for her age. Blood reports show anemia. Biopsy from the swelling reveals granulomatous infiltrate comprising of epithelioid cells, Langhans giant cells, and lymphocytes. Colonoscopy shows cobblestoning of the intestinal mucosa along with ulceration at places. Which of the following is the most appropriate treatment option?

Choices:

1. Anti-tubercular therapy
2. Vitamin B12 supplementation
3. Infliximab
4. Anti-leprosy treatment

Answer: 3 - Infliximab

Explanations:

- The question describes a typical case of Crohn disease with the presentation of cheilitis granulomatosa. Amongst the options mentioned, infliximab is the most appropriate treatment option for this patient.
- This case presents with persistent swelling of the lip with histopathology revealing epithelioid cell granulomas suggesting cheilitis granulomatosa. Moreover, she is underweight and of short stature indicating chronic malnutrition with gastrointestinal symptoms. This, combined with the colonoscopic picture of cobblestoning and ulcerations, is highly suggestive of Crohn disease.
- Among the treatment options listed, Infliximab is a drug effectively used to treat Crohn disease. Other treatment options for Crohn disease include antibiotics like metronidazole, aminosalicylates, systemic corticosteroids, immunomodulators, and other biological therapy.
- Treatment with anti-tubercular therapy and anti-leprosy therapy should not be confused with in this case scenario. Although the histopathology may show overlapping features, other features in the case do not support a diagnosis of either tuberculosis or leprosy.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Cheilitis Granulomatosa



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Question 5: A 65-year-old male presents to the urgent care because he has noticed that he has recently chipped several of his teeth after eating fish at a restaurant. His past medical history is significant for hypertension and diabetes. A lesion in which of the following is primarily responsible for this presentation?

Choices:

1. Only the mesencephalic nucleus of the trigeminal nerve
2. Only the chief sensory nucleus of the trigeminal nerve
3. The spinal trigeminal nucleus and the motor nucleus of the trigeminal nerve
4. The motor nucleus of the trigeminal nerve

Answer: 1 - Only the mesencephalic nucleus of the trigeminal nerve

Explanations:

- The mesencephalic nucleus is responsible for unconscious proprioception of the mouth and face. Accordingly, a lesion of this nucleus would result in problems with sensing resistance to biting.
- Particularly, in this case, where the patient was recently eating fish, there is a concern that he over-chewed because he did not sense the resistance of the bones.
- The neurons of the mesencephalic nucleus are unipolar cells that are electrically coupled. The nucleus contains first-order neurons that directly connect the afferent fibers to the periphery.
- The mesencephalic nucleus can be clinically tested with the jaw jerk reflex.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Neuroanatomy, Trigeminal Nucleus



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Question 6: A 65-year-old male presents to the clinic with pain along the recent dental implant site. The implant was placed one month ago along the missing tooth #3, which is the area of concern. The patient has prostate cancer and is taking zoledronic acid and pamidronate for prostate cancer for 2 years. Physical examination reveals exposed bone, loose implant, and infected implant site. What is the most likely cause of the patient's symptoms?

Choices:

1. Altered osteoclast activity disrupting the bone remodeling cycle causing bisphosphonate (BP) related osteonecrosis (ON) of the jaw
2. Capillary breakdown along the implant site leading to avascularity and BP related ON of the jaw
3. Jaw infection leading to implant failure and bone loss
4. Periodontal disease related to prostate cancer, leading to implant failure and bone loss

Answer: 1 - Altered osteoclast activity disrupting the bone remodeling cycle causing bisphosphonate (BP) related osteonecrosis (ON) of the jaw

Explanations:

- BPs disrupts the bone remodeling cycle by reducing osteoclast survival and function.
- BPs accumulate at the site of active bone formation and get internalized by osteoclasts, which makes bone resistant to dissolution by osteoclast, reduce osteoclast survival, and modulate the signaling from osteoblast to osteoclast.
- Without resorption and new bone formation, old bone survives beyond its lifespan, and capillary network in bone is not maintained, leading to avascular necrosis of the jaw. Also, high potency BPs can lead to necrosis by the toxicity of soft tissue along with cells of bone, which is further complicated by infection.
- Due to altered wound healing, delayed epithelial closure of a mucosal opening in the mouth leads to chronic infection and the necrosis of bone.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Bisphosphonate Related Jaw Osteonecrosis



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Question 7: A 45-year-old male has been treated with azathioprine for the past three months for his longstanding diagnosis of Crohn disease. He also has a history of type 2 diabetes, coronary artery disease, and has a ten pack-year smoking history. He presents to a clinic with concerns of a 15-pound weight loss due to difficulty eating secondary to a painful ulcer at his lower gumline that does not allow his dentures to fit appropriately. He was recently divorced and is currently in a new relationship that started two weeks ago. A biopsy of the lesion demonstrates an atypical lymphoid infiltrate with positivity for B-cell markers and Epstein Barr virus encoded RNA (EBER). Which of the following aspects of his medical history puts him at the highest risk for this entity?

Choices:

1. The use of immunosuppressive medications
2. Sexual contact with an infected individual
3. Extensive smoking history
4. Longstanding Crohn disease

Answer: 1 - The use of immunosuppressive medications

Explanations:

- The most important risk factor for the development of EBV-positive mucocutaneous ulcer is immunosuppression. Iatrogenic immunosuppression due to the use of immunosuppressive drugs is the most common type of immunosuppression that is seen in patients with EBV-positive mucocutaneous ulcers.
- Many commonly used immunosuppressive drugs have been associated with the development of EBV positive mucocutaneous ulcer, including methotrexate, cyclosporine A, azathioprine, tacrolimus, TNF inhibitors, mycophenolate, and topical steroid treatment.
- Epstein-Barr virus-positive mucocutaneous ulcer is a B-cell lymphoproliferative disorder that is caused by a latent Epstein-Barr virus (EBV) infection that causes isolated, circumscribed ulcers in the oropharynx, gastrointestinal tract, and skin.
- The ulcer contains a mixture of inflammatory cells mixed with EBV-infected B-cells, many of which resemble Reed-Sternberg cells seen in Hodgkin lymphoma. It is different from Hodgkin lymphoma in that it does not affect lymph nodes and has a benign course. It usually spontaneously regresses and responds very well to conservative treatment. A small fraction of Epstein-Barr virus-positive mucocutaneous ulcers needs aggressive treatment with CD20/30 antibodies, radiation therapy, chemotherapy, or surgical excision to prevent its progression.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

EBV Positive Mucocutaneous Ulcer





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Question 8: A 17-year-old male presents to the emergency department after getting into a fight at a party. He has several contusions and lacerations to his face from sustaining punches, one of which is a through-and-through laceration to his lower lip which does not touch the vermilion border and is just right of midline. Which type of anesthetic and what technique are ideal for this laceration repair?

Choices:

1. Lidocaine, local infiltration
2. Lidocaine, right mental nerve block
3. Lidocaine, bilateral mental nerve block
4. Bupivacaine, local infiltration

Answer: 3 - Lidocaine, bilateral mental nerve block

Explanations:

- Mental nerve block will anesthetize the skin medial to the nerve on the ipsilateral side of the face.
- The skin of the chin and lower lip and buccal mucosa will be anesthetized with a mental nerve block.
- Any fast-onset local anesthetic can be used for a mental nerve block.
- If a laceration is close to midline, midline, or crosses midline, both mental nerves should be blocked for complete coverage.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Mental Nerve Block



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Question 9: A 29-year-old female patient presented with a 3-year history of facial lesions with purulent discharge. Her past medical history was significant for chronic diarrhea. Orthopantomogram was unremarkable. Skin biopsy revealed granulomatous inflammation with no infective organisms. What is the most likely etiological diagnosis of these oral fistulas?

Choices:

1. Crohn disease
2. Tuberculosis
3. Actinomycosis
4. Osteonecrosis of the jaw

Answer: 1 - Crohn disease

Explanations:

- Odontogenic cutaneous fistulas are the most frequent causes of oral fistulas but rarely show granulomatous inflammation. Granulomatous inflammation is found in tuberculosis and Crohn disease. Culprit microorganisms are usually found in such forms of tuberculosis. Cutaneous fistulas associated with Crohn disease are rare. Misdiagnosis is not uncommon.
- Pathology reveals in cases of oral fistula associated with Crohn disease granulomatous inflammation with no infective organisms.
- Physical examination should seek in this case for fistulating disease elsewhere in the body, especially perianal fistula.
- Immunosuppressant and biologic therapies should be used to prevent relapses.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Oral Cutaneous Fistula



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Question 10: A 65-year-old-female with cicatricial pemphigoid affecting the oral mucosa is being treated with topical clobetasol 0.05% gel twice daily for the last month. She presents to the clinic because of the worsening of her oral symptoms with new blisters involving the lips. On exam, there are scattered crusted erosions on the vermilion lips. The rest of the oral mucosa is clear without blisters or erosions. What is the appropriate next step in management?

Choices:

1. Advise patient to increase the use of topical clobetasol gel to three times daily
2. Add a topical calcineurin inhibitor to her regimen
3. Perform a swab for fungal culture
4. Perform a swab for herpes simplex viral PCR

Answer: 4 - Perform a swab for herpes simplex viral PCR

Explanations:

- For the treatment of mild oral cicatricial pemphigoid, topical corticosteroids can be used as first-line therapy. If this is not successful, dapsona may be used. Topical calcineurin inhibitors have also been utilized with success.
- Although topical steroids are unlikely to cause atrophy of mucosal tissue, long-term use of topical steroids can predispose patients to oral candidiasis or reactivation of herpes simplex. For sudden worsening of the disease, evaluation for the secondary infectious complications is prudent.
- Prophylaxis with topical anti-candidiasis preparations may be helpful in patients with repeated thrush episodes. Oral candidiasis presents with white patches involving the oral mucosa.
- Herpes simplex virus reactivation can occur in patients with cicatricial pemphigoid and presents with erosions of the lips and/or oral mucosa. Herpes simplex infection should be ruled out in patients who flare or who do not respond to the treatment. Herpes simplex viral PCR is a highly sensitive test to screen for active infection of the oral mucosa.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Cicatricial Pemphigoid



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Question 11: A male is brought to his healthcare provider with a sore throat. Her blood pressure is 82/52 mmHg, temperature 102.2 F, and the pulse is 112/min. The physical exam reveals right sided neck swelling and trismus. Which imaging modality can be performed for further evaluation of the patient's condition?

Choices:

1. CT with intravenous contrast
2. Portable x-ray
3. Ultrasound of the neck
4. CT angiography

Answer: 2 - Portable x-ray

Explanations:

- Since the patient's infection is causing neck swelling and trismus, it is likely to be a deep neck infection.
- Although a CT scan is the diagnostic method of choice, bedside x-ray is used for unstable patients.
- A fiber-optic scope is the best modality to visualize the area of swelling directly.
- The patient is unstable, so they should not be sent for a CT scan.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Neck Abscess



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Question 12: A 30-year-old woman presents with persistent swelling of the lower lip since three months associated with mild discomfort. She gives history of recurrent swelling of the lower lip for few months prior to this which used to resolve spontaneously in 3-4 days with or without medications. She is taking tablet cetirizine 10 mg daily without any relief in the swelling. There are no systemic complaints, and she denies history of fever, the appearance of wheals, any new drug intake/dietary changes, or history of similar complaints in any of the family members. Examination reveals a woman of normal height and weight with asymmetric soft to firm swelling of the lower lip more over the right side, which is nontender and non-erythematous with no surface erosions or ulceration. The rest of the oral cavity is unremarkable. There is no palpable regional lymphadenopathy, and her systemic examination is within normal limits. Her complete blood count and serum biochemistry are normal. Which of the following is the most appropriate next step in the management plan?

Choices:

1. Order C4 and C1 inhibitor levels
2. Biopsy and histopathological evaluation
3. MRI of the affected area
4. No investigation needs to be done, only increase the dose cetirizine

Answer: 2 - Biopsy and histopathological evaluation

Explanations:

- The symptoms started as recurrent transitory lip swelling which has now evolved to persistent diffuse swelling for the last few months.
- This suggests a possible differential of cheilitis granulomatosa.
- Diagnosis of cheilitis granulomatosa is made on histopathological examination which shows noncaseating epithelioid cell granulomas.
- Presence of a persistent lip swelling and absence of family history makes a diagnosis of hereditary angioedema less likely, therefore ordering C4 and C1 inhibitor levels will not be appropriate in this case. Nonresponsiveness to antihistamines, absence of wheals, and persistence of swelling since months points against angioedema associated with urticaria and increasing the dose of antihistaminics will not be appropriate in this case.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Cheilitis Granulomatosa



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Question 13: A 65-year-old male patient presents to the hospital with a 3 cm, mobile, group 2 lymph node. Fine-needle aspiration reveals squamous cell carcinoma. The physical examination and radiographic evaluation reveal no evidence of a primary site of lesion and no distant metastases. Which of the following is most likely the primary site?

Choices:

1. Nasopharynx
2. Floor of mouth
3. Base of tongue
4. Infrahyoid epiglottis

Answer: 3 - Base of tongue

Explanations:

- The primary site is detected in approximately 40% of patients presenting with a metastatic upper cervical lymph node from an unknown primary site. Specifically, in the head and neck of patients who have undergone a modern evaluation with flexible fiber-optic endoscopy, CT or MRI of the head and neck, and directed biopsies.
- Approximately 40% of detected primary sites are found in the base of the tongue and 40% in the tonsillar fossa.
- With tonsillar cancer, metastasis to regional lymphatics is a frequent occurrence. Neck metastases are seen in 50% to 65% of patients. Even in patients with a clinically negative physical exam, 30% to 40% will have neck disease.
- Tonsillar squamous cell cancer also may spread to the retropharyngeal lymph nodes.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Tongue Cancer



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Question 14: A 68-year-old lady presents to the clinic with a lump in the parotid region. Even though it has been present for many years, it has not previously bothered her, but over time it has reached a considerable size and now is cosmetically unsightly. Examination to the rest of the head and neck, oral cavity and facial nerve is otherwise unremarkable. What is the most appropriate first-line investigation?

Choices:

1. Ultrasound-guided Fine needle aspiration
2. CT scan
3. Core biopsy
4. MRI scan

Answer: 1 - Ultrasound-guided Fine needle aspiration

Explanations:

- FNAC is the first line investigation for parotid gland masses, and it helps to distinguish between malignant and benign tumors. FNAC obviates the need for surgery in up to 33% of patients. Meta-analysis studies have shown FNAC in parotid lesions (malignant vs. benign) has a sensitivity of 80% and a specificity of 97%.
- Ultrasound can also help determine other features of the tumor, like the size, site, and nature of the mass. It can also look for associated lymph nodes in the head and neck region.
- The accuracy of diagnosis is often related to the level of experience of ultrasonographer and cytologist, as well as the quality of sample material.
- MRI is a good modality in giving confirmation of if the lesion is in the superficial or deep lobe of the parotid. Cross-sectional imaging and staging scans would be required if the parotid lesion is thought to be malignant. A core biopsy can be requested if cytology from an FNAC is non-diagnostic.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Parotid Cancer



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Question 15: A 65-year-old female patient was diagnosed with paranasal sinus cancer (adenoid cystic cancer) and treated with surgical excision and postoperative radiotherapy (70Gy). One month after the completion of radiotherapy, she developed an acute orocutaneous fistula. What is the most appropriate management strategy in this case?

Choices:

1. Incision and drainage of the fistula
2. Repair with prosthetic closure
3. Repair with surgical intervention
4. Antibiotic courses

Answer: 2 - Repair with prosthetic closure

Explanations:

- Cutaneous fistula after radiotherapy is a therapeutic challenge. High doses (60 Gy or higher) are usually prescribed in patients with paranasal sinus cancer, and therefore, irreversible tissue damage is associated.
- Prosthetic closure is a convenient alternative to surgical repair in this patient. The aim of the treatment is to minimize infection risk and cosmetic burden associated with the fistula.
- Prostheses could be used intraorally, extra orally, or as a combination.
- Such orocutaneous fistulas are frequently repaired with surgical intervention. But surgical repair is difficult in this case because the fistula appeared in the immediate post-therapy period.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Oral Cutaneous Fistula



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Question 16: A 29-year-old man presents to the clinic with an 8-month history of right cheek swelling. He states the swelling has suddenly been increasing in size over the last several weeks and now causing significant pain, swelling, and deformity of the right side of his face. Upon examining the patient, the swelling appears to be firm, non-tender, and immobile. Intra-orally, a 2 cm ulcerated mass is seen involving the cheek mucosa. There is no palpable neck mass. After CT-imaging to determine the extent of the mass, the patient is sent for a biopsy of the mass, which shows peripheral palisading nuclei, polarization, cellular atypia, low mitotic index, and stellate reticulum-like cells. What is the most appropriate treatment strategy for this patient?

Choices:

1. Surgical resection with 1-2 cm margins followed by chemoradiotherapy
2. Surgical resection with 2-3 cm margins followed by chemoradiotherapy
3. Surgical resection with 1-2 cm margins only
4. Surgical resection with 2-3 cm margins only

Answer: 3 - Surgical resection with 1-2 cm margins only

Explanations:

- The likely diagnosis, in this case, is malignant ameloblastoma.
- The treatment of choice for all ameloblastomas is surgical excision.
- Chemoradiotherapy is rarely required, except in select cases, with malignant ameloblastomas due to its generally slow-growing nature.
- Surgical excisional margins are around 1-2 cm for malignant ameloblastoma and 2-3 cm for ameloblastic carcinoma.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Ameloblastoma



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Question 17: A 59-year-old male patient presented with pain and a lump in the right inside of his gum. He reported a history of pain occurring after the placement of dental implants six weeks previously. Physical examination revealed an erythematous, subcutaneous nodule on his right cheek, associated with pus. What orthopantomogram sign is suggestive of the diagnosis?

Choices:

1. Periapical radiolucency associated with the implant
2. Infraposition associated with the implant
3. Peg-shaped laterals
4. Teeth dilacerations

Answer: 1 - Periapical radiolucency associated with the implant

Explanations:

- Dental implant complications could be associated with extra-oral cutaneous fistula.
- Causes of this complication are associated with inadequate treatment planning or oral infection.
- Orthopantomogram revealed periapical implant lesion which represents a cardinal sign of implant infection.
- Management is based on surgical intervention.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Oral Cutaneous Fistula



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Question 18: A 23-year-old male presents as a trauma activation to the emergency department after being involved in an altercation at the local football game. He was struck repeatedly in the face with a wooden object. On arrival, his Glasgow coma scale (GCS) score is 8, and he is intubated for airway protection. While hemodynamically stable his secondary survey is significant for multiple facial bone fractures, broken dentition with a laceration to the middle third of his tongue. The laceration is through the entire height of the tongue and traverses approximately 75% of the width of the tongue so that it hangs loose in his mouth. It is oozing blood. Repair of this tongue laceration would best be achieved by which of the following?

Choices:

1. Multilayered suture repair prior to transport to the intensive care unit
2. Secondary intention healing
3. Amputation
4. Specialist consultation for surgical reattachment

Answer: 4 - Specialist consultation for surgical reattachment

Explanations:

- The tongue laceration described in the scenario is complex, and almost a complete transection which coupled with significant facial trauma and intubation will require surgical repair.
- The ultimate repair of this complex tongue laceration will be multilayered, but its completion is not the most important aspect of this patient's care at the moment. Consulting a specialist for repair after completion of advanced imaging will allow for the identification of other injuries that could impact repairs such as jaw fracture or intracranial bleeding.
- Allowing the wound to heal by secondary intention would leave a significant deficit as the tongue pieces will not move in sync and could cause difficulty speaking and eating in the future. So it is important to recognize that repair should be considered and that evaluation by ENT or oral maxillofacial surgeon (OMFS) will give the patient the best outcome.
- Amputation of the tongue should not be considered in an emergency department setting. Complex repairs of this nature should include discussion of care with a specialist who may consider such measures depending on the overall clinical picture.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Tongue Laceration



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Please tap flag to report any questions that need improvement.

Question 19: A 5-year-old child is brought into the emergency department for evaluation after a fall. He has no significant past medical history and takes no medications. The patient does have allergies to peanuts, and there is a family history of angioedema. His mother states that while running down the stairs, he was simultaneously brushing his teeth where he slipped and tumbled down the stairs. He sustained an injury to the muscle lateral to the frenulum but medial to the molars within the mouth secondary to the toothbrush. The patient denies any other aches or pains. He denies any loss of consciousness. What is the embryological derivative of this injured muscle's origin site?

Choices:

1. First pharyngeal arch
2. Second pharyngeal arch
3. Third pharyngeal arch
4. Fourth pharyngeal arch

Answer: 2 - Second pharyngeal arch

Explanations:

- Mylohyoid muscle is lateral to the frenulum and medial to the molars. The mylohyoid muscle is derived from the first pharyngeal arch.
- The first pharyngeal arch also gives rise to the maxillary and mandibular processes.
- The origin of the mylohyoid muscle is the mylohyoid line on the inner surface of the mandible.
- The insertion site of the mylohyoid muscle is the body of the hyoid bone.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Anatomy, Head and Neck, Mylohyoid Muscle



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Question 20: A 12-year-old male with no past medical history presents to the emergency department after running face-first into a barn door during a game of tag. He is up to date on immunizations. He has a 1.5 cm gaping laceration to the left side of the anterior part of the tongue that may benefit from repair. The child is cooperative but in a lot of pain and very anxious about being in the hospital. His father declines opioids and procedural sedation but consents to the repair. In addition to child life assistance, which dental block would provide adequate analgesia to facilitate a repair?

Choices:

1. Buccal Block
2. Superior Alveolar Block
3. Lingual Block
4. Infraorbital Block

Answer: 3 - Lingual Block

Explanations:

- The laceration described in this scenario is located on the anterior aspect of the tongue. The lingual nerve supplies this area while the other answer choices do not.
- The mandibular nerve branches into the lingual and inferior alveolar nerves which go on to supply the anterior tongue, the lower lip, the teeth and gums of the mandible.
- The inferior alveolar nerve block is used more commonly than the lingual block. However, some studies show greater anesthesia with the lingual block.
- The buccal nerve supplies the mucoperiosteum of the mandibular molars. It does not innervate the tongue at all.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Tongue Laceration



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Question 21: A 65-year-old man with a past medical history of diabetes presented with chronic painful swelling and erythema in the region of the left parotid gland. An ultrasonographic examination showed signs of abscess formation in the left parotid area. Antibiotic therapy, followed by incision and drainage of the abscess, was conducted. Two weeks later, the patient developed an exuding fistula located in the region of the surgical incision. Multiple attempts to control the disease with antibiotics and surgical correction of the fistula have failed. What should be done next in such a patient?

Choices:

1. Sialography
2. Panoramic x-ray of the mandible
3. Magnetic resonance imaging
4. Bacteriological culture

Answer: 2 - Panoramic x-ray of the mandible

Explanations:

- This is a case of chronic cutaneous fistula that failed all conventional therapeutic strategies. In these cases, odontogenic cutaneous fistulas should be suspected. A panoramic x-ray of the mandible showed in this case displaced tooth and osteolysis due to infection.
- In this particular case, the initial presentation was misleading as initial communication between the infected teeth and the parotid gland was diagnosed as parotid abscess and incorrectly treated.
- Odontogenic cutaneous fistulas are responsible for most cases of oral cutaneous fistulas reported in the literature. It arises as a consequence of the bacterial invasion of the dental pulp resulting in apical periodontitis. This condition occurs when the pulp becomes necrotic, and the infection spreads into the periradicular area.
- Odontogenic cutaneous fistulas are more likely to develop in patients with uncontrolled diabetes, in those with osteoradionecrosis who have undergone jaw irradiation and in those with metabolic bone diseases.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Oral Cutaneous Fistula



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Question 22: A 55-year-old male with a history of diabetes presents to the emergency department complaining of respiratory distress. His vital signs include a temperature of 102.5 F, heart rate of 120/min, blood pressure of 130/80 mmHg, respiratory rate of 30/minute and oxygen saturation of 87% on 6L of O₂ via nasal cannula. On exam, he appears toxic and has a decayed, right mandibular molar with purulent discharge. He has induration of submandibular and sublingual space and is in significant respiratory distress with drooling. Which of the following is the next best step in the management of this patient?

Choices:

1. Incision and drainage
2. Awake intubation
3. Cricothyrotomy
4. Cefepime and metronidazole

Answer: 2 - Awake intubation

Explanations:

- This patient has Ludwig angina - a potential complication of dental infections.
- Immediate airway management is the most important next step in management.
- Awake intubation is proffered. If possible, this should be performed by anesthesia or ENT via fiberoptic.
- Incision and drainage are inappropriate in this patient. Cricothyrotomy is not the next step in treatment. Intubation should be attempted. Antibiotics play an important role in treating Ludwig angina, but airway management takes priority in this patient.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Dental Infections



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Question 23: A 25-year-old female patient presents to the clinic for follow-up one month after her initial phases of gender reassignment surgery. She is pleased with how things have gone since the procedure but is discontent with the masculine profile of her neck. On examination, she has an obtuse cervicomental angle of 100 degrees and prominent thyroid cartilage with little platysmal banding. In selecting a surgical procedure to address her concerns, derivatives of what pharyngeal arches will be targeted?

Choices:

1. First and second arches
2. Second and fourth arches
3. Third and fifth arches
4. Fourth and six arches

Answer: 4 - Fourth and six arches

Explanations:

- The laryngeal prominence of the thyroid cartilage is a male secondary sex characteristic. It is prominent on the exterior neck, more so in males than females. It is a derivative of the fourth and sixth pharyngeal arches.
- Laryngotracheoplasty, or reduction of the Adam apple, is a procedure done for feminization of the appearance of the neck, often in those who have had gender reassignment surgery.
- The pharyngeal arches differentiate into the structures that make up the neck, and each one has accompanying nerves and blood vessels it supplies.
- The thyroid cartilage is primarily structural in function. It protects the vocal cords posteriorly. It can be reduced with no impairment in function and minimal blood loss if performed carefully by an experienced surgeon.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

[Anatomy, Head and Neck, Adam's Apple](#)



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Question 24: A 76-year-old female with a history of atrial fibrillation, congestive heart failure, anxiety presents to the emergency department for facial pain. She was walking in the parking lot and tripped on the curb falling face forward onto the asphalt approximately 1 hour prior to arrival. She complains of pain to her teeth and bleeding from her mouth. On exam, she was a chipped front tooth and a 2 cm gaping laceration to the dorsum of the anterior one-third of the tongue with active bleeding. Prior to repair, what must be assessed on the tongue?

Choices:

1. Sensation to the tongue
2. Ability to swallow
3. Retained foreign body
4. Tongue range of motion

Answer: 3 - Retained foreign body

Explanations:

- The tongue laceration coupled with the chipped tooth increases the chances of a retained foreign body (the missing tooth piece) which should be removed prior to repair.
- The identification of foreign bodies is important because it can alert the provider to other potential intraoral injuries (broken dentition, puncture wounds to the mucosa, etc.) and guide the use of other medications including antibiotics and tetanus.
- Part of preparation for a tongue laceration repair includes irrigation which will aid in removal of foreign bodies and decrease the risk of infection. While some of this material may be inadvertently swallowed by the patient, external suction should be used to aid in irrigation and removal of foreign bodies.
- Assessing the ability to swallow and movement of the tongue with the laceration can aid in developing a plan of repair. However, it would not significantly complicate the actual procedure and can be assessed after repair. If a foreign body is left in the tongue prior to repair, it can lead to infection or abscess formation.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Tongue Laceration



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Question 25: A 17-year-old woman presents after falling at home and hitting her chin on the coffee table. On examination, there is a 3 cm laceration to the right side of her chin. The laceration is going to be repaired using an intraoral local anesthetic. Which of the following landmarks can be used to identify the appropriate nerve for a successful block?

Choices:

1. Approximately 1 cm into the tissue in the longitudinal axis with the right lateral incisor
2. Approximately 1 cm into the tissue in the longitudinal axis with the right canine
3. Approximately 1 cm into the tissue in the longitudinal axis with the right first premolar tooth
4. Approximately 1 cm into the tissue in the longitudinal axis with the right second premolar

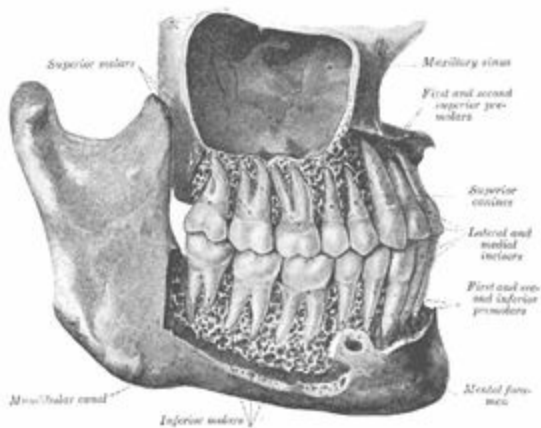


Photo: Contributed by Gray's Anatomy Plates

Answer: 4 - Approximately 1 cm into the tissue in the longitudinal axis with the right second premolar

Explanations:

- Once the inferior alveolar nerve exits the mental foramen of the mandible, it is called mental nerve. It supplies sensation to the skin and buccal mucosa of the lip and the skin of the chin.
- The mental foramen is typically situated midway between the upper alveolar crest and the lower edge of the mandible. This is in direct line with the second premolar.
- Exact mental canal location, however, can be variable. The location of the foramen has been found on a horizontal plane mesial, distal, or between the apices of the premolar roots.
- The variations are influenced by gender, age, race, and technique used for assessment.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Mental Nerve Block



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Question 26: A research laboratory that designed a study on understanding the relation of muscles on body mechanics notices that when a particular muscle is lacerated, the hyoid bone no longer elevates or retracts. This muscle's tendon of insertion is pierced by the intermediate tendon of the digastric muscle. What is the origin of the muscle that was lacerated?

Choices:

1. Body of the mandible
2. Styloid process of the temporal bone
3. Hyoid bone
4. Lateral aspect of the tongue

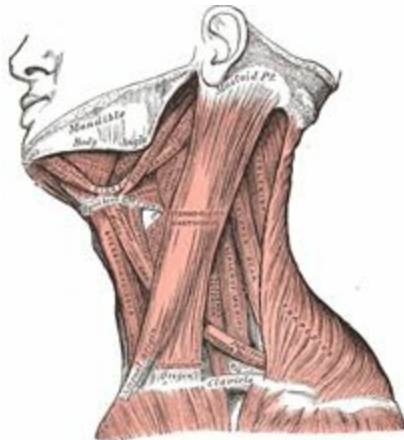


Photo: Contributed by Gray's Anatomy Plates

Answer: 2 - Styloid process of the temporal bone

Explanations:

- The intermediate tendon of the digastric muscle pierces the tendon of insertion of the stylohyoid muscle, which inserts at the body of the hyoid bone, at the junction with the greater horn of the hyoid bone.
- The stylohyoideus (stylohyoid muscle) has its origin from the styloid process of the temporal bone.
- The stylohyoideus receives its innervation from the stylohyoid branch of the facial nerve (CN VII).
- The function of the stylohyoideus is to elevate and retract the hyoid bone.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Anatomy, Head and Neck, Styloid Process



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Question 27: A 25-year-old male was recently diagnosed with cluster headache. He is admitted with a persistent headache and excessive lacrimation that is refractory to pharmacologic intervention. Vidian neurectomy was performed to treat this complication. Which of the following is the most susceptible structure to be injured during this procedure?

Choices:

1. Greater petrosal nerve
2. Geniculate ganglion
3. Carotid sinus
4. Superior salivatory nucleus

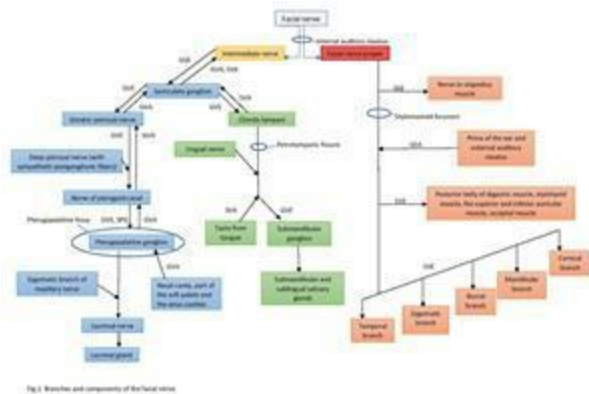


Photo: Contributed by Dominika Dulak

Answer: 1 - Greater petrosal nerve

Explanations:

- The greater petrosal nerve fuses with the deep petrosal nerve in the Vidian canal. The Vidian canal is formed in the bony process of the foramen lacerum.
- The greater petrosal nerve, also known as the large superficial petrosal nerve, is a nerve in the skull that branches from the facial nerve (CN VII).
- The greater petrosal nerve forms part of a chain of nerves that innervate the lacrimal gland. The fibers have synapses in the pterygopalatine ganglion (also known as the sphenopalatine ganglion). Genuiculate ganglion gives rise to the greater petrosal nerve, which passes to the foramen lacerum.
- The greater petrosal nerve carries parasympathetic preganglionic fibers from the facial nerve to the lacrimal gland. The superior salivatory nucleus, located in the pons, gives rise to the pre-ganglionic parasympathetic fibers.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Vidian Neurectomy



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Question 28: A 58-year-old pipe smoker presents to the clinic with complaints of the patchy white area on his tongue. General physical examination revealed a white, elevated plaque on the ventral and lateral borders of the tongue. The clinician tried to wipe the area with sterile gauze, but it could not be wiped. Histopathology of the lesion shows the increased thickness of the epithelium along with moderate dysplasia. Which of the following is the most likely treatment of choice in this patient?

Choices:

1. Smoking cessation
2. Laser surgery
3. Corticosteroids
4. Antifungals



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Answer: 2 - Laser surgery

Explanations:

- Leukoplakia is a precancerous lesion that appears as a white, elevated, plaque-like growth. It usually has asymmetric borders and usually affects the oral mucosa.
- It cannot be wiped off. The lesions tend to occur on the lip, mouth, buccal mucosa, and vaginal mucosa. Those at risk are cigarette smokers, pipe smokers, smokeless tobacco users, and heavy alcohol users.
- Others at risk include those with chronic oral infections, chronic malocclusion, or chronic ultraviolet light exposure. If suspected, these lesions should be biopsied to rule out malignancy.
- In the case of lesions with moderate to severe dysplasia, surgical excision or laser surgery should be the treatment of choice, especially when the lesion is on the ventral and lateral borders of the tongue, soft palate, floor of the mouth, and oropharynx. In addition, all the contributing factors should be eliminated.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Oral Leukoplakia



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Question 29: A 6-year-old girl is brought to the clinic due to difficulty being understood when she pronounces some words, in addition to hypernasality and hearing loss. Physical exam reveals a bifid uvula, as well as a soft palate that demonstrates a translucent-fine mucosa. Furthermore, a notch is palpable at the posterior edge of the hard palate. Which of the following is the most appropriate management strategy for this patient?

Choices:

1. Speech therapy only
2. Velopharyngoplasty
3. Tonsillectomy
4. Adenoidectomy

Answer: 2 - Velopharyngoplasty

Explanations:

- The patient has a clinical picture compatible with a submucous cleft palate: bifid uvula, zona pellucida and, a palpable notch on the hard palate.
- Submucous cleft palate is clinically characterized by velopharyngeal insufficiency, demonstrated by poorly understood speech and hypernasality.
- While some patients can be managed with speech therapy exclusively, most cases of submucous cleft palate require a velopharyngoplasty.
- Surgery can be followed by speech therapy for optimal results.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Cleft Palate Repair



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Question 30: A 45-year-old man presents with a 1-month history of increasing pain in his mouth. He has a past medical history of type 2 diabetes mellitus, well-controlled on metformin. On intraoral examination, the gums are erythematous, enlarged, and have a shiny and tender surface. Many calculus cumulus are seen. There is no dental mobility or fremitus. When probing, there is a mild gingival hemorrhage and no periodontal pockets. Which of the following is correct regarding the embryology of the affected tissue?

Choices:

1. At 21 weeks of gestation, it has differentiated into stratified nonkeratinized epithelium
2. At 23 weeks of gestation, it has differentiated into stratified keratinized epithelium
3. At 14 weeks of gestation, it has differentiated into stratified keratinized epithelium
4. At 14 weeks of gestation, it has differentiated into stratified nonkeratinized epithelium

Answer: 2 - At 23 weeks of gestation, it has differentiated into stratified keratinized epithelium

Explanations:

- The clinical vignette is most consistent with gingivitis. The gingivae primarily derives from the ectoderm, along with the lips, cheeks, palate, and floor of the mouth.
- Early on in development during the first and second weeks of gestation, a single layer of epithelial cells lines the oral cavity. Subsequently, two cell layers between weeks 5 and 6, and by week 10, a multilayered epithelium is present.
- At this time, surface features of the oral mucosa, such as the papilla on the anterior two-thirds of the tongue and the palatal rugae, begin development.
- By approximately week 23 in utero, the oral epithelium has differentiated into stratified keratinized palatal and gingival epithelium.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Anatomy, Head and Neck, Oral Gingiva



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Question 31: A 76-year-old male with peripheral vascular disease undergoes vascularized osseous reconstruction of his jaw. Preoperative imaging was not performed due to the patient's claustrophobia and desire to minimize medical costs. After surgery, his right foot develops severe pain with discoloration of the skin. What should have been done to prevent this complication?

Choices:

1. Preoperative DEXA scan to evaluate for osteopenia and osteoporosis.
2. Preoperative CT of the jaw.
3. Preoperative doppler ultrasound of the lower extremities.
4. Intraoperative CT of the lower extremities.

Answer: 3 - Preoperative doppler ultrasound of the lower extremities.

Explanations:

- This patient is experiencing foot necrosis after resection of the peroneal artery in the absence of three-vessel runoff to the foot.
- This patient has undergone inappropriate fibula free tissue transfer with the harvest of the peroneal artery from the leg, further limiting nutrition to the foot. Patients with peripheral vascular disease may have narrowed or completely obstructed anterior and posterior tibial arteries limiting arterial flow to the foot. Even in the absence of peripheral vascular disease, some patients do not have a three-vessel runoff.
- A DEXA scan is not typically a part of the workup for osseous free tissue transfer. Imaging of the jaw and lower legs can aid surgical planning, and arterial imaging of the lower legs can evaluate the vessel adequacy and candidacy for fibula free flap.
- A CT of the jaw can help surgical planning but does not evaluate whether a patient can safely undergo fibula free tissue transfer.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Mandible Reconstruction



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Question 32: A 37-year-old woman presents to the clinic for routine follow up. She has a history of poor dental hygiene and does not follow up with a dentist. She does not take any medications on a regular basis and denies chronic health problems. Her past surgical history is remarkable for bilateral tubal ligation 4 years ago. The patient complains of intermittent tooth pain, made worse with icy foods. She denies fevers or difficulty swallowing. Physical exam reveals extremely poor dental hygiene with multiple cracked teeth and heavily deposited plaque. There are multiple areas of point tenderness and swelling in the gum line adjacent to several teeth. The patient is scheduled for a root canal treatment. She states that she is allergic to penicillin, with an anaphylactic reaction. She reports that she was given an intramuscular antibiotic in the emergency department a few years ago to treat a urinary tract infection that was similar to penicillin. The patient states that she had a skin rash and swelling of her airway following the injection. Which of the following is the most appropriate antibiotic for this patient?

Choices:

1. Amoxicillin-clavulanate
2. Metronidazole
3. Cefotetan
4. Clindamycin

Answer: 4 - Clindamycin

Explanations:

- The sign and symptoms in this patient are most suggestive of dental abscess. Dental caries, dental trauma, and poor dental hygiene are the most frequent causes of dental abscess. Break down in the protective enamel of teeth allows for oropharyngeal bacteria to enter the tooth cavity (pulp cavity), causing a local infection.
- CT and MRI are sensitive modalities in detecting abscess. Initial workup should include an x-ray of the head and neck and complete blood cell count. X-ray of the head and neck can help identify compression or deviation of the trachea and subcutaneous air related to necrotic tissue.
- Treatment involves draining the abscess, providing antibiotic support, pain control, and removal of infectious tooth sources. Often oral antibiotics with a timely dentist appointment for dental carries intervention is sufficient.
- Clindamycin would be the most appropriate medication to give this patient. Clindamycin has good coverage against gram-positive organisms, anaerobes, beta-lactam resistant organisms, and has good bone penetration. This patient should not be given a cephalosporin. She was likely given ceftriaxone in the past and had a serious reaction. Though cross-reactivity is low for penicillin and cephalosporin allergies, this patient has documented cases for both. Metronidazole can be used to treat a dental abscess but needs to be combined with penicillin to provide sufficient antibiotic coverage for gram-positive organisms. Amoxicillin-clavulanate is an appropriate treatment for dental abscess if the patient does not have an anaphylactic allergic reaction to penicillin.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Dental Abscess

StatPearls Knowledge Base



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Question 33: A 69-year-old woman presents for a cosmetic dental consultation. The patient mentions that every time she smiles, space is seen in the corner of her smile, and that is affecting her social life. She has a past medical history of hypertension, well-controlled on enalapril. On examination, the right first upper premolar is absent. There is a very narrow interdental space, and the remaining palato-labial bone width is decreased. On inquiry, she says this tooth was removed at least 20 years ago due to caries. A one-piece titanium implant without abutment is considered as a treatment option. Which of the following characterizes this device?

Choices:

1. It is placed under the gums
2. The transmucosal portion of its neck should be rough
3. It is protruded over the gum surface
4. It has a size a maximum size of 3.5 mm

Answer: 3 - It is protruded over the gum surface

Explanations:

- Mini implants can be used in the anterior maxilla because of decreased palato-labial bone width or insufficient interdental space that makes the placement of a standard implant not possible.
- Mini implants are protruded over the gum surface when they are placed into the bone.
- They have a one-piece titanium screw. Their head can be a ball or a square, instead of the classic abutment.
- The transmucosal portion of the neck of mini-implants should be smooth and varies in length, depending upon the mucosal thickness of the implant site.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Dental Mini-Implants



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Question 34: A 45-year-old African American woman presents with a two-week history of a brown spot on her mouth. The patient says the spot has been rapidly increasing in size. She denies any associated symptoms. She has a past medical history of type 2 diabetes mellitus, well-controlled on metformin. On examination, there is a 1 x 1.5 cm brown well-circumscribed macula on the left buccal mucosa, in relation to the first and second lower premolars and a part of the first molar. The premolars were recently restored with composite. An incisional biopsy shows clearly defined dendritic melanocytic proliferation contained in an acanthotic epithelium. There is an inflammatory infiltration in the connective tissue. Which of the following is the most appropriate differential diagnosis of this lesion?

Choices:

1. McCune-Albright syndrome
2. Neurofibromatosis
3. Melanotic macule
4. Smokers' pigmentation of the mucosa

Answer: 3 - Melanotic macule

Explanations:

- The differential diagnosis of pigmented oral lesions ranges from various benign entities to rare oral melanoma. Oral melanoacanthoma usually presents as a solitary lesion but in rare instances may be multifocal or diffuse in nature.
- In focal pigmentations, differential diagnoses include melanotic macule, which is most common, followed by melanocytic nevi, and more rarely oral melanoma.
- The differential diagnosis of focal pigmentations also includes amalgam tattoo or focal argiriosis.
- The differential diagnosis of multifocal hyperpigmented melanocytic lesions includes certain conditions, such as HIV, syndromes like Peutz-Jeghers, neurofibromatosis, McCune-Albright syndrome, Addison's disease, Laugier-Hunziker, and some drugs including azathioprine, antimalarials, cytotoxic agents, and contraceptives.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Oral Melanoacanthoma



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Question 35: An 8-year-old girl is brought in by her mother for a dental check-up. She has no past medical history. She has a past dental history of previous restorations in deciduous teeth. On examination, there is gum disease, poor dental hygiene, and there are incipient caries in anterior teeth. Her first permanent molars are fully erupted and show IK type fissures and fossas in their occlusal anatomy. There are no visible caries. Dental professional cleaning, motivation, and hygiene improvement are performed in this visit. A prophylactic technique that involves the application of a physical barrier to prevent the development of caries is recommended for this patient's molars. What is the most appropriate first step in this procedure?

Choices:

1. Teeth cleaning using a handpiece with a dental prophylaxis brush
2. Isolation with a rubber dam
3. Placement of cotton rolls on the opening of parotid ducts
4. Placement of cotton rolls on the mouth floor and the opening of parotid ducts

Answer: 1 - Teeth cleaning using a handpiece with a dental prophylaxis brush

Explanations:

- Pits and fissures are more prone to caries development than smooth surfaces of the tooth due to the morphological complexity of these surfaces.
- Occlusal fissures and fossas are classified according to their anatomy. The IK type is seen as a narrow slit associated with a larger shape at the bottom. This type requires an invasive technique and is known to be very susceptible to caries.
- When performing the sealing of occlusal fissures and fossas, tooth preparation is the first step in the technique; this involves the cleaning of the tooth surface with the use of a contra-angle handpiece with a dental prophylaxis brush.
- After completing tooth preparation, the isolation with a rubber dam is recommended for an effective adhesion achievement when photocurable resin sealants are used.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Pit and Fissure Sealants



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Section 2

Question 36: A 72-year-old male presents with a mass on the lip. The clinician ordered a fine needle aspiration cytology of the mass, which shows uniform basaloid epithelial cells and inner ductal epithelial cells. Which of the following histological subtypes of the likely diagnosis has the worst prognosis?

Choices:

1. Solid
2. Tubular
3. Membranous
4. Trabecular

Answer: 3 - Membranous

Explanations:

- Membranous basal cell adenoma (BCA) has a recurrence rate of 25% while the other growth patterns seldomly recur.
- Membranous BCA is unencapsulated with multiple nests of basaloid cells, palisading peripheral cells, and thick hyaline material surrounding the epithelial islands. It can be multinodular with an invasive growth pattern.
- Basal cell adenoma (BCA) consists of 1.8% to 5% of all salivary gland tumors. The upper lip is the most common site for the lesion of the minor salivary gland. It has a predilection for females, patients in the 7th decade of life, and in western countries.
- BCA can transform into basal cell adenosarcoma or adenoid cystic carcinoma in up to 4.3% of cases. Rarer transformations include adenocarcinoma, salivary duct carcinoma, and myoepithelial carcinoma.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Benign Salivary Gland Tumors



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Question 37: A 60-year-old woman presents to the clinic for sweating at the site of a parotidectomy performed 2 months ago for pleomorphic adenoma. This is intermittent and patchy in nature and appears to be worse with her morning orange juice or with her favorite sour candies. She feels some very small "lumps" immediately in front of her ear at the incision site, but denies pain, formication or numbness, as well as facial weakness. What is the mechanism of action of the first-line treatment for this condition?

Choices:

1. Re-establishment of sympathetic innervation
2. Inhibition of presynaptic release of acetylcholine
3. Down-regulation of acetylcholine receptors
4. Compression of the dead space between the skin flap and the reconstructed area

Answer: 2 - Inhibition of presynaptic release of acetylcholine

Explanations:

- This patient has Frey syndrome, also known as gustatory sweating.
- The pathophysiology of this entity is believed to be aberrant parasympathetic innervation of the sweat glands that are normally innervated by the sympathetic system. This occurs through divided branches of the great auricular nerve.
- While the creation of a surgical barrier between the remaining glandular tissue and the skin offers some prevention and can be used as a therapeutic option, Botox injections remain the gold standard (and first-line) treatment.
- Botulinum toxin exerts its effect by blocking presynaptic acetylcholine release at the level of the neuromuscular and neuroglandular junction. Compression dressings are often used post-parotidectomy, but their association with, or effect on, Frey syndrome remains speculative.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Parotidectomy



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Question 38: A 20-year-old man presents to the clinic complaining of a burning sensation on his tongue. On physical exam, the tongue is noted to be erythematous with atrophic changes of the filiform papillae with a serpiginous white hyperkeratotic border. Which of the following would be likely histological findings in this patient?

Choices:

1. Subepithelial infiltrates with neutrophils forming microabscess, epithelial acanthosis, parakeratosis, and elongation of the rete ridges
2. Subepithelial blister with neutrophilic infiltrate, caterpillar bodies, parakeratosis, and elongation of the rete ridges
3. Subepithelial blister with an eosinophil infiltrate and orthokeratosis
4. Lichenoid infiltrate with elongation of the rete ridges and parakeratosis

Answer: 1 - Subepithelial infiltrates with neutrophils forming microabscess, epithelial acanthosis, parakeratosis, and elongation of the rete ridges

Explanations:

- In geographic tongue histology usually shows subepithelial infiltrate with neutrophils forming microabscess, epithelial acanthosis, parakeratosis, and elongation of the rete ridges.
- In the erythematous area of geographic tongue, histology shows mononuclear subepithelial infiltrates (predominantly CD4+ T-lymphocytes), suprapapillary hypertrophy, and vascular ectasia.
- In geographic tongue, histology can also show acantholysis, glycogen deposits in the epithelial cells, and exfoliation of necrotic cells in the surface layer.
- Geographic tongue is comparable to psoriasis histologically as the subepithelial infiltrate with neutrophils forming microabscesses, epithelial acanthosis, and parakeratosis can be seen in both.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Geographic Tongue



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Question 39: An 82-year-old man with a medical history of emphysema, coronary artery disease, coronary stents, hyperlipidemia, peripheral vascular disease, presents with a left ventral tongue squamous cell carcinoma. He is currently smoking and has smoked for 70 years. On the transoral exam, there is a 3 cm ulcerative lesion of his right ventral and lateral tongue. The palpation of the tumor suggests approximately 6 mm in depth. The inferior border of the tumor extends onto the floor of the mouth and does not involve the mandible. He has no palpable cervical lymphadenopathy. The biopsy of the lesion is consistent with well-differentiated squamous cell carcinoma. Imaging is concordant with the physical exam and shows no distant metastases. Which of the following is the most appropriate reconstruction for this patient?

Choices:

1. Local tissue rearrangement and skin graft
2. Pedicled myofasciocutaneous pectoralis flap
3. Primary closure
4. Fasciocutaneous anterolateral thigh perforator free flap

Answer: 2 - Pedicled myofasciocutaneous pectoralis flap

Explanations:

- The described lesion is staged as a T2N0M0 squamous cell carcinoma of the ventral tongue. Margins will result in partial resection of the floor of the mouth. Depth of invasion greater than 4 mm carries a greater risk of occult metastases. In addition to providing accurate staging information, a significant survival advantage has been shown in elective neck dissection. The appropriate extirpative procedure for this patient is a partial or hemiglossectomy with a floor of mouth resection and modified radical neck dissection. There is no evidence of bone invasion. Mandibulectomy is not indicated in this patient.
- The floor of mouth resection, combined with neck dissection, carries a high risk of salivary fistula. Given the patient's age and serious comorbid conditions, the length of procedure and risk of flap failure should be considered in light of his comorbidities. He is also currently smoking. Though a free flap might be more appropriately sized and allow more degree of manipulation, a pedicled pectoralis flap is favored over free tissue transfer in this particular patient.
- A fasciocutaneous anterolateral thigh (ALT) perforator flap is not unreasonable in this case, as many head and neck reconstruction surgeons may argue it is a viable reconstructive option. With the smoking history, vasculopathy, age, and serious comorbid conditions, a pectoralis flap might be preferred. The ALT is a free tissue transfer based on the descending branches of the lateral circumflex femoral artery. It is a workhorse flap with low donor site morbidity.
- Without reconstruction, there is a high likelihood of a salivary fistula. Tissue rearrangement might successfully close the fistula. However, there would still be a significant lack of bulk in the oral cavity resulting in the pooling of saliva and food in the void created by the glossectomy. Primary closure would entail closing the free end of the hemiglossectomy to the floor of the mouth. While this might close the fistula, it will tether the functional remnant tongue and thereby render it relatively immobile. There would also be a significant lack of bulk in the oral cavity that would have aided speech and swallowing.

Reconstruction with a free tissue or a locoregional flap can address the fistula and provide bulk to the glossectomy defect.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Glossectomy



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Question 40: A 43-year-old woman presents with a new left-sided neck mass and pain. She states she had a history of a left submandibular cancer that was resected eight years ago. Fine needle aspiration of the mass showed non-continuous carcinoma cells with a "swiss-cheese" like appearance and perineural invasion. What is the most likely condition?

Choices:

1. Mucoepidermoid carcinoma
2. Adenoid cystic carcinoma
3. Acinic cell carcinoma
4. Squamous cell carcinoma

Answer: 2 - Adenoid cystic carcinoma

Explanations:

- Adenoid cystic carcinoma (cribriform variant) presents with a “swiss-cheese” appearance containing cylindrical pseudocysts lined with epithelial cells and filled with hyaline material.
- Adenoid cystic carcinoma tends to be more common in the submandibular gland for women. Regional metastasis from submandibular adenoid cystic carcinoma is more common compared to other major salivary glands due to the proximity of the draining lymph nodes.
- Adenoid cystic carcinoma has an indolent growth pattern and can recur beyond five years after initial treatment.
- Adenoid cystic carcinoma has an affinity for perineural invasion and skip lesions that present with pain and non-continuous nets of tumor cells on pathology.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Malignant Salivary Gland Tumors



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Question 41: A 12-year-old boy is brought to the clinic for evaluation of an elevated, red lesion on the buccal mucosa which has been present since infancy. The lesion is stable in size, is painless, and is not bleeding. As the patient finds the lesion bothersome while eating and drinking, he is prescribed the first-line medical therapy with a follow-up appointment scheduled in 2 weeks. Which of the following side effects is most likely to occur with this medication in this patient?

Choices:

1. Hypertension
2. Transaminitis
3. Hypoglycemia
4. Changes in mood

Answer: 3 - Hypoglycemia

Explanations:

- Beta-blockers, such as propranolol, are the first-line medical therapy for the treatment of oral hemangiomas (OHs). Patients are typically initiated on a regimen of propranolol 2-3 milligrams per kilogram per day divided into three doses, with improvement in OH appearance noted within 1-2 days after therapy begins.
- Throughout the duration of beta-blocker therapy, patients should be monitored for side effects including bradycardia, hypotension, hypoglycemia, and bronchospasm.
- Prednisone is an alternative medical therapy for the treatment of OHs but is less preferred due to potential side effects, including hypertension, persistent hyperglycemia, changes in mood, and growth restriction.
- For patients with OHs resistant to beta-blockers and steroids, interferon-alpha has been suggested as a treatment but is generally not preferred due to the risk of spastic diplegia, neutropenia, thrombocytopenia, and hepatic toxicity.

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Research Concepts:

Oral Hemangiomas



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Question 42: A 5-year-old girl is brought to the emergency room after she was found chewing on an electrical wire at home. A burn is noted on the left oral commissure and adjacent lips. The child's parents deny any loss of consciousness or witnessed seizure. On physical examination, no additional burns or signs of trauma are noted on the child's body. Which of the following is the most likely complication necessitating close follow-up for this child, following discharge from the hospital?

Choices:

1. Ventricular fibrillation
2. Respiratory arrest
3. Severe hemorrhage
4. Compartment syndrome

Answer: 3 - Severe hemorrhage

Explanations:

- Pediatric patients may present with oral burns as a result of biting or sucking on an electrical wire or appliance. An electric arc often forms between one side of the mouth to the other, whereby there may be involvement of the orbicularis oris muscle, or potential deformation of the lip if the burn crosses the oral commissure (corners of the mouth).
- There may be a significant amount of associated edema, as well as eschar formation within 2 to 3 days of an electrical burn to the mouth. If the eschar involves the labial artery, there may be severe bleeding when the eschar falls off after 2 to 3 weeks.
- If the pathway of electrical current following contact with an electrical source through the body crosses the thorax, there is a risk of cardiac arrest or arrhythmias, and chest wall muscle paralysis with concomitant respiratory arrest.
- Electrical injuries can be separated based on low- or high- voltage injuries, where a threshold of 500 to 100 volts (V) is generally used and considered high. Household electricity in the United States where household wires and appliances are generally set at 110 V, though some high-power appliances may be set as high as 240 V. In comparison, industrial and high-tension electrical power lines can be set at greater than 100,000 V.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Electrical Injuries





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Question 43: A 19-year-old man presents because he does not like his front teeth. He has no past medical or dental history. On examination, there are no caries or gum disease. He denies any thumb sucking during childhood or nail-biting. On examination of the occlusion, the upper incisors occlude behind the lingual aspect of the lower teeth. The profile is straight in centric occlusion and centric relation. There is a class I molar and canine relation. SNA, SNB, and ANB angles are within normal limits. Which of the following is the most likely cause of this patient's presentation?

Choices:

1. Skeletal discrepancy
2. Caries in deciduous dentition
3. Abnormal axial dental inclination
4. Early extraction of deciduous incisors due to caries

Answer: 3 - Abnormal axial dental inclination

Explanations:

- A crossbite is a discrepancy in the buccolingual relationship of the upper and lower teeth. In a dental anterior crossbite, one or more teeth are involved.
- Anterior crossbite is present when one or more of the upper front teeth are in a linguo-occlusal relation with the lower.
- The profile is straight in centric occlusion and centric relation. Class I molar and canine relation can be seen. SNA, SNB, and ANB angles are within normal limits. It can be due to abnormal axial dental inclination.
- The correction of an anterior crossbite in adolescents and adults can be achieved by fixed appliances that are used to correct single or multiple tooth crossbite. And the use of temporary anchorage devices (TADs).

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Posterior Crossbite



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Question 44: A 36-year-old male presents with to the emergency department with a 3 cm laceration superior to the left upper lip. The patient's past medical history is remarkable for acne and a recent diagnosis of facial cellulitis over the inferior border of the left infraorbital ridge. What is the best approach for repair of this laceration?

Choices:

1. Insert the needle through the skin and inject anesthetic over the inferior border of the left infraorbital at the infraorbital foramen.
2. Insert the needle through the buccal mucosa parallel to the left bicuspid tooth until near the infraorbital foramen and inject the anesthetic.
3. Insert the needle at the borders of the laceration and inject anesthetic all around the lesion.
4. Provide general anesthesia before repair of laceration.

Answer: 2 - Insert the needle through the buccal mucosa parallel to the left bicuspid tooth until near the infraorbital foramen and inject the anesthetic.

Explanations:

- Overlying skin infection is a contraindication to the extraoral approach of a nerve block.
- The intraoral approach is most commonly used for infraorbital nerve blocks.
- Infraorbital nerve blocks are preferred for cases in which the area of involvement is large and innervated by one nerve.
- Nerve blocks are useful in cases when general anesthesia is contraindicated or not the preferred method of repair.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Infraorbital Nerve Block



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Question 45: A 16-year-old boy with his father presents to the emergency department with complaints of fever and neck pain for 24 hours. He recently had an episode of tonsillitis. He looks to be in severe distress with saliva drooling from his mouth. His father reports that he is unable to open his mouth and he is having muffled speech today. On examination, the temperature is 102 F (38.8 C), the pulse is 105/min, and the respiratory rate is 21/min. Pulse oximetry shows 97% saturation on room air. His uvula has deviated to the right side and left-sided cervical lymphadenopathy is noted. There is no organomegaly on abdominal examination. The chest examination is unremarkable. What is the next best step in this patient?

Choices:

1. Oral antibiotics alone
2. Needle aspiration followed by antibiotics
3. Intravenous antibiotics alone
4. Endotracheal intubation

Answer: 2 - Needle aspiration followed by antibiotics

Explanations:

- This patient is most likely suffering from a peritonsillar abscess. Unilateral lymphadenopathy along with uvular deviation strongly suggests the diagnosis of peritonsillar abscess.
- Needle aspiration should be done immediately and pus should be sent for culture. Antibiotics should be given according to cultural sensitivity.
- Incision and drainage should be done if no improvement with needle aspiration.
- Endotracheal intubation is not needed in this patient with a normal saturation level. Endotracheal intubation should be done if signs of impending respiratory failure are present.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Peritonsillar Abscess



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Question 46: A 22-year-old male patient came to a dental clinic with a complaint of severe pain. He revealed a history of mandibular third molar extraction three days back. On examination, the extraction socket was found to be extremely tender, and the blood clot was necrotic and foul-smelling as well. There was no fever and no lymphadenopathy. What should be the treatment of choice?

Choices:

1. Curettage of socket
2. Vigorous irrigation of socket followed by placement of medicated dressing and suturing
3. Mild irrigation of socket followed by placement of medicated dressing
4. Administer antibiotics and analgesics

Answer: 3 - Mild irrigation of socket followed by placement of medicated dressing

Explanations:

- The patient in the present case is suffering from the dry socket (localized osteitis). It is one of the post-extraction complications.
- It commonly occurs after traumatic extractions in the mandibular molar area.
- The treatment involves only palliative care. The socket is gently irrigated to remove debris, and a sedative dressing is placed.
- Dressings are to be changed until the pain subsides, and secondary healing starts.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Dental Infection Control



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Question 47: An 18-year-old woman presents to the clinic with a 4-week history of jaw pain and difficulty swallowing. She also reports a gradual onset of bilateral temporal headache from the last 2 weeks. She denies any recent infections, blurry vision, double vision, changes in hearing, shoulder pain, fevers, or chills. Physical exam reveals a decreased range of motion at the jaw and facial tenderness. Plain radiography of the face does not reveal any fractures or dislocations. What is the best next step in the management of this patient?

Choices:

1. Self-care and patient education
2. Behavioral therapy
3. Corticosteroids
4. Surgical release

Answer: 4 - Surgical release

Explanations:

- Based on the current presentation the likely diagnosis is temporomandibular disorder (TMD). First-line therapy in management is self-care and patient education which includes jaw rest, soft diet, moist warm compresses, and passive stretching exercises.
- NSAIDs can also help in the alleviation of symptoms and can provide comfort to the patient which is of inflammatory nature and can produce a relaxing effect.
- For muscle spasm and chronic bruxism, muscle relaxants or benzodiazepines may be necessary if conservative relaxation techniques fail.
- Behavioral management can be considered as adjunctive therapy in patients with comorbid anxiety or depression.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Temporomandibular Joint Syndrome



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Question 48: A 55-year-old man has caries involving the right upper premolars. He is being planned for teeth extraction after anesthetizing by a high tuberosity approach. What is a useful landmark in anesthetizing the maxillary nerve using this approach?

Choices:

1. Mucobuccal fold
2. The vertical plate of the palatine
3. Tip of the mastoid process
4. Medial pterygoid plate

Answer: 1 - Mucobuccal fold

Explanations:

- Using the high tuberosity approach, one can block the nerve as it passes through the pterygopalatine fossa.
- With the mouth open, one aims towards the highest point on the mucobuccal fold, just distal to the second maxillary molar tooth.
- The other approach uses the greater palatine canal. The canal is located just adjacent to the second molar tooth.
- The coronoid approach is best made with imaging.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Ablative Nerve Block



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Question 49: A 68-year-old man presents with swelling on the right side of the face. He has a past medical history of early-onset dementia, bone cancer with kidney metastasis, for which he underwent radiotherapy, nephrectomy, and treatment with interferon and intravenous pamidronic acid. On examination, there is indurated edema and an oro-cutaneous fistula near the inferior border of the mandible on the same side. On intraoral examination, the patient is edentulous from premolars towards posterior. There is bone exposure and purulent discharge at the level of the lower right third molar. Which of the following blood test findings would most likely increase the risk of developing this patient's condition?

Choices:

1. C-terminal telopeptide (CTX) level less than 100 pg/ml
2. CTX level of 100 to 150 pg/ml
3. CTX level of 150 to 200 pg/ml
4. CTX level higher than 200 pg/ml

Answer: 1 - C-terminal telopeptide (CTX) level less than 100 pg/ml

Explanations:

- The C-terminal telopeptide (CTX) is used to assess the risk of developing bisphosphonate-related osteonecrosis of the jaw (BRONJ). It depicts the level of octapeptide fragment released due to osteoclastic bone resorption from type I bone collagen.
- CTX levels are related to the number of osteonecrosis of the jaw lesions and stage of the disease. It is an index of bone turnover.
- Lower levels represent a high-risk patient with suppressed bone turnover and reduced healing capacity.
- A CTX level less than 100 pg/ml represents a high risk; 100 to 150 pg/ml represents a moderate risk, and greater than 150 pg/ml represents minimal or no risk.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Bisphosphonate Related Jaw Osteonecrosis



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Question 50: A 19-year-old boy presents with the complaint of having a painless swelling inside the mouth for 5 months. The lesion started to develop after having dental extraction and was initially minute in size, later progressing and interfering with swallowing. On examination, there is a 5x4 cm non-tender swelling on the floor of the mouth, having a bluish tinge. It is soft to firm in consistency and fluctuant and does not cross the midline. Which of the following treatment options has the least recurrence rate?

Choices:

1. Marsupialization
2. Complete surgical excision along with the associated gland
3. Intralesional streptococcal preparation: OK432
4. Incision and drainage

Answer: 2 - Complete surgical excision along with the associated gland

Explanations:

- The recurrence rate with complete excision of the lesion along with the offending gland is 0-2%.
- The recurrence rate with marsupialization only is 60-80%.
- The recurrence rate with Incision and drainage is 70-100%.
- Intralesional streptococcal preparation: OK432 has a variable success rate and is being experimented.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Mucocele And Ranula



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Question 51: A 78-year-old woman with metastatic colon cancer presents to the clinic with ongoing pain in her jaw for the last 3 weeks. She is an ex-smoker, stopped 10 years ago, she smoked for 25 years. She takes an angiotensin-converting enzyme inhibitor (ACEI) and a B blocker for hypertension, she is also on statins for hypercholesteremia, she has been using paracetamol and codeine for her pain with little benefit. She also receives IV zoledronic acid infusion every 3 months in the oncology outpatients. Her vitals are temperature: 37.6, blood pressure 98/65 mmHg, pulse rate: 107 beats per minute, respiratory rate: 17/min, O2 saturation: 97%. Radiologic assessment and examination of the oral cavity showed poor dentition with evidence of inflamed gum and exposed bone. What is the most appropriate first step in the management?

Choices:

1. Surgical debridement of the affected tissues
2. Discontinuation of bisphosphonates
3. Prolonged course of IV antibiotics
4. Regular daily use of chlorhexidine mouthwash

Answer: 2 - Discontinuation of bisphosphonates

Explanations:

- Prevention is a key strategy in managing osteonecrosis of the jaw.
- Regular dentist review, especially for high-risk patients is of great value too.
- Surgery can be considered for advanced cases and when conservative approach fails.
- A course of antibiotics can be given if infection is suspected.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Bisphosphonate Toxicity



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Question 52: A 42-year-old African American female undergoes a biopsy for a pigmented oral lesion that she noticed six weeks ago. Histology demonstrates dendritic melanocytes in the spinous layer, acanthosis, and spongiosis. Which of the following may be associated with this lesion?

Choices:

1. Bruxism
2. Smoking
3. An underlying auto-immune disorder
4. A metal dental implant placed many years ago

Answer: 1 - Bruxism

Explanations:

- Oral melanoacanthoma is found at any age but most commonly in the 3rd to 4th decade of life and affects blacks disproportionately. Females are 3-4 times more likely than males to have the lesion. It is associated with trauma to the oral cavity and has been associated with bruxism and dental agents.
- Smokers may have hyperpigmentation that is diffuse and called "smoker's melanosis." It most commonly affects lips and gingiva and is distinct from oral melanoacanthoma. Smoker's melanosis is associated with periodontal deterioration.
- While oral melanoacanthoma is often reactive, as evidenced by eosinophils on histology. It has not been associated with an autoimmune disorder. Addison's disease, on the other hand, which may autoimmune, is related to oral hyperpigmentation.
- While dental implants have been associated with oral melanoacanthoma, they are more likely to be associated with amalgam deposits, which appear blue or grey in appearance, and are seen on buccal x rays. If she had a dental implant recently, that would be more suspicious to be potentially associated with her oral melanoacanthoma.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Oral Melanoacanthoma



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Question 53: A 33-year-old woman is being considered for submandibular gland excision via a transcervical approach. She has a history of recurrent sialadenitis of her left submandibular gland with a 1.1 cm calculi within the submandibular duct just adjacent to the gland. She is counseled about the risk of injury to the marginal mandibular nerve during surgery. If she proceeds with submandibular gland excision, what is the most appropriate incision to both decrease injury to the marginal mandibular nerve and avoid cosmetically unacceptable results?

Choices:

1. A 2 cm transverse incision over the inferior border of the mandible
2. A 1 cm longitudinal incision centered 2 cm inferior to the mandible
3. A 2 cm transverse incision 2 cm inferior to the border of the mandible
4. A 1 cm longitudinal incision at the posterior edge of the submandibular gland

Answer: 3 - A 2 cm transverse incision 2 cm inferior to the border of the mandible

Explanations:

- When making an incision in the neck for submandibular gland excision, a 2-3 cm transverse incision should be made within a rhytid skin crease in accordance with relaxed skin tension lines for superior cosmetic results.
- When making an incision in the neck for submandibular gland excision, the transverse incision should be placed between one to two centimeters inferior to the inferior border of the mandible. This both allows for adequate exposure as well as avoids inadvertent injury to the marginal mandibular nerve as it passes over the anterior aspect of the submandibular gland within the superficial layer of the deep cervical fascia.
- Well planned placement of the skin incision for submandibular gland excision is critical for adequate exposure in order to protect important structures as well as to avoid unacceptable cosmetic results.
- For submandibular gland excision, longitudinal incisions are not preferred as they do not follow relaxed skin tension lines and provide cosmetically inferior results. Longitudinal incisions also are likely to increase injury to the marginal mandibular nerve as they lie perpendicular to the plane of this nerve.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Submandibular Excision





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Question 54: A 65-year-old man currently on azathioprine therapy for the management of Crohn disease presents to the clinic with odynophagia, weight loss, and a nonhealing ulcer on the soft palate of his mouth. Biopsy of this lesion demonstrates surface ulceration with an infiltrate of atypical lymphoid cells, and a rim of reactive T-cells. His immunosuppressive medication is discontinued, and the lesion completely resolves. What is the pathophysiology for the localization of this entity?

Choices:

1. The localization of this entity is related to an acute EBV infection in associated lymphoid tissues
2. The propensity for localization is thought to be related to the initial site of viral inoculation and the subsequent persistence of latent EBV in associated lymphoid tissues
3. The localization of this entity is associated with EBV viremia and can lead to systemic involvement
4. In immunocompromised individuals, the cytotoxic T-cells are able to manage the EBV induced B cell proliferation and keep the virus in a dormant state in the skin and mucosa

Answer: 2 - The propensity for localization is thought to be related to the initial site of viral inoculation and the subsequent persistence of latent EBV in associated lymphoid tissues

Explanations:

- Epstein Barr virus (EBV) positive mucocutaneous ulcer typically presents with isolated, sharply well-circumscribed ulcerations on the oropharyngeal mucosa (52%), on the skin (29%), or the gastrointestinal tract (19%).
- The propensity for localization to the oropharynx and gastrointestinal tract is thought to be related to the initial site of viral inoculation and the subsequent persistence of latent EBV in associated lymphoid tissues (i.e., Waldeyer's ring and gut-associated lymphoid tissue).
- In the immunocompetent individual, the cytotoxic T-cells can manage the EBV induced B cell proliferation and keep the virus in the dormant state. In immunosuppressed patients with EBV positive mucocutaneous ulcers, the immune system is only able to keep the virus in a dormant state systemically. Thus, exposure to a site restricted immune-modulating factor can lead to a localized EBV driven lymphoproliferation.
- Typically the clinical course is waxing and waning, with worsening of lesion associated tissue damage when iatrogenic immunosuppression is maintained or increased. However, most cases of EBV positive mucocutaneous ulcers have a benign course and respond well to conservative management. In these cases, the patients are reported to have complete remission either spontaneously or in response to the reduction of their immunosuppressive therapies.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

EBV Positive Mucocutaneous Ulcer

StatPearls Knowledge Base



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Question 55: A 45-year-old woman presents with a one-year history of discomfort with her current dental prosthesis. She reports eating difficulty due to the movement of the dental bridge, and for that reason, she would like a more stable and permanent solution. She has a past medical history of hypertension and a past dental history of caries and gingivitis that have been controlled. On examination, there is a Maryland bonded bridge replacing her lower left lateral incisor using porcelain wings. The patient is instructed to occlude, and the bridge destabilizes. The edentulous alveolar ridge has insufficient bone density and narrow interdental space for the placement of a standard implant. A 2.4 mm one-piece titanium implant is considered as a treatment option. When placing the implant, in which of the following situations could a flapless technique be used?

Choices:

1. Narrow alveolar ridge
2. Narrow alveolar ridge of extensive soft tissue
3. The adjacent teeth are rotated inwards toward the midline
4. Sufficient width of the alveolar ridge

Answer: 4 - Sufficient width of the alveolar ridge

Explanations:

- Mini dental implants are made of one piece; without the abutment; instead, they have a round head for denture stabilization or a square prosthetic head for fixed application.
- Mini implants can be considered for patients who express dissatisfaction with conventional dentures and are not candidates for the placement of standard implants.
- A flapless transgingival approach for the pilot drill can be used when there is sufficient width of the ridge.
- When a narrow ridge of extensive soft tissue is present, a minimal flap (crestal incision) is recommended to reveal the bone. This would allow the exact placement of the implants at the correct angulation in the bone.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Dental Mini-Implants



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Question 56: A 33-year-old woman is scheduled for elective surgery. The patient is already prepped and draped, and the surgeon has the scalpel in his hand. He is anxious to complete the surgery quickly since this is his fifth surgery of the day. During the time-out, the patient states that she does not want to be resuscitated if an emergency develops, but she has not documented previously this wish. The surgeon should next do which of the following?

Choices:

1. Say that there are witnesses so no further documentation needs to be performed
2. Stop the procedure and have the patient document her wishes for end of life care on the corresponding state scope of treatment form
3. Call the hospital ethics committee chairperson to serve as a witness prior to proceeding with the surgery
4. Allow the surgery to proceed and afterwards have the patient document her wishes for end of life care on the corresponding state scope of treatment form

Answer: 2 - Stop the procedure and have the patient document her wishes for end of life care on the corresponding state scope of treatment form

Explanations:

- Communication failure is one of the most common causes of medical error.
- A time-out is a key safety tool that is often required for any procedure. It involves confirmation of patient and procedure, and it allows members of the healthcare team to ask questions if they need clarification.
- Although some states have statutes (such as Indiana) that clarify that a patient's spoken wishes in the presence of a physician witness are adequate for defense of a physician's treatment, other states (such as Kentucky across the Ohio River) do not. A physician should not proceed without knowing the law in the state of practice unless he/she is willing to allow the issue to be determined by a court after the fact.
- Non-emergent procedures should be delayed in order to follow hospital or higher authority ethical and legal precautions.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Medical Ethics



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Question 57: A 17-year-old girl presents 40 minutes after falling and hitting her teeth against the floor while ice skating. The patient's upper incisor was totally dislodged from its socket during the incident. The patient says she lifted the tooth up and kept it in her mouth all this time. The tooth remained intact, and the reimplantation is done. What is the most likely complication after this procedure?

Choices:

1. Infection
2. Loss of vitality
3. Root reabsorption
4. Ankylosis

Answer: 2 - Loss of vitality

Explanations:

- The major complication faced with the reimplantation of avulsed teeth is ankylosis, in which there is periodontal dental ligament (PDL) loss, and the tooth fuses to the alveolar bone.
- Ankylosis can be problematic if the patient is growing as the surrounding structures will continue to develop, and the tooth will look submerged.
- There is a high risk of loss of vitality especially if the apex has completely developed.
- If this goes unrecognized, a periapical abscess may develop and can complicate the healing process and prognoses.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Avulsed Tooth



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Question 58: A 30-year-old man is referred to the hospital by a general dentist after he attempted to extract the patient's lower right first molar. Intraoral examination reveals a right mandibular body fracture in socket place and restricted mouth opening. On radiographic examination, an unfavorable mandibular right body fracture, including buccal and lingual plates, is noted along with a root piece remaining in the extraction site. Which of the following nerves is most likely to be damaged as a result of intraoral surgery for this patient?

Choices:

1. Lingual nerve
2. Mental nerve
3. Nerve to mylohyoid
4. Inferior alveolar nerve

Answer: 2 - Mental nerve

Explanations:

- Surgical management, i.e. open reduction and internal rigid fixation (IRF), can be done using an intraoral or extraoral approach.
- During an intraoral approach, there are chances of injuring the mental nerve.
- Simple and fractures in the anterior segment with no or only slight dislocation should preferably be treated using an intraoral approach.
- Since the incision is placed in the vestibular region approximately 5 to 7 mm below the mucogingival junction in order to facilitate closure, care must be taken to avoid injuring the mental nerve.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Mandible Body Fracture



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Question 59: A 35-year-old man presents because he feels uncomfortable with the appearance of his gums. He has a past medical history of type 1 diabetes mellitus and hypertension, managed by a bi-basal insulin regime and amlodipine. On examination, there is a smooth gingival enlargement, more significant in the anterior maxillary zone. There is dental plaque accumulation, but no caries. What is the most likely histopathology of this condition?

Choices:

1. Fibroblastic proliferation, well-organized columns of collagen fibers and granulation tissue
2. Accumulation of extracellular matrix-like collagen with varying amounts of inflammatory infiltrates, predominantly plasma cells
3. Well-organized columns of collagen and elastic fibers are seen interspersed with penetrating epithelial ridges
4. Accumulation of extracellular matrix-like collagen, fibroblastic proliferation, and granulation tissue

Answer: 2 - Accumulation of extracellular matrix-like collagen with varying amounts of inflammatory infiltrates, predominantly plasma cells

Explanations:

- In drug-induced gingival overgrowth, the target cell is the gingival fibroblast.
- The pathology lies in the connective tissue and not the epithelial cells of the gingiva.
- Histopathology reveals excessive accumulation of extracellular matrix-like collagen with varying amounts of inflammatory infiltrates, predominantly plasma cells.
- Fibroblastic proliferation may not be evident. Erratic columns of collagen fibers are seen interspersed with penetrating epithelial ridges.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Drug Induced Gingival Overgrowth



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Question 60: A 35-year-old female presents to the office with complaints of a mass on her left nasal ala. The mass first appeared as a small swelling 3 years ago, but it has progressively increased in size, forming a well-circumscribed mass. The patient denies any discharge, bleeding, pain, or any history of trauma. A biopsy is performed. The pathology report shows a lobular pattern of epithelioid cells that stain positive for CD10 and NK1/C3 and stain negative for S-100. What is the most appropriate treatment for the patient's suspected diagnosis?

Choices:

1. Complete surgical excision
2. Radiotherapy
3. Cryotherapy
4. Chemotherapy

Answer: 1 - Complete surgical excision

Explanations:

- This patient most likely has a cellular neurothekeoma. Neurothekeomas are rare, benign, superficial, soft tissue tumors of unknown histogenesis.
- The recommended treatment for neurothekeoma is complete surgical excision.
- There is no consensus on excision margin, but clear microscopic margins and a few millimeters of grossly negative margins are thought to be sufficient.
- Regardless of the presence of atypical features, reported recurrence rates remain low following complete surgical excision.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Neurothekeoma



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Question 61: A newborn infant male is evaluated for abnormal facies. The mother had routine prenatal care with no complications, and the baby was born at term. She missed two antenatal ultrasound scans because she did not want to know the gender of the baby. On examination, the infant has a flat and broad nose and a vertical groove down the center of the nose. His eyes are widely set, and there are no indications of visual deficits or impaired nasal breathing. What developmental disruption is the most likely cause of this presentation?

Choices:

1. Incomplete fusion of the medial nasal prominences
2. Hyperplasia of the inferior frontonasal prominences
3. Unilateral failure of the maxillary, medial, and lateral nasal prominences to fuse
4. Incomplete lateral merging of the maxillary and mandibular processes

Answer: 2 - Hyperplasia of the inferior frontonasal prominences

Explanations:

- During the first eight weeks of gestation, the mesenchyme condenses and forms five prominences: two mandibular, two maxillary, and a frontonasal prominence. The frontonasal prominence forms the precartilagenous nasal capsule, which develops as two masses around the forming nasal cavities.
- The maxillary prominences grow and fuse at the midline forming the lateral nasal prominences. As the frontonasal prominence regresses and the maxillary prominence grows medially, they form the midline of the nose and philtrum of the upper lip.
- Hyperplasia of the frontonasal prominences prevents fusion of the medial nasal prominences causing frontonasal dysplasia, which results in wide-set eyes, a broad and flat nose, and a vertical median groove along with the nose.
- Incomplete lateral merging of the maxillary and mandibular processes causes macrostomia. Incomplete fusion of the medial nasal prominences creates median cleft lip and palate. Failure of the maxillary, medial, and lateral nasal prominences to fuse would cause oblique facial cleft.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Anatomy, Head and Neck, Nose



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Question 62: A 19-year-old boy presents with the complaint of having a painless swelling inside the mouth for 4 months. The lesion started to develop after the visit to the dentist and was initially small in size, later progressing and interfering with speech. On examination, there is a 5x4 cm non-tender swelling in the floor of the mouth, having a bluish tinge. It is soft to firm in consistency and fluctuant and does not cross the midline. Which of the following treatment options is considered the best for this disease?

Choices:

1. Surgical excision along with the associated gland
2. Marsupialization
3. Aspiration
4. Injection with streptococcal preparation: OK432

Answer: 1 - Surgical excision along with the associated gland

Explanations:

- Oral ranulas often form secondary to trauma.
- Ranulas mostly arise on the floor of the mouth and are of major salivary gland origin.
- Surgical excision with the associated gland is the best treatment of choice because of the least recurrence rate.
- Some clinicians prefer marsupialization before embarking on the surgery, but the recurrence rate with marsupialization is sky-high. Therefore, surgical excision is now considered the best option for the treatment of mucoceles and ranulas.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Mucocele And Ranula



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Question 63: A 35-year-old woman presents with a two-day history of a strange feeling in her mouth. She has a 15 pack-year smoking history. All her vital signs are within normal limits. On oral examination, there is a painless white plaque on the dorsal aspect of her tongue, which is easily scraped off and exhibits an erythematous, and bleeding base. Which of the following is a risk factor for the development of this patient's condition?

Choices:

1. Seizure disorder
2. Hypertension
3. Corticosteroid inhaler use
4. Multiple dental caries

Answer: 3 - Corticosteroid inhaler use

Explanations:

- Oral candidiasis or thrush is an infection of the oral cavity caused by *Candida albicans*. While oral thrush is common in infants, adults with oropharyngeal candidiasis usually have an underlying cause.
- Oral candidiasis is generally secondary to immune suppression, which can relate to a patient's oral cavity or systemic immunosuppression. An example of local immunosuppression is the use of inhaled corticosteroids (often in the preventive treatment of asthma and chronic obstructive pulmonary disease).
- This immunosuppression has been found to be dose-dependent. For this reason, patients using such medications are instructed to rinse their mouth with water after each use.
- Immunosuppression such as diabetes mellitus, smoking, dentures, steroid use, malnutrition, vitamin deficiencies, and recent antibiotic use often also leads to the disease.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Oral Candidiasis



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Question 64: A 25-year-old male college student presents to the clinic with a complaint of generalized oral pain and bad breath. With the stresses of college, his oral hygiene, sleep, and nutrition practices are all lacking. Upon oral examination, tissue necrosis, and spontaneous bleeding are noticed. However, no periodontal destruction is evident. According to the 2017 American academy of periodontology (AAP) classification system, which subset of necrotizing periodontal diseases is this patient most likely experiencing?

Choices:

1. Necrotizing ulcerative gingivitis (NUG)
2. Necrotizing ulcerative periodontitis (NUP)
3. Necrotizing ulcerative stomatitis (NUS)
4. Noma (Cancrum oris)

Answer: 1 - Necrotizing ulcerative gingivitis (NUG)

Explanations:

- NUG is used to describe the oral condition where the ulceration of the tissue is limited to the gingiva.
- NUG is also associated with symptoms such as pain, halitosis, and spontaneous bleeding.
- The 2017 classification system classifies the subsets of NPD based on the extent and site of damage.
- NUP is the classification used when the disease extends beyond the gingiva, and destruction of the underlying supportive structure, the periodontium, is noted.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Necrotizing Periodontitis



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Question 65: A patient is noted to have a short palate that allows a nasal escape on phonation. Which palatoplasty technique will address the cleft palate and this structural and functional issue?

Choices:

1. Maxillary alveolar advancement
2. Furlow double Z-plasty
3. Millard rotation-advancement
4. Straight-line palatoplasty

Answer: 2 - Furlow double Z-plasty

Explanations:

- The patient has velopharyngeal insufficiency (VPI) due to a shortened palate.
- To treat the VPI, the patient needs both a repair of the cleft, but also lengthening of the palate.
- A Furlow double Z-plasty not only closes the cleft but uses the rotational Z-plasty technique to increase palatal length.
- The Millard rotation-advancement is for the repair of cleft lip. The straight-line palatoplasty allows for closure of a cleft but does not lengthen a short palate. Maxillary alveolar advancement is not an intervention that would close a cleft palate.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Cleft Palate



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Question 66: A 56-year-old man is brought in to the hospital after being involved in a motor vehicle collision. He was an unrestrained driver who flew head-first into his windshield. He is medically stabilized, and a non-contrast CT of the head reveals a 4 mm depressed posterior table fracture with an associated subdural hematoma. Based on the maximal metric dislocation classification system, to what category does this patient's injury belong?

Choices:

1. Type A
2. Type B
3. Type C
4. Type D

Answer: 3 - Type C

Explanations:

- The patient has a 4 mm fracture, which falls into the type C category. These usually require surgical repair, likely craniectomy in this case, especially if there are associated local injuries like a subdural hematoma. Craniectomy requires the removal of all frontal sinus mucosa as well as the posterior table. Care must be taken to remove all mucosa to prevent mucocele formation. Type B injuries have 0 to 2 mm displacement and require surgical repair if there are associated injuries.
- A type C fracture, as seen in this patient, has a 2 to 5 mm displacement and can be observed if there are no associated injuries. The patient's subdural hematoma is considered a local injury, and neurosurgery should be consulted for evaluation of the hematoma.
- The patient should be managed in the intensive care unit, and serial neurologic exams should be performed every hour to assess for clinical deterioration.
- Type D injuries have over 5 mm displacement and are always treated surgically. Type A fractures are managed by observation.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Frontal Sinus Fractures



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Question 67: A 36-year-old man is undergoing excision of a left submandibular gland for a pleomorphic adenoma. The surgeon retracts the gland superiorly, identifies the tendon of the posterior belly of the digastric muscle, and begins following this muscle posteriorly. As the surgeon dissects posteriorly superficial to this muscle, which of the following structures is most likely to be encountered?

Choices:

1. Facial vein
2. Marginal mandibular nerve
3. Superior thyroid artery
4. Hypoglossal nerve

Answer: 1 - Facial vein

Explanations:

- The facial vein is a branch off of the internal jugular vein that transverses through the submandibular space near the posterior aspect of the submandibular gland.
- Unlike many other important structures vulnerable to injury during surgery within the submandibular space, the facial vein lies superficial to the posterior belly of the digastric muscle.
- Care must be taken when dissecting posteriorly along the anterior belly of the digastric within the submandibular space so that the facial vein may be identified, isolated, and ligated to prevent bleeding.
- The digastric muscle lies superficial to many important structures in the superior neck and may be used as a landmark in order to protect these structures, which include the hypoglossal nerve, the lingual nerve, and branches off of the external carotid artery. However, the facial vein transverse superficial to the digastric muscle and is often encountered during submandibular dissection.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Submandibular Excision



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Question 68: A 15-year-old male presents to the dentist for a tooth extraction. Before the procedure, the dentist applied lidocaine to the gingival mucosa. Preoperative vitals showed a blood pressure of 140/94 mmHg, a pulse of 88/minute, and a respiratory rate of 15/minute. The procedure was successful, and the tooth was removed without complications. Five minutes post-operation, the patient complains of a pruritic rash and difficulty breathing. New vitals show a blood pressure of 80/40 mmHg, a pulse of 166/minute, and a respiratory rate of 18/minute. Upon examination, there is a new urticarial rash located on the patient's face. What is the best initial treatment to give this patient?

Choices:

1. Diphenhydramine
2. Lipid emulsion
3. Intravenous fluids
4. Epinephrine

Answer: 4 - Epinephrine

Explanations:

- This patient with hypotension, tachycardia, difficulty breathing, and an urticarial rash experienced anaphylaxis to the pre-operative lidocaine injection.
- Anaphylaxis is treated with intramuscular or intravenous epinephrine.
- Anaphylactic reactions to lidocaine are possible, but extremely rare. It is important to ask patients before lidocaine administration if they have ever had a poor reaction to local anesthesia before.
- Lipid emulsion is the antidote for systemic lidocaine toxicity, which is a different condition than anaphylaxis.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Lidocaine



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Question 69: An 11-year-old girl is brought to the clinic with a discolored upper front tooth for the last three months. She reports a history of trauma to the upper front teeth while playing in school one year before. On clinical examination, a tooth fracture involving the pulp is observed in the maxillary central incisors. What is the most appropriate treatment for this patient?

Choices:

1. Composite restoration
2. Vitality testing
3. Root canal treatment
4. Apexification

Answer: 2 - Vitality testing

Explanations:

- The discoloration indicates that the fractured tooth became nonvital. Root canal treatment is indicated in fractured nonvital teeth.
- The root canal treatment includes access opening of the tooth, working length determination, biomechanical preparation and obturation with guttapercha material.
- As the patient is eleven years old, and trauma occurred one year ago (age at the time of trauma is ten years), it indicates that the trauma had occurred after root completion, root canal treatment is indicated rather than apexification of the fractured tooth.
- Prosthetic rehabilitation is indicated after the successful completion of the root canal treatment in the fractured teeth.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Tooth Fracture



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Question 70: A 50-year-old man with a heavy smoking and alcohol history develops a p16-negative squamous cell carcinoma of the right base of the tongue. He elects to undergo definitive chemoradiation. Five months after treatment, he develops an ulcer on the posterior middle-third of the right tongue, extending along the floor of the mouth, and is fixed to the nearby alveolus. A biopsy demonstrates p16-negative squamous cell carcinoma. He elects for salvage surgery, including a composite resection of the mandibular body and ramus, the floor of the mouth, and partial glossectomy. He undergoes the right modified radical neck dissection of levels IB-IV and reconstruction with an osteocutaneous radial forearm flap. Six months after surgery, he complains of numbness of the skin on the radial aspect of the base of the thumb. Which of the following is most likely the cause of the numbness?

Choices:

1. Radiation damage to the brachial plexus
2. Damage to the sensory rootlets in the level IV neck dissection
3. Damage to the superficial branch of the radial nerve
4. Damage to the medial antebrachial cutaneous nerve during free flap harvest

Answer: 3 - Damage to the superficial branch of the radial nerve

Explanations:

- The numbness described is a common complication in radial forearm free flap harvest. It is due to the surgical decision making involved with the superficial branch of the radial nerve.
- The superficial branch of the radial nerve provides cutaneous innervation of the dorsal hand and fingers. During flap harvest, the nerve is proximally found under the brachioradialis running laterally to the radial forearm free flap pedicle. It exits from under the brachioradialis through Wartenberg's point and can be seen on the radial aspect of the dissection.
- The branches of the superficial branch of the radial nerve emanate medially and laterally. The lateral branches should be preserved and unaffected during the dissection. However, the medial branches will require some surgical decision making as trying to preserve those branches may raise concerns for flap compromise. The nerve branches of the superficial branch of the radial nerve that are subsequently sacrificed cause numbness around the thumb.
- The medial antebrachial cutaneous nerve is responsible for sensation in the forearm. The cervical rootlets in the neck provide sensation to the neck.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Osteocutaneous Radial Forearm Flap



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Section 3

Question 71: A 29-year-old man presents with a two-year history of recurrent infections in his wisdom tooth. The patient reports occasional pain and pus discharge from the tooth, but he manages it with paracetamol and hot water with salt mouthwashes. He has no past medical history and takes no medications. On examination, there is partial retention of his lower left third molar, and the mucosa covering the tooth is erythematous and swelled. There is halitosis. The patient denies any pain or fever at this appointment. The extraction of the tooth is recommended, and a conventional inferior alveolar nerve block technique is going to be used. Which of the following are the most important landmarks for locating the injection site?

Choices:

1. Sigmoid notch and condyles
2. Coronoid process and notch
3. Coronoid notch and pterygomandibular raphe
4. Anterior and posterior border of the mandible

Answer: 2 - Coronoid process and notch

Explanations:

- The conventional inferior alveolar nerve block technique requires the insertion of the needle around the proximity of the mandibular foramen, and to perform adequate anesthesia, the operator should recognize some essential landmarks.
- The most important landmarks are the coronoid notch, and pterygomandibular raphe since the preferred site for the entry of the needle is located in between them.
- When performing the technique, a line is drawn from the deepest part of pterygomandibular raphe relating it to the sigmoid notch.
- The exact location of the entry point of the needle is above the occlusal plane of lower teeth at one quarter the distance towards the pterygomandibular raphe.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Inferior Alveolar Nerve Block



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Question 72: A 68-year-old man with a history of oral cancer status-post radiation therapy up to 6000 cGy presents to the clinic for follow up. His treatment was completed 2 years ago. Over the past 2 months, the patient has had increasing pain in his left lower jaw. Oral examination shows exposed necrotic bone in his left lower mandible. What is the most appropriate management strategy for this patient?

Choices:

1. Hyperbaric oxygen therapy, surgical debridement, and antimicrobial therapy
2. Hyperbaric oxygen therapy and antimicrobial therapy
3. Hyperbaric oxygen therapy and surgical debridement
4. Surgical debridement and antimicrobial therapy

Answer: 1 - Hyperbaric oxygen therapy, surgical debridement, and antimicrobial therapy

Explanations:

- Hyperbaric oxygen therapy is helpful in treating soft tissue radionecrosis by the improved oxygenation of the damaged tissue transiently during the treatment. After 20 to 30 treatments, angiogenesis is stimulated with the formation of new capillary beds and granulation tissue that has a more robust blood supply for wound healing.
- Hyperbaric oxygen therapy is most beneficial when used in combination with a good surgical technique which has been demonstrated by the extensive work done by Dr. Marx on osteoradionecrosis of the mandible and the development of the Marx protocol.
- Dr. Marx demonstrated the benefit of treating the patient with initial 20 to 30 hyperbaric oxygen treatments before reconstructive surgery or bone debridement of the jaw, with additional ten treatments to help the post-surgical tissue and grafts to heal with robust angiogenesis.
- It is important to treat the patient with soft tissue radionecrosis from an interprofessional approach with the hyperbaric oxygen therapy not done as isolated treatments, but in conjunction with adequate, timely surgical debridement, antimicrobial therapy for infection, and adequate nutrition.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Hyperbaric Soft Tissue Radionecrosis



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Question 73: A 68-year-old woman is brought to the hospital with pain and swelling in the chin area and with a history of fall from stairs. On an extra-oral examination, a large hematoma is found under her chin. It is associated with swelling and tenderness. On intra-oral examination, she is found to be completely edentulous along with a sublingual ecchymosis on the right side. However, there is no deformity seen on the edentulous ridge. Radiographic evaluation shows an atrophic mandible along with an undisplaced fracture of the right body of the mandible. Which of the following is the best treatment option for this patient?

Choices:

1. Open reduction and internal rigid fixation
2. Closed reduction using arch bars
3. Using dentures fixed with maxilla-mandibular fixation screws and reduction via elastics
4. Reduction using dentures and circummandibular wiring

Answer: 3 - Using dentures fixed with maxilla-mandibular fixation screws and reduction via elastics

Explanations:

- Since it is an undisplaced fracture, closed reduction should be preferred instead of open reduction.
- In case of an edentulous mandible, maxillomandibular fixation (MMF) screws can be used to fix the dentures.
- MMF screws are self-tapping screws that provide a bone anchor where elastics or wires can be placed for MMF.
- Dentures can be also be wired to the jaw using circum-mandibular wires. But it has some disadvantages including postoperative discomfort due to wires in the mandibular vestibule. Also, there is a risk of submental scar formation and damage to structures on the floor of the mouth.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Mandible Body Fracture



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Question 74: A 34-year-old male who regularly snorts methamphetamine is concerned about multiple dental caries and loss of his upper front teeth. He visits his primary care physician and expresses his concerns about his health. During his interaction with the physician, he asks the physician about the "Meth mouth." This condition is a result of which of the following in chronic methamphetamine users?

Choices:

1. Xerostomia from poor fluid intake and decreased salivation does not appear to be a factor in "meth mouth."
2. Lack of attention to dental and overall hygiene is not one of the proposed etiologies of "meth mouth."
3. Methamphetamine snorting leads to vasoconstriction of arterioles supplying the teeth, accelerating the periodontal disease.
4. Methamphetamine in saliva directly damages tooth enamel because it is a strong base (pH > 8).

Answer: 3 - Methamphetamine snorting leads to vasoconstriction of arterioles supplying the teeth, accelerating the periodontal disease.

Explanations:

- Methamphetamine users frequently present dehydrated from lack of adequate fluid intake, leading to xerostomia and tooth decay.
- Methamphetamine use often results in negligence of personal hygiene, including dental hygiene, and overall attention to a user's health.
- Methamphetamine snorting can cause vasoconstriction of maxillary arterioles supplying the teeth, accelerating the periodontal disease. Damage to the upper teeth is especially common.
- Methamphetamine is an acid, not a base, that may damage enamel if present in saliva.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Methamphetamine Toxicity



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Question 75: A 21-year-old man presents for the first time for a dental check-up. He has a past medical history of type 1 diabetes mellitus. On examination, there is a lower tongue position and no caries or gum disease. The upper incisors occlude behind the lingual aspect of the lower teeth, and there is a premature canine contact. The patient can reach an edge to edge incisal relation in centric relation. He denies any thumb sucking during childhood or nail-biting. Which of the following clinical findings would be most likely present in this patient?

Choices:

1. Concave profile in centric relation
2. Class II molar relation in centric occlusion
3. Straight profile in maximum intercuspation
4. Class III molar relation in centric occlusion

Answer: 4 - Class III molar relation in centric occlusion

Explanations:

- This patient most likely has pseudo-class III, also known as functional anterior crossbite.
- A functional anterior crossbite can be caused by mandibular hyper propulsion, which provokes a lower tongue position and a premature canine contact that entraps the upper maxilla.
- There is a class III molar relation in centric occlusion and a class I relation in centric relation. The facial profile is straight in centric relation and concave in maximum intercuspation.
- The mandible is advanced mesially occasionally to obtain maximum intercuspation. The patient can reach an edge to edge incisal relation in centric relation.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Posterior Crossbite



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Question 76: A 58-year-old male underwent surgical resection for stage 3 carcinoma of the left side of the tongue. Left hemiglossectomy with left-sided modified radical lymph node dissection was done. The tongue defect was reconstructed with a free radial forearm flap. How should the suction drain be placed after a free flap procedure?

Choices:

1. Apply Redivac suction drain
2. Use a low-pressure suction drain
3. Keep the drain end near microvascular anastomosis for draining blood
4. No need for a drain

Answer: 2 - Use a low-pressure suction drain

Explanations:

- Use only low-pressure drain in microvascular procedures, as collections from capillaries or lymphatics are anticipated in well-done free flap surgeries.
- Never keep a drain tube near microvascular anastomosis as it can produce venous complications on the flap postoperatively.
- Always secure ends of the drain away from anastomosis and anchor the drain to the skin at more than one place to avoid tube migrating to an anastomotic area.
- Redivac is a high-pressure suction drain and should not be used in microvascular surgery.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Suction Drains



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Question 77: A 7-year-old boy is brought in by his mother with speech difficulty. The mother mentions he had latching difficulties while breastfeeding when he was a baby. The boy also struggles with the flute classes that he recently started. On examination, there is a tongue-free length of 9 mm. The patient is able to tip over the lower gum only. A diagnosis tool that evaluates the anatomy and function of the tongue is used. Which of the following parameters is included in this classification system?

Choices:

1. Pronunciation of lingual letters
2. Peristalsis
3. Width of the tongue when resting
4. The elasticity of the tongue

Answer: 2 - Peristalsis

Explanations:

- When evaluating a patient with a suspected ankyloglossia, a detailed past medical history, clinical examination, and diagnosis tools should be utilized for classification and determination of the severity of the condition. One of these tools is the Hazelbaker assessment for lingual frenulum function. It uses a scoring system evaluating anatomy and function.
- The anatomical parameters included in this system are the appearance of the tongue when lifted, the elasticity of the frenulum, length of lingual frenulum when tongue lifted, attachment of lingual frenulum to the tongue, and attachment of lingual frenulum to the inferior alveolar ridge.
- The functional parameters include lateralization, lift of tongue, the extension of the tongue, spread, cupping of the tongue, peristalsis, and snap-back. The score consists of 10 points for frenulum appearance and 14 points for tongue function.
- The peristalsis can be complete, anterior to posterior (originates at the tip), giving 2 points. It can also be partial originating posterior to tip (1 point), or none or reverse peristalsis (0 points).

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Ankyloglossia



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Question 78: A 53-year-old male who is a heavy smoker presents to the clinic with an asymptomatic lesion on right buccal mucosa that he first noticed nine months ago. On examination, it shows cracked mud appearance. This is the characteristic clinical feature of which of the following lesions?

Choices:

1. Leukoedema
2. Homogeneous leukoplakia
3. Hairy leukoplakia
4. Speckled leukoplakia

Answer: 2 - Homogeneous leukoplakia

Explanations:

- Homogenous leukoplakia (also termed "thick leukoplakia") usually is a well-defined white patch of uniform, flat appearance and texture, although there may be superficial irregularities.
- They are usually slightly elevated compared to surrounding mucosa and often have a fissured, wrinkled, or corrugated surface texture, with the texture generally consistent throughout the whole lesion.
- When homogenous leukoplakia is palpated, it may feel leathery, dry, or like cracked mud.
- The non-homogenous varieties, like nodular and verrucous have irregular surfaces.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Oral Leukoplakia



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Question 79: A 25-year-old male presents complaining right-sided jaw pain. He states that he has had tooth pain for several years and has been treated with antibiotics in the past. He has been told to follow up with a dentist but did not because he could not afford it. He was in a fistfight two weeks ago, sustaining multiple blows to his face. On physical exam, the patient has a well-circumscribed area of facial cellulitis on the right lower jaw. He does not have pooling of secretions, nor difficulty breathing. He can open his mouth, but it causes pain on the right. He has numerous dental caries. There is point tenderness to palpation overlying the right second premolar. What is the best initial imaging modality?

Choices:

1. Ultrasound
2. Maxillofacial x-ray
3. CT of the head without contrast
4. MRI of the head

Answer: 2 - Maxillofacial x-ray

Explanations:

- The patient has a history of trauma and point tenderness. The dental abscess should be considered. This patient has a tooth fracture secondary to trauma. X-ray of the face and jaw would be the best imaging modality to uncover the etiology of these patients' symptoms and show the degree of soft tissue swelling. It would allow the provider to evaluate the patient's airway.
- While ultrasound is useful for the evaluation of soft tissue swelling, it is unsatisfactory in the assessment of bony structures.
- Head CT without contrast would show the fracture, but is very expensive and exposes the patient to more radiation.
- MRI of the head would show the fracture but is very costly.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Dental Abscess



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Question 80: An 8-year-old girl is brought in by her mother because she is concerned about the appearance of her gums. The mother says her daughter cannot eat properly because of this. She has a past medical history of polycystic kidney disease for which she received a renal transplant three months ago. On examination, there is a firm, nodular enlargement of the interdental gingival papilla, extending to the vestibular and lingual gingival margins. Blood tests are unremarkable. What is the pathophysiology of this condition?

Choices:

1. Inhibition of cation dependant folic acid influx
2. Increased cation dependant folic acid active transport
3. Increased levels of calcium in fibroblasts
4. Increased activation of collagenase

Answer: 1 - Inhibition of cation dependant folic acid influx

Explanations:

- This patient presents with drug-induced gingival overgrowth (DIGO). The common mechanism of action at the cellular level of all the three categories of different drugs that cause the condition (anticonvulsants, calcium channel blockers, and immunosuppressors) appears to be inhibition of cation influx, particularly sodium and calcium ions.
- It is believed that gingival overgrowth is multifactorial. Bacterial plaque appears to be a contributory factor, and the severity of gingival overgrowth is believed to be directly proportional to the degree of plaque buildup and plaque-induced inflammation.
- Decreased cation dependant folic acid (FA) active transport within gingival fibroblasts causes reduced FA uptake by the cells, causing changes in the metabolism of matrix metalloproteinases and inability to activate collagenase.
- This results in the accumulation of connective tissue and collagen due to a lack of collagenase, causing DIGO.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Drug Induced Gingival Overgrowth



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Question 81: A 58-year-old woman presents to the emergency department after a fall. She complains of left-sided blurry vision and photophobia. CT reveals a mildly displaced zygomaticomaxillary complex (ZMC) fracture. On physical exam, her face exhibits mild left-sided swelling. There appears to be a thin layer of blood at the inferior aspect of the iris. Vertical upgaze is restricted in the right eye. What is the next best step in the management of this patient?

Choices:

1. Outpatient follow up to discuss elective surgical repair
2. Proceed to the operating room for open reduction and internal fixation
3. Stat ophthalmology consultation
4. Observation in the emergency department before discharge

Answer: 3 - Stat ophthalmology consultation

Explanations:

- Ophthalmic injuries are a common sequelae of ZMC fractures. There should be a low threshold for ophthalmology consultation.
- Ophthalmic injuries should always be addressed before the management of ZMC fractures. Failure to address ophthalmic injuries before surgery could result in catastrophic visual loss.
- Visual acuity, extraocular movements, and visual fields should all be documented preoperatively. Preoperative recognition of ophthalmic injuries is important to ensure fracture management is not blamed for any lasting visual deficits.
- The ZMC makes up a significant portion of the lateral and inferior orbital walls. Indications for repair of orbital floor fractures include entrapment of extraocular musculature, involvement of greater than 50% of the orbital floor, non-resolving oculocardiac reflex, diplopia, and enophthalmos.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Zygomatic Arch Fracture



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Question 82: A 17-year-old male is recovering from parotidectomy for pleomorphic adenoma in the right parotid gland. The patient is about to have his first meal since surgery when his wife notices that the right side of his face starts to flush and sweat when his food is brought to him. The postganglionic fibers from which of the following ganglia are involved in the pathogenesis of the patients presenting symptoms?

Choices:

1. A ganglion suspended from the maxillary nerve
2. A ganglion located within the infratemporal fossa
3. A ganglion suspended from the lingual nerve
4. A ganglion lateral to the optic nerve

Answer: 2 - A ganglion located within the infratemporal fossa

Explanations:

- The patient is presenting with gustatory sweating and flushing (Frey syndrome), which is a common complication of parotidectomy.
- Frey syndrome occurs following damage to postganglionic fibers from the otic ganglion either at the level of auriculotemporal nerve or parotid gland, which causes the regenerating nerve fibrils to become misdirected and join the sympathetic nerves innervating subcutaneous blood vessels and sweat glands.
- The otic ganglion is located within the infratemporal fossa and is closely related to the medial surface of the mandibular nerve.
- The pterygopalatine ganglion is suspended from the maxillary nerve. The ciliary ganglion is immediately lateral to the optic nerve. The submandibular ganglion is suspended from the lingual nerve.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Neuroanatomy, Otic Ganglion



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Question 83: A 75-year-old man presents with a one-month history of swallowing difficulty and mouth bleeding. He also reports difficulty in moving the tongue. He has a past medical history of coronary artery disease and a 35 pack-year smoking history. On examination, there is a 1.5 cm, indurated, slightly elevated, and velvety patch in the posterior part of the dorsal aspect of the tongue that the patient believes has been there for at least two months. The patch has an ulcerated surface. A biopsy shows nests of squamous epithelial cells arising from the epithelium and extending into the connective tissue. There are moderate dysplastic changes. The patient undergoes surgical excision and radiotherapy, but after one year the tumor remitted. Which of the following can be used as prognostic markers of oral malignant tumors?

Choices:

1. CDKN2A
2. CEA 19-9
3. AFP
4. MAP kinase

Answer: 1 - CDKN2A

Explanations:

- The patient in the clinical scenario presents with oral squamous cell carcinoma. Consuming tobacco in any form and drinking alcohol constitute an increased risk for developing oral malignancies.
- Local and regional recurrence of the tumor is a major problem with oral cancers. CDKN2A and CDKN2B can be used as a prognostic marker.
- Oral cancer screening is helpful in the early diagnosis of oral cancers. Typical clinical findings include painful mouth ulcers that do not heal within several weeks. Persistent lumps in the mouth and nodes in the lymph glands in the neck that do not disappear.
- Other symptoms include dysphagia, unintentional weight loss, bleeding or numbness in the mouth, and difficulty speaking or moving the mandibula.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Oral Mucosa Cancer



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Question 84: A 51-year-old man presents to the clinic complaining of severe mouth pain. On exam, he has bleeding from the gums and diffuse breakdown of the inter-dental tissue. He was previously advised conservative management with oral rinses after debridement. However, he reports persistent symptoms. Which of the following is the next best step in the management of this patient?

Choices:

1. Root planing
2. Gingiva transplant
3. Oral metronidazole
4. Serum antinuclear antibodies

Answer: 3 - Oral metronidazole

Explanations:

- Systemic antimicrobials are considered in the acute phase in cases with poor response to debridement or those with symptoms of systemic involvement, including fever, malaise, and vomiting, etc.
- Metronidazole (250 mg, TID) is a common first drug of choice due to its activity against anaerobes. Penicillin, tetracyclines, clindamycin, amoxicillin, and amoxicillin with clavulanate have been shown to produce “acceptable” results and are considered on a case-by-case basis.
- Although oral antibiotics have been shown to be beneficial, topical antimicrobials are not recommended.
- Treatment of the acute phase of acute necrotizing ulcerative gingivitis (ANUG) aims to halt tissue destruction and to control the patient's discomfort. After the acute phase has been controlled, treatment of any preexisting condition, such as chronic gingivitis or underlying immune suppression, should be addressed.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Acute Necrotizing Ulcerative Gingivitis



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Question 85: A 62-year-old man presents to the hospital with the chief complaint of inability to close his mouth completely for the past one month. The onset of this problem was sudden, with no pain or discomfort. His medical history is non-contributory. He had his teeth extracted eighteen years ago due to caries. Extra and intraoral examinations are unremarkable. On palpation, a loss of continuity of mandibular arch is noted bilaterally extending from the canine-premolar region along with abnormal mobility of the discontinuous fragments. There is an anterior open bite of 2 cm in the midline. Orthopantomogram shows a bilateral fracture of the body of the mandible. Which of the following muscles co-participates in rendering the fracture the most unfavorable?

Choices:

1. Lateral pterygoid muscle
2. Medial pterygoid muscle
3. Buccinator
4. Posterior belly of digastrics

Answer: 2 - Medial pterygoid muscle

Explanations:

- In favorable fracture, the bony fragments are drawn together by the muscle distraction, whereas in unfavorable fracture, the bony segments are displaced by the muscle forces.
- The forces that render the fracture unfavorable are exerted by the action of various muscles such as masseter, temporalis, and medial pterygoid muscle.
- These muscles distract the proximal bony segment in the superomedial direction.
- Moreover, two additional muscles (mylohyoid and anterior belly of digastrics) may also play a role in displacing the segments in the posterior and inferior direction.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Mandible Body Fracture



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Question 86: A 9-year-old boy presents with his mother for a dental check-up. He has no past medical history. His dental history includes nursing bottle syndrome and the habit of sucking his thumb since he was a baby, which remains until today. The mother mentions he has been compliant with dental hygiene. On examination, there are no caries or gum disease. On examination of the occlusion, the upper incisors occlude behind the lingual aspect of the lower teeth. There is a class I molar and canine relation. Which of the following clinical extraoral findings would you expect to see in this patient?

Choices:

1. Concave profile in centric occlusion
2. Straight profile in centric occlusion
3. Protruded profile in maximum intercuspation
4. Concave profile in maximum intercuspation

Answer: 2 - Straight profile in centric occlusion

Explanations:

- A crossbite is a discrepancy in the buccolingual relationship of the upper and lower teeth. Anterior crossbite is present when one or more of the upper front teeth are in a linguo-occlusal relation with the lower.
- Anterior crossbite can occur in primary and mixed dentition due to a disharmony between the skeletal, functional, and dental components of the child.
- In a dental anterior crossbite, the profile is straight in centric occlusion and centric relation. Class I molar and canine relation can be seen.
- Cephalometric analysis can be unremarkable. It may be due to abnormal axial dental inclination.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Posterior Crossbite



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Question 87: A 58-year-old man presents to the clinic complaining of pain in his jaw. Physical examination reveals ulceration and necrosis of the mucosa with exposed bone, and irritation of surrounding oral soft tissues. His past medical history reveals that he has a history of hypertension and type 2 diabetes, and he recently underwent a specialized treatment. Which of the following is the most likely cause of the patient's presentation?

Choices:

1. Radiation treatment for lymphoma of the neck
2. Wisdom teeth removal
3. Carotid aneurysm repair
4. Horner syndrome

Answer: 1 - Radiation treatment for lymphoma of the neck

Explanations:

- The patient has most likely developed osteoradionecrosis, a common complication following radiation to the head and neck, commonly occurring in the jaw.
- Osteoradionecrosis often results in ulceration and necrosis of the mucosa around the jaw with exposed bone, inevitably leading to infection and necrotic bone.
- Exposed bone often leads to irritation of surrounding oral soft tissues.
- The resulting chronic infections can lead to osteomyelitis and soft tissue orocutaneous fistulae.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Osteoradionecrosis



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Question 88: A 66-year-old woman presents to the clinic with a right cheek mass. Physical exam shows a 4 cm fixed tender mass without any overlying skin changes. Fine needle aspiration shows mucoepidermoid carcinoma. Which of the following possible factors is most likely to be associated with a favorable prognosis in this patient?

Choices:

1. MECT1-MAML2 gene fusion
2. Limited mucous cells with large amounts of solid, squamous cells on histology
3. House-Brackmann 4/6 of the right face
4. Cervical lymphadenopathy

Answer: 1 - MECT1-MAML2 gene fusion

Explanations:

- Mucoepidermoid carcinoma with MECT1-MAML2 gene fusion has a good prognosis with a 5-year survival rate of more than 90%.
- One of the most common genetic findings for mucoepidermoid carcinoma is the chromosomal translocation $t(11;19)(q21:p13)$, leading to MECT1 and MAML2 gene fusion, which is responsible for disrupting the NOTCH signaling pathway. This translocation is found in 50-70% of patients with MEC and is more often seen in low-grade tumors with better prognosis.
- Positive prognostic factors include lack of cervical metastasis, no perineural or facial nerve involvement, low-grade histology, young age, and absence of comorbidities.
- Low-grade mucoepidermoid carcinoma has a better prognosis and is characterized by well-formed cystic spaces with plentiful glandular composition. High-grade mucoepidermoid carcinoma has a worse prognosis with limited mucous cells with large amounts of solid, squamous cells that can often be misdiagnosed as squamous cell carcinoma.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Malignant Salivary Gland Tumors



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Question 89: A 64-year-old man undergoes resection of a tumor at the symphysis of the jaw and is subsequently lost to follow-up. Which of the following complications is most likely to occur in this patient?

Choices:

1. Multiple myeloma
2. Facial nerve weakness
3. Drooling and oral incompetence
4. Wound infection and osteomyelitis

Answer: 3 - Drooling and oral incompetence

Explanations:

- The symphysis of the jaw must be reconstructed to avoid an Andy Gump deformity with severe soft tissue contraction of the chin, oral incompetence, and drooling.
- Resection of the anterior jaw can be accomplished via a trans-oral approach that does not pose a risk to the facial nerve or its branches. The mental nerve should be preserved to maintain sensation to the chin.
- Bony resection and soft tissue closure with sterile technique and a subsequent course of prophylactic antibiotics do not increase the chances for wound infection or osteomyelitis, regardless of whether reconstruction is performed or not.
- The soft tissues of the lower lip, chin, and anterior floor-of-mouth are likely to heal, even in the absence of bony reconstruction. Over time, however, without bony support, the soft tissue will contract, leading to obvious deformity.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Mandible Reconstruction



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Question 90: An 8-year-old boy is brought to the clinic with a fractured upper front tooth. The patient had a fall from his bicycle half an hour before. The patient saw the fractured tooth fragment on the ground, collected the fragment and stored it in cold milk. The patient reported immediately to the dental clinic with the fractured tooth fragment in a milk bowl. On clinical examination, the tooth fracture involves enamel and dentin with no pulpal exposure observed. What is the most appropriate management for this patient?

Choices:

1. Reattachment
2. Composite restoration
3. Root canal treatment
4. Extraction

Answer: 1 - Reattachment

Explanations:

- The reattachment of a fractured tooth fragment is a feasible technique that restores the function and esthetics with a very conservative approach, and it can be considered as a treatment option when treating coronal fractures of anterior teeth especially in younger patients.
- Tooth fragment reattachment has several advantages as it is a conservative, esthetic, and cost-effective restorative treatment option. It can also be considered as an alternative to the resin composite restorations or crowns.
- Reattachment of a dislodged tooth fragment to the fractured tooth provides long-lasting aesthetics as the normal tooth anatomy and tooth color is maintained.
- The long term follow-up clinical trials had reported that reattachment of the fractured tooth fragment using the advanced dentin bonding agents achieves good functional and aesthetical success.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Tooth Fracture



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Question 91: A 55-year-old man who lives in Ecuador presents with a three-month history of shallow erosions on his lower lip. The patient also reports a tight sensation in the lip and moderate pain. He has a past medical history of oculo-cutaneous albinism and a 30 pack-year smoking history. On examination, there are multiple diffuse, irregular and shallow erosions on the vermillion border of the lower lip extending in some areas to the mucosal surface of the lip. There is no induration on palpation. A histopathological analysis reveals the diagnosis of a premalignant condition. Which of the following skin features would also make the patient susceptible to suffering this condition?

Choices:

1. Fitzpatrick type I
2. Fitzpatrick type II
3. Fitzpatrick type I and II
4. Fitzpatrick type III and IV

Answer: 3 - Fitzpatrick type I and II

Explanations:

- The patient in the clinical scenario presents with actinic cheilitis, which is a precursor of squamous cell carcinoma (SCC) of the lips.
- People with a fair complexion, like in the case of Fitzpatrick type I and II, have a higher risk of actinic cheilitis. As well as, those who are involved in outdoor activities, like farmers, sailors, or constructor workers. This is because they are chronically exposed to ultraviolet light.
- Fitzpatrick type I means pale white skin, with blue or green eyes and blond or red hair. These individuals always burn, do not tan.
- Fitzpatrick type II means fair skin and blue eyes. They burn easily and tan poorly. Types III and IV are darker skins that are not more at risk of actinic cheilitis.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Actinic Cheilitis



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Question 92: An 11-year-old boy presents with his mother for the first time for a dental check-up. He has no past medical history. On examination, there is a lower tongue position, incipient caries in the first molars, and gum disease. The upper incisors occlude behind the lingual aspect of the lower teeth. The patient can reach an edge to edge incisal relation in centric relation. There is a class III molar relation in centric occlusion. The facial profile is straight in centric relation. Which of the following clinical findings would be most likely present in this patient?

Choices:

1. Premature canine contact
2. Class II in centric relation
3. Protruded profile in maximum intercuspation
4. Straight profile in maximum intercuspation

Answer: 1 - Premature canine contact

Explanations:

- This patient most likely has a pseudo-class III, also known as functional anterior crossbite.
- Pseudo-class III can be caused by mandibular hyper propulsion, which provokes a lower tongue position and a premature canine contact that entraps the upper maxilla.
- The mandible is advanced mesially occasionally to obtain maximum intercuspation. The patient can reach an edge to edge incisal relation in centric relation.
- Early recognition and treatment increase the orthopedic effects and improve the long-term stability of the results.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Posterior Crossbite



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Question 93: A 25-year-old male patient presents to their clinician for smoking cessation treatment. He has a history of tobacco smoking and alcoholism. He mentions that he has recently begun undergoing treatment for necrotizing ulcerative periodontitis and their dentist has requested him to quit smoking. Which of the following are affected?

Choices:

1. Gingiva, alveolar bone, dentinocemental junction, and enamel
2. Oral mucosa, basal bone, periodontal ligament, and cementum
3. Oral mucosa, alveolar bone, dentinocemental junction, and dentin
4. Gingiva, alveolar bone, periodontal ligament, and cementum

Answer: 2 - Oral mucosa, basal bone, periodontal ligament, and cementum

Explanations:

- Necrotizing ulcerative periodontitis affects the periodontium, which includes the gingiva, alveolar bone, periodontal ligament, and cementum.
- NUP is an irreversible destruction of these structures.
- A definitive feature of NUP is that the destruction can occur in as short as a few days.
- Oral mucosa is a structure that is targeted in the subset of NPD called necrotizing ulcerative stomatitis (NUS).

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Necrotizing Periodontitis



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Question 94: A 17-year-old female patient presents to the outpatient clinic with complaints of fever and a skin rash. She states that she has been sick for a week and has had generalized body aches. The fever is low-grade and continuous. The rash is generalized and is non-pruritic. She is sexually active and has had numerous sexual partners over the last few months. Her examination reveals a blood pressure of 130/70 mmHg, a pulse of 75 bpm, a respiratory rate of 15/min, and a low-grade fever. Her general physical examination reveals a diffuse, symmetric, and macular rash on her trunk and extremities. The rash is also seen on her palms and soles. Her oral examination reveals a serpiginous ulcer on her lower lip. Her investigations reveal a white cell count of 6,000/microL, hemoglobin of 13 gm/dl, platelet count of 250,000/microL, alanine transaminase (ALT) 120 IU/l, aspartate transaminase (AST) 90 IU/l, serum albumin 3.7 gm/dl, serum creatinine 0.9 mg/dl, and CRP 65 mg/l. Her serological investigations reveal anti-HIV negative, anti-HCV negative, VDRL positive, HbsAg negative, and anti-Hbs positive. What is most likely to be found on the smear of the oral lesion?

Choices:

1. Spiral shaped organisms on darkfield microscopy
2. Multinucleate giant cells with intranuclear inclusions
3. Round cells with tubular extensions at one end
4. Atypical cells with increased nuclear to cytoplasmic ratio

Answer: 1 - Spiral shaped organisms on darkfield microscopy

Explanations:

- This patient has presented with complaints of fever and a generalized macular rash. The presence of a rash on her palms and soles and the presence of high-risk sexual behavior indicates the possibility of secondary syphilis. The positive VDRL confirms the diagnosis. Oral lesions contain treponemes.
- Oral lesions can be present in secondary syphilis and are infectious. The morphologically appear as a serpinginous ulcerative lesion, called a snail-track ulcer. Darkfield microscopy or direct immunofluorescence may demonstrate the presence of spiral-shaped *Treponema pallidum*.
- Oral lesions can be present in primary as well as secondary syphilis. In primary syphilis, the lesions are solitary and non-tender. However, in secondary syphilis, the lesions are multiple and painful.
- The lesions usually heal, even without treatment in about 4-12 weeks. Herpes labialis can present as painful vesicular or ulcerative lesions that contain characteristic Tzank cells. Oral candidiasis presents as a white patch, that is easily scraped off, and contains fungal cells and germ tubes. Oral squamous cell carcinoma can present as a non-healing oral lesion that contains atypical dysplastic cells.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Syphilis



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Question 95: A 45-year-old man presents because he is concerned about the appearance of his gums. He says his gums suddenly become more prominent, and this is affecting his social interactions. He has a past medical history of hypertension, for which he takes verapamil. On examination, there is an enlargement of the interdental gingival papilla, extending to the vestibular and lingual gingival margins, that bleeds profusely when touched. What is the most appropriate next step in the management of this patient's condition?

Choices:

1. Complete blood count and panoramic x-ray
2. Excisional biopsy of the gingival tissue
3. Cone-beam computed tomography
4. Applied pressure to induce hemostasis

Answer: 1 - Complete blood count and panoramic x-ray

Explanations:

- A complete blood count (CBC) is indicated in patients with gingival enlargement if there is a presence of profuse gingival bleeding even if it is drug-induced to rule out anemia and leukemia.
- Orthopantomography is needed before beginning any treatment to rule out periodontal disease or dental disease.
- Full mouth periapical radiographs can also be taken.
- Candidiasis and other infections must be ruled out by taking a culture. Tissue biopsy should be carried out in case the presentation of the disease is unusual.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Drug Induced Gingival Overgrowth



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Question 96: A 59-year-old female is undergoing reconstruction of tongue using a sensate left radial forearm free flap. She has a history of partial glossectomy for a squamous cell carcinoma. Postoperatively, the patient reports of numbness in the area of the anatomic snuffbox of the donor arm. What is the most likely explanation of the patient's numbness?

Choices:

1. The volar splint dressing is causing compression resulting numbness.
2. Donor nerves were harvested to provide a sensate radial forearm free flap reconstruction of the tongue resulting in numbness.
3. Injury to the superficial branch of the radial nerve occurred during the harvest of the flap.
4. Collateral ulnar circulation is not adequate resulting in numbness.

Answer: 3 - Injury to the superficial branch of the radial nerve occurred during the harvest of the flap.

Explanations:

- The anatomy of the upper extremity to include the location of sensory nerves is critical when harvesting the radial forearm free flap. The superficial branch of the radial nerve must be identified and preserved during the harvest of the radial forearm free flap.
- Understanding not only the location of sensory nerves of the upper extremity is necessary but also the distribution where the nerves provide sensation for the upper extremity is important when considering the radial forearm free flap.
- The superficial branch of the radial nerve provides sensory innervation to the region of the anatomic snuffbox. Numbness in this area in the postoperative period is most likely due to injury to the superficial branch of the radial nerve during the harvest of the radial forearm free flap.
- For a sensate radial forearm free flap, the lateral and/or medial antebrachial nerves are harvested with the flap, and numbness is expected in the radial aspect of the donor forearm.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Radial Forearm Tissue Transfer



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Question 97: During vidian neurectomy, the surgeon is delineating the vidian nerve on the sphenoid sinus. The sphenoid sinus is poorly pneumatized, making the identification of neurovascular structures difficult. The surgeon drills much more laterally on the sphenoid sinus floor. Which symptom is the patient likely to have in the postoperative period?

Choices:

1. Blindness
2. Cheek numbness
3. Ophthalmoplegia
4. Facial weakness

Answer: 2 - Cheek numbness

Explanations:

- The maxillary nerve runs along the lateral wall of the sphenoid sinus and opens into the pterygopalatine fossa via foramen rotundum.
- Maxillary nerve supplies sensations to the cheek, upper lip, and infraorbital area (V2 distribution). Therefore, one of the complications of a poorly pneumatized sphenoid sinus during vidian neurectomy is cheek numbness.
- Along the floor of the sphenoid sinus, pharyngeal nerve, vidian nerve, and maxillary nerve are arranged in a medial to lateral fashion.
- The optic nerve is on the superolateral aspect of the sphenoid sinus and hence not near the surgical approach for vidian neurectomy. Hence blindness is an unlikely complication after vidian neurectomy.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Vidian Neurectomy



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Question 98: A 6-year-old female is brought in after a soccer injury. Her vaccinations are up to date, and she has a past medical history significant for asthma. She was struck on the right side of the face by a soccer ball during a game. No loss of consciousness occurred, and she is acting normally per parents. She was initially bleeding from her mouth, and her parents report that a tooth fell out, which they have brought. The patient has never lost a tooth before. On examination, she has some dried blood around her lips and a contusion to her right cheek. She has intact extraocular movements, mild maxillary tenderness to palpation, and no mandibular tenderness or malocclusion. Her teeth appear to be primary dentition, notable for the absence of her right upper lateral incisor tooth. There is no tenderness or instability with dental palpation. The gum has stopped bleeding, though there is dried blood in the socket of the avulsed canine tooth. There is no tenderness, swelling, or laceration to the gums. Her parents have a cup of milk in which they have brought the canine tooth, which appears to be intact. What is the recommended emergent management of this dental injury of the patient?

Choices:

1. Reimplantation and splinting in place
2. Dental x-ray to evaluate for underlying fracture
3. Suture the gum at the avulsion site
4. Ice to the affected area

Answer: 4 - Ice to the affected area

Explanations:

- Primary teeth should not be reimplanted if completely avulsed, as this can damage the formation of the underlying permanent teeth.
- Ice, along with acetaminophen or ibuprofen, are the primary treatment for pain and swelling of a pediatric dental injury. For severe pain, a nerve block can be considered. A liquid or mechanically soft diet may be needed for several days until pain and stiffness improve.
- Imaging is frequently not warranted for isolated dental injuries without the suggestion of an additional facial bone fracture.
- Dental or orthodontic follow up is important to determine if the spacing is necessary to allow sufficient room for later eruption of the secondary tooth.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Pediatric Facial Trauma



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Question 99: A 55-year-old man presents with a four-month history of sore throat and difficulty swallowing. He also mentions his voice has changed and he has unintentionally lost 6 kg during this period. He has a past medical history of alcohol misuse disorder and a 30 pack-year smoking history. On examination, a red patch is identified at the base of the tongue, which does not bleed on contact. Laryngoscopy is unremarkable. An oral brush biopsy shows dysplastic changes in the cells of the affected area. Which of the following genetic mutations is most likely responsible for this patient's condition?

Choices:

1. TP53 mutations
2. CTNNB1 mutations
3. P53 mutations
4. NFE2L2 mutations

Answer: 3 - P53 mutations

Explanations:

- The patient in the clinical scenario most likely has oropharyngeal squamous cell carcinoma. There are two types of oropharyngeal cancers, HPV-associated oropharyngeal cancer, which is due to an oral human papillomavirus infection, and non-HPV-associated oropharyngeal cancer, which is mainly due to tobacco smoking and alcohol use.
- Other less common risk factors include a diet low in vegetables and fruits, betel quid chewing, poor nutrition, marijuana smoking, asbestos exposure, certain genetic mutations such as P53 mutation, and CDKN2A (p16) mutations.
- A biopsy of the suspicious area is done to make a definitive diagnosis. An oral brush biopsy, which is a newer, simpler, and convenient method, can be performed. This is done by employing a small brush to collect the sample during routine dental examinations, depends upon the location of the lesion.
- Surgery and radiotherapy are the two principle modalities used the treatment of the patients with oropharyngeal cancers. Surgery or radiotherapy can be used primarily if the tumor is small and has not advanced.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Oropharyngeal Squamous Cell Carcinoma



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Question 100: A 61-year-old woman presents with a three-month history of a painless plaque on her lower lip. The patient has fair skin and blue eyes and mentions she works as a farmer. She has no past medical history and denies smoking or drinking alcohol. On examination, there is an approximately 1 cm, diffuse and irregular keratotic plaque. A sandpaper texture is palpated. There is no induration or ulceration. An incisional biopsy shows hyperkeratosis, solar elastosis, and moderate dysplasia, with a dense chronic inflammatory infiltrate and basophilic degeneration of the lamina propria. Perivascular inflammation is seen in the connective tissue. Which of the following would make the patient more susceptible to suffering this condition?

Choices:

1. Lip incompetence
2. Occlusal class II division I
3. Eversion of the lip
4. Occlusal class II division II

Answer: 3 - Eversion of the lip

Explanations:

- Actinic cheilitis is a premalignant condition that most often presents on the vermilion of the lower lip.
- People with a fair complexion, involved in outdoor activities, like farmers, sailors, constructor workers, and with eversion of lips are more frequently affected by actinic cheilitis.
- An everted lower lip can be due to an inherited trait. In this case, the mucosal surface is partly exposed to sunlight and is usually also affected.
- It is essential to promptly recognize and diagnose this lesion since it constitutes a premalignant condition that can develop into squamous cell carcinoma. This carcinoma on the lips poses a higher rate of metastasis compared to other anatomic locations.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Actinic Cheilitis



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Question 101: A 36-year-old man presents to the emergency department (ED) with inability to chew his food from the last week. He has been progressively getting worse. He also reports pain while speaking and swallowing. The patient has also noticed that his pain increases when he touches his jaw. His vital signs in the ED are stable but he constantly continues to complain of pain. Physical exam findings include tenderness on palpation of jaw muscles and restricted jaw movements. What is the most likely etiology for this patient's complaints?

Choices:

1. Masticatory muscle disorder
2. Derangement disorder
3. Dislocations
4. Growth disorder

Answer: 1 - Masticatory muscle disorder

Explanations:

- Masticatory muscle disorder is the most common pathophysiology associated with TMD. The disturbances in the activity of masticatory muscles are reported as pain in masticatory muscles.
- Pain is reported on swallowing, speaking and chewing.
- Pain increases with palpation or the manipulation of muscles.
- It is associated with restricted mandibular movements.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Temporomandibular Joint Syndrome



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Question 102: A 72-year-old man presents to the clinic with the chief complaint of loose lower complete denture. The patient has remained edentulous for the past ten years and wears complete denture prosthesis since then. The existing dentures cause pain and discomfort to the patient. Intraoral examination reveals a severely atrophic mandibular ridge and moderately resorbed maxillary ridge. The dentist made a preliminary impression followed by the recording of jaw relation, trial, and denture insertion. After one week, the patient reports with the complaint of an unstable lower denture. Which of the following is most likely responsible for the instability of the mandibular denture in this patient?

Choices:

1. Residual ridge resorption
2. Diabetes induced oral changes
3. Impingement into the zones of muscle attachments
4. Poor patient acceptance of the denture

Answer: 3 - Impingement into the zones of muscle attachments

Explanations:

- The production of a good intaglio depends primarily upon the impression.
- A complete denture should cover the maximum area possible, but great care must be taken to confine the area of the impression so that it does not impinge into the zones of muscle attachments.
- The primary impression, followed by a secondary impression that involves muscle trimming, is necessary.
- Even in resorb ridges, modifying the impression technique, position, and type of teeth and patient education can help in achieving stability.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Stability In Mandibular Denture



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Question 103: A 62-year-old man with a 43 pack-year history of smoking presents to the clinic with dysphagia for the past 2 weeks. He mentions that he has lost a significant amount of weight in the past few weeks. He continues to smoke. A 2 cm lesion is found on his pharynx and base of the tongue. The biopsy of the tongue lesion is consistent with squamous cell cancer, p16 negative. Imaging is suspicious for distant metastasis to the liver. He is started on a platinum-based therapy. Follow up shows the progression of the lesion and enlargement of the liver lesion with the development of multiple new lesions throughout the liver. What is the next best step in the management of this patient?

Choices:

1. EGFR inhibitor, platinum, and fluorouracil therapy
2. Palliative care and best supportive care
3. Radical neck dissection
4. Radiation therapy

Answer: 1 - EGFR inhibitor, platinum, and fluorouracil therapy

Explanations:

- A combination of platinum, fluorouracil, and cetuximab is active in first-line treatment for inoperable recurrent or metastatic squamous-cell carcinoma of the head and neck.
- In the setting of first-line therapy for recurrent/metastatic HNSCC, the EXTREME trial provided level 1 evidence that cetuximab improves overall survival when combined with cisplatin and 5 FU.
- Newer studies are exploring the use of CDK4/6 inhibitor palbociclib in combination with cetuximab for HPV negative head and neck squamous cell cancers (HNSCC).
- Radical neck dissection would not be curative in this patient who also has metastasis to the liver. Radiotherapy is usually used in combination with systemic chemotherapy in locoregionally advanced head and neck cancer.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Cetuximab



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Question 104: A 56-year-old man presents because he is concerned about the appearance of his gums. He has a past medical history of peripheral vascular disease, for which he takes medication, but does not remember its name. On examination, there is a firm, nodular, moderate enlargement of the interdental gingival papilla, extending to the vestibular and lingual gingival margins more severe in the upper maxilla. Blood tests are unremarkable. Which of the following clinical findings is most likely expected in this patient's condition?

Choices:

1. The gingival enlargement does not cover the dental prosthesis
2. They always bleed when touched
3. Edentulous areas are usually unaffected
4. Periodontal pockets of up to 8 mm

Answer: 3 - Edentulous areas are usually unaffected

Explanations:

- This patient with a history of peripheral vascular disease is most likely taking an antihypertensive drug that produces a drug-induced gingival overgrowth (DIGO). The drugs that cause DIGO are mainly the anticonvulsants, immunosuppressants, and calcium channel blockers. These include nifedipine, nitrendipine, felodipine, amlodipine, nisoldipine, verapamil, and diltiazem.
- DIGO clinical findings include firm, painless, nodular enlargement of the interdental papilla, limited to the keratinized portions of the gingiva, and extending to the facial and lingual gingival margins.
- Typically, it is not seen in edentulous areas of the gingiva.
- In severe cases, a huge fold of hypertrophied gingival tissue is observed covering the crowns. At times, it appears firm and pale pink with minute lobulations, protruding from underneath the gingival margin, delineated by a groove of tissue which does not bleed on touch.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Drug Induced Gingival Overgrowth



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Question 105: A 28-year-old female patient visits a dental clinic for the treatment of severe pain in a tooth. The dentist examines the tooth, and after taking a relevant medical and dental history, an intraoral periapical (IOPA) radiograph is taken. The radiograph shows that the root tips of that particular tooth are extending into the floor of the maxillary sinus. After clinical and radiographical evaluation, it is decided to extract the tooth as the tooth is not restorable, and the prognosis of the tooth is not good. After completing the extraction procedure, the dental surgeon finds that there is a very small opening through the sinus membrane. What should the dentist do to prevent the spread of infection to the uncontaminated area of sinus from the oral cavity?

Choices:

1. Advise the patient to avoid irrigations of the extraction socket, vigorous mouth washing, and blowing of the nose to allow normal healing.
2. The socket should be packed with sterilized gauze or cotton.
3. Deep probing of the socket should be done.
4. Use of palatal flap to close the opening.

Answer: 1 - Advise the patient to avoid irrigations of the extraction socket, vigorous mouth washing, and blowing of the nose to allow normal healing.

Explanations:

- If the opening through the sinus membrane is quite small, then nothing special should be done. The patient should be instructed not to do vigorous mouth washing, avoid irrigations of the extraction socket, and avoid blowing of the nose. Most of the time, in such cases, a good clot will form leading to normal healing.
- Valsalva maneuver is a technique when the nose is gently blown with nares compressed with fingers. When perforation of the sinus membrane is suspected, this technique is performed to confirm the perforation. If there is an opening through the sinus membrane, then the blood in the extraction socket bubbles.
- However, this technique should be avoided in this case as this may lead to infection of the sinus.
- Avoid placing gauze or cotton in the socket as it may widen the opening instead. The palatal flap method is indicated for big oro-antral communications or closure of the oroantral fistula.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Dental Infection Control



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Section 4

Question 106: A 56-year-old woman presents to the clinic with the chief complaint of missing teeth in the upper and lower arch. She has a history of Bell's palsy and is taking medication. Extraoral examination shows asymmetrical face, loss of hearing, deviated mouth, drooling of saliva, and positive Bell's sign. The patient has a slurred speech due to the inability to pronounce certain words. On intraoral examination, the maxillary ridge is completely edentulous and is high well rounded. The mandibular ridge is well rounded posteriorly and resorbed anteriorly. Which of the following is most likely responsible for the instability of the mandibular denture in this patient?

Choices:

1. Resorption in the anterior area of the mandible
2. Facial palsy
3. Imbalance between forces of cheek and tongue musculature
4. Poor patient acceptance of the denture

Answer: 3 - Imbalance between forces of cheek and tongue musculature

Explanations:

- Bell's palsy is a form of facial paralysis that results from dysfunction of the facial nerve resulting in an inability to control facial muscles on the affected side.
- Patients with Bell's palsy exhibit weakness or paralysis on the affected side of the face with an abrupt loss of muscular control.
- Since the muscles of cheek and lips (buccinators and orbicularis oris) are weakened, an imbalance between forces of the cheek, lips, and tongue musculature occurs, affecting the neutral zone and thus the stability of the denture.
- The neutral zone is the area in the mouth where during function, the forces of the tongue musculature pressing outwards are neutralized by the forces of the musculature of cheek and lips pressing inwards.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Stability In Mandibular Denture



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Question 107: A 29-year-old woman presents with intermittent jaw discomfort during the day. She says her colleague told her that she grinds her teeth at work, but she cannot avoid it. She has no past medical history. She denies smoking, drinking alcohol, or using recreational drugs. On extraoral examination, stiffness is palpated in the masticatory muscles, which are enlarged. On intraoral examination, there are no wear facets on dental surfaces. What is the name of the therapy that uses auditory and visual stimuli to unlearn this behavior?

Choices:

1. Relaxation therapy
2. Electrogalvanic stimulation
3. Equilibration therapy
4. Biofeedback

Answer: 4 - Biofeedback

Explanations:

- Biofeedback utilizes positive feedback to enable the patient to learn tension reduction.
- It is accomplished by allowing the patient to view an electromyography (EMG) monitor while the mandible is postured with a minimum of activity.
- Bruxers may unlearn their behavior when a stimulus makes them aware of their jaw muscle activity.
- It is thought that the patient can be trained to control unwanted jaw muscle activities through auditory and visual feedback. This method works in diurnal bruxism.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Bruxism Management



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Question 108: A 60-year-old man with a history of cervical arthrosis presents to the clinic for painful right-sided spasm at the initiation of mastication that decreases subsequently. It started after surgery for a right parotid mass discovered incidentally on neck MRI. Which of the following best explains the etiology of this spasm?

Choices:

1. Fibrosis of the masseter muscle following surgery
2. Excessive mandibular traction during endotracheal intubation
3. Loss of sympathetic innervation of the parotid gland
4. Residual tumor extending from the deep lobe of the parotid to the infratemporal fossa

Answer: 3 - Loss of sympathetic innervation of the parotid gland

Explanations:

- These symptoms are compatible with what is called “first bite syndrome.”
- This syndrome is a unique complication of surgery targetting the parapharyngeal space, parotid deep lobe, and infratemporal fossa.
- This patient was most probably operated for benign deep lobe tumor of the parotid discovered incidentally on neck MRI.
- Evidence suggests that loss of sympathetic innervation to the parotid gland after surgery for deep lobe tumors results in relative parasympathetic overshooting and contraction of myofibrillary cells at the initiation of mastication, hence the name “first bite.”

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Parotidectomy



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Question 109: A 65-year-old farmer presents to the clinic for evaluation of a brown colored papule on his upper lip. He states this lesion has been present for the past two years and has been increasing in size gradually. His past medical history is significant for hypertension and diabetes mellitus. After a detailed evaluation, an excisional biopsy of the lesion is planned. In which direction should the incision be made in relation to the orbicularis oris?

Choices:

1. Perpendicular
2. Parallel
3. The incision should provide a 2 mm margin on all sides
4. At a 45-degree angle

Answer: 1 - Perpendicular

Explanations:

- The wrinkle lines are perpendicular to the direction of the fibers.
- The incision should be made in the direction of the wrinkle lines to minimize scarring.
- An adequate margin is important but can be accomplished by the described incision.
- Excisional biopsies are helpful in the evaluation of cutaneous tumors, inflammatory processes, and dermal lesions.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Excisional Biopsy



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Question 110: A 7-year-old boy is brought in by his parents due to difficulty in articulation. The boy has low self-esteem because his classmates have mocked him for the way he speaks. The mother says she remembers his son was very irritable when breastfeeding as a baby and he could not latch properly. On intraoral examination, there is a free-tongue length of 9 mm. What is the most appropriate next step in the management of this patient's condition?

Choices:

1. Reassurance
2. Frenotomy
3. Refer to an orthodontist
4. Refer to speech and language therapy

Answer: 4 - Refer to speech and language therapy

Explanations:

- This baby presents with significant ankyloglossia, also known as tongue-tie, that is affecting his capacity to articulate properly.
- As the speech develops, some children with ankyloglossia may exhibit difficulties with the sounds of several letters or a combination of letters: l, r, t, d, n, z, th, and sh.
- Regarding those patients who present with articulation problems, the decision about the most appropriate treatment option is more difficult, and evaluation and therapy with a speech pathologist are recommended before any surgical intervention.
- It is essential to clarify that speech delay is not caused by ankyloglossia. Children with this condition are expected to acquire speech and language at a standard rate, even though some experience articulation difficulties for certain sounds, as mentioned.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Ankyloglossia



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Question 111: A 46-year-old woman brought in the clinic with presenting complaints of nasal discharge, retro-orbital pain, and ptosis. On further questioning, she states that eye movements are painful, with blurring of vision, and unilateral headache. She has a history of HIV and takes antiretroviral therapy. Her blood pressure is 125/75, and the blood glucose is within normal limits. Oral examination shows ulceration over the hard palate. What is the best initial therapy for this patient?

Choices:

1. Intravenous liposomal amphotericin B
2. Posaconazole and rifampicin
3. Granulocyte stimulating factors
4. Hyperbaric oxygen

Answer: 1 - Intravenous liposomal amphotericin B

Explanations:

- The clinical vignette is most consistent with a diagnosis of rhinocerebral mucormycosis. Liposomal amphotericin B is superior to plain amphotericin B.
- Renal function monitoring is vital after amphotericin B therapy due to its nephrotoxic nature.
- Intravenous amphotericin B is preferred over topical, but the combination of both is appreciated.
- Intravenous liposomal amphotericin B with surgical debridement is the definitive treatment to eradicate the mucormycosis.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Rhinocerebral Mucormycosis



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Question 112: A 65-year-old male presents for hyperbaric oxygen (HBO2) therapy evaluation for radiation osteonecrosis of the jaw. Bone debridement is planned for the patient. What is the best HBO2 protocol for treatment?

Choices:

1. Marx protocol
2. Navy dive chart 5
3. Navy dive chart 6
4. Same dive schedule as for CO poisoning

Answer: 1 - Marx protocol

Explanations:

- Marx protocol consists of 30 treatments prior to and ten treatments after surgery.
- Patients will dive to 2.4 atm for the Marx protocol.
- Marx protocol was developed by Dr. Robert Marx, an oral surgeon.
- Marx protocol yields an over 80% success rate.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Hyperbaric Therapy For Skin Grafts And Flaps



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Question 113: A 26-year-old man is brought to the hospital with a facial injury after a motor vehicle collision. On intraoral examination, sublingual ecchymosis and a step deformity mesial to the mandibular first molar on the left side is observed. There is tenderness along the lower border of the mandible while palpating in that area. The occlusion is disturbed along with mobility in the fractured fragments and restricted mouth opening. CT scan reveals an oblique unfavorable fracture line, running posteriorly from the mesial of a mandibular first molar. The muscle pull that led to mobility in the proximal segment of the bony fragment is most likely in which of the following directions?

Choices:

1. Superolateral
2. Inferiomedial
3. Superomedial
4. Inferiolateral

Answer: 3 - Superomedial

Explanations:

- The mobility of the bony fragment depends on the direction of the fracture line and the effect of muscle distraction on the fracture fragments.
- These forces that render the fracture unfavorable are exerted by various muscles such as masseter, temporalis, and medial pterygoid muscle.
- These muscles distract the proximal bony segment in the superomedial direction.
- Moreover, two additional muscles (mylohyoid and anterior belly of digastric) may also play a role in displacing the segments in the posterior and inferior direction.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Mandible Body Fracture



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Question 114: An infant with a defect extending from the anterior maxillary crest to the posterior oropharynx undergoes a straight-line repair. He is brought to the healthcare provider several months later for an assessment. Which of the following is a common complication of this type of repair?

Choices:

1. Nasal reflux
2. Trismus
3. Dehiscence of the posterior palatal suture line
4. Palatal deviation to the noncleft side

Answer: 1 - Nasal reflux

Explanations:

- This patient has a cleft palate, which results from the failure of midline fusion of the frontonasal and maxillary prominences.
- Straight-line repair of a cleft palate defect does not lengthen the palate, and the most common complication that results is velopharyngeal insufficiency.
- Velopharyngeal insufficiency (VPI) is characterized by nasal reflux during swallow and hypernasal speech.
- Intravelar veloplasty can be performed with straight-line veloplasty to recreate the levator muscular sling in the soft palate to prevent VPI.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Cleft Palate



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Question 115: A 25-year old man is recovering from surgery for dislocation and fracture of his left temporomandibular joint following a fight with his colleague at work. The clinician comes to check on him as he is about to eat his first meal since surgery and notices that the left side of his face starts to flush and sweat when his food is brought to him. Through which of the following structures does the nerve carrying the preganglionic parasympathetic fibers to the ganglion involved in this condition pass?

Choices:

1. Foramen lacerum
2. Foramen ovale
3. Jugular foramen
4. Foramen rotundum

Answer: 2 - Foramen ovale

Explanations:

- The condition the patient is suffering from is Frey syndrome. It occurs following surgery, trauma, or any pathology to the parotid gland or the auriculotemporal nerve that, in turn, damages the postganglionic parasympathetic, sympathetic and sensory nerves within them. Fracture of temporomandibular joint damages the auriculotemporal nerve on that side and causes Frey syndrome.
- The lesser petrosal nerve carries the preganglionic parasympathetic fibers to the Otic ganglion. After its origin from the tympanic plexus, the lesser petrosal nerve course along the floor of the middle cranial fossa and exits the skull base through foramen ovale to enter the infratemporal fossa and join the otic ganglion.
- The parasympathetic root of the otic ganglion is formed by preganglionic parasympathetic fibers that arise in the inferior salivary nucleus, located within the medulla oblongata of the brainstem. These preganglionic efferent parasympathetic fibers pass through the glossopharyngeal nerve. They then travel with its tympanic branch (Jacobson's nerve) to form tympanic plexus in the middle ear cavity, before leaving it to form the lesser petrosal nerve.
- Preganglionic parasympathetic fibers projecting to the Otic ganglion may be damaged by traumatic injury or inflammation involving foramen ovale, causing dysfunction of the parotid gland and other areas in which the postganglionic parasympathetic fibers innervate.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Neuroanatomy, Otic Ganglion





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Question 116: A 4-year-old child presents with generalized oral pain, spontaneously bleeding gums, and necrosis of his gingival tissues. Clinical examination reveals ‘punched-out’ craters between his teeth and clearly evident alveolar bone loss. Additionally, he has a high temperature and has been ‘very tired’ lately according to his mother. He is a new immigrant from East Africa that arrived in the US last week due to the ongoing famine in his home country. What is the preferred initial medication?

Choices:

1. Streptomycin
2. Amoxicillin
3. Metronidazole
4. Vancomycin

Answer: 3 - Metronidazole

Explanations:

- The most commonly indicated antibiotic in the treatment of necrotizing ulcerative periodontitis (NUP) is metronidazole.
- Metronidazole is highly active against anaerobic, gram-negative bacteria, such as those identified in NUP.
- The recommended dose for metronidazole in the treatment of the acute phase of NUP is 250mg every 8 hours.
- In lower socio-economic countries, NUPs are more commonly found in young children due to malnutrition.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Necrotizing Periodontitis



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Question 117: A 2-year-old boy with Down syndrome is brought to the clinic due to swallowing difficulties and constant drooling. The mother also reports poor weight gain. On examination, there is a large tongue of $6 \times 6.5 \times 2$ cm and protruded and misaligned teeth. There are no ulcerations or necrosis. Further workup is unremarkable. An abnormality usually associated with Down syndrome is suspected as the cause of this patient's symptoms. In which of the following types of the tongue condition does this patient most likely fall?

Choices:

1. Relative and congenital
2. True and congenital
3. Relative and acquired
4. True and acquired

Answer: 1 - Relative and congenital

Explanations:

- The patient in the clinical scenario presents with macroglossia, which is an uncommon anatomical abnormality, rarely seen alone, and it tends to be a sign of an underlying condition.
- Macroglossia can be divided into true and relative and further subdivided into congenital and acquired disorders. In relative macroglossia, the tongue appears larger when compared to other anatomical structures in the oral cavity.
- In the case of Down syndrome, the tongue appears enlarged due to the general hypotonia that these patients have; thereby, this is an example of relative and congenital macroglossia.
- Another example of relative macroglossia is Pierre Robin syndrome, where the tongue appears enlarged because of micrognathia.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Macroglossia



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Question 118: A completely edentulous 50-years-old man presents to the clinic with the chief complaint of difficulty in eating due to unstable lower denture. The patient has worn a denture for the last five months. His medical history is significant for well-controlled hypertension for the last ten years. His past dental history includes the extraction of all the teeth one year back due to periodontal disease. On intraoral examination, the maxillary ridge is found to be well rounded, whereas the mandibular ridge is slightly resorbed. Examination of the present denture shows a well-polished surface with no worn off occlusal surface. The denture has a good peripheral seal and retentive property. Examination of the occlusal contacts with the articulating paper reveals uneven occlusal contacts. Which of the following is most likely responsible for the instability of the mandibular denture in this patient?

Choices:

1. Resorbed mandibular ridges
2. Occlusal interference
3. Drug-induced changes in oral mucosa
4. Poor patient acceptance of the denture

Answer: 2 - Occlusal interference

Explanations:

- An occlusal interference is any tooth contact that inhibits the remaining occlusal surfaces from achieving stable and harmonious contacts.
- Even if the impressions have been skilfully made, resulting in a good retentive denture, the dentures will eventually become unstable and cause irritation, if there are interfering occlusal contacts.
- Harmony developed between the opposing occlusal surfaces contributes to stability.
- Regardless of the type of posterior tooth form or occlusal scheme used, the dentures must be free of interferences within the functional range of movement of the patient.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Stability In Mandibular Denture



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Question 119: A 45-year-old man presents to the clinic with severe mouth pain, findings of gum bleeding, and breakdown of the interdental gum tissue. Mild debridement is performed, and the tissue is evaluated on Gram stain. Which of the following findings is most likely to be seen on Gram staining of the biopsied tissue?

Choices:

1. Red stained diplococci in pairs
2. No findings on Gram stain
3. Purple stained cocci in clusters
4. Purple stained bacilli

Answer: 2 - No findings on Gram stain

Explanations:

- Acute necrotizing ulcerative gingivitis (ANUG) presents as acute, painful, and destructive ulceration and inflammation of the inter-dental gum tissue.
- One study identified spirochetes and a majority of Gram-negative anaerobic bacteria to be the most commonly associated causative organisms.
- ANUG is commonly due to opportunistic bacterial infection, predominantly associated with fusiform and spirochete bacteria.
- ANUG is highly associated with spirochete bacteria, which is not identified on Gram stain.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Acute Necrotizing Ulcerative Gingivitis



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Question 120: An 87-year-old man with a history of chronic obstructive pulmonary disease (COPD), congestive heart failure, aortic stenosis, and stroke presents with an enlarging right parotid mass for the past ten years. Fine needle aspiration of the mass was consistent with carcinoma ex pleomorphic adenoma. Positron emission tomography (PET) scan showed hilar adenopathy and multiple pulmonary nodules concerning metastasis. What is the best course of treatment?

Choices:

1. Superficial parotidectomy
2. Total parotidectomy
3. Primary radiation therapy with chemotherapy
4. Primary chemotherapy

Answer: 3 - Primary radiation therapy with chemotherapy

Explanations:

- Primary radiation therapy is advised for patients with unresectable, metastatic disease, or poor surgical candidates. Chemotherapy may be used concurrently in this situation.
- The patient displays signs of metastatic disease and will most likely not benefit from parotidectomy alone. Primary radiation therapy with or without chemotherapy would be the best option for metastatic disease.
- The patient has several comorbidities (advanced age, hearing disease, lung disease, neurological disease) that would make him a poor surgical candidate. Poor surgical candidates would best benefit from primary radiation therapy.
- Although primary chemotherapy and targeted biological therapy have been utilized for palliation with partial response in certain patients, more prospective research and clinical trials are needed before chemotherapy, or targeted therapies can become standardized in the care of these patients.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Malignant Salivary Gland Tumors



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Question 121: A 52-year-old man with an extensive smokeless tobacco history, medical history of hypertension presents with a left gingivoalveolar ridge cancer spanning teeth #19-#22. He is a professional guitarist. He has also been substance-free for over 5 years. Oral cavity composite resection and ipsilateral neck dissection are recommended. He undergoes a diagnostic workup for osteofasciocutaneous free flap reconstruction of his mandible. Scapular, fibular, and osteocutaneous radial forearm are discussed with the patient. He wishes for dental implants in the future. Which of the following favors a scapula or osteocutaneous radial forearm over fibular free flap in this patient?

Choices:

1. Left leg single vessel run-off to the left foot via the anterior tibial artery; right three-vessel run-off to the right foot
2. The scapula is recommended over the fibular free flap because of the patient's desire for dental implants
3. Bilateral single vessel run off to the feet via the peroneal artery
4. Right leg two-vessel run-off to the right foot via the anterior tibial artery and peroneal artery; Left leg three-vessel run-off to the left foot

Answer: 3 - Bilateral single vessel run off to the feet via the peroneal artery

Explanations:

- Fibular free flap harvest is contraindicated if the post-harvest risk of ischemia to the distal extremity is high. Three major arteries supply blood to the foot – the anterior tibial artery, posterior tibial artery, and peroneal artery. The fibular free flap is supplied by the peroneal artery, leaving distal extremity viability to the anterior and posterior tibial arteries. It is ideal to have both the anterior and posterior tibial arteries supplying blood flow to the foot when the peroneal artery is sacrificed for the free flap.
- Angiography is performed preoperatively to assess for vessel run-off to the foot. If angiography shows a compromised peroneal artery, the flap is at risk for failure. If the lower extremity vessel studies show three-vessel run-off in a lower extremity (i.e., flow to the foot by the anterior tibial artery, posterior tibial artery, and the peroneal artery), the fibular free flap can be harvested from that leg. Three-vessel run-off suggests that you have a blood supply to the fibular free flap and two patent arteries to the foot after the flap is harvested.
- Studies have shown that two-vessel run-off is not a firm contraindication to fibular free flap harvest if the compromised artery is either the anterior or posterior tibial artery (i.e., single artery blood flow to the foot after the peroneal artery is sacrificed for the free flap). Many reconstructive surgeons will not harvest the fibular flap in a two-vessel run-off scenario to avoid the risk of ischemia to the foot due to it being solely dependent on one artery.
- If the vessel studies show single-vessel run-off to the foot, the foot will be at risk for ischemia. If single-vessel run-off is by way of either the anterior or posterior tibial arteries, the peroneal artery is compromised, and the free flap is at risk. If single-vessel run-off is by way of the peroneal artery, this assumes that the anterior and posterior tibial arteries are compromised; fibular flap harvest would sacrifice the sole blood supply to the foot. Regarding the scapula option, the scapular flap is usually insufficient bone to take a dental implant.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Osteocutaneous Radial Forearm Flap



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Question 122: A 45-year-old woman presents for an elective dental surgical procedure. The patient has no past medical history and takes no medications. A titanium implant is going to be placed to replace her left lower first and second molars. The patient receives a conventional inferior alveolar nerve block, and the surgery is performed uneventfully. Two days later, she reports loss of taste in the anterior two-thirds of the tongue, and altered sensation to touch and temperature. At which of the following levels should the implant have been placed as a minimum to prevent this complication?

Choices:

1. 1 mm above the mandibular canal
2. 2 mm above the mandibular canal
3. 3 mm above the mandibular canal
4. 4 mm above the mandibular canal

Answer: 2 - 2 mm above the mandibular canal

Explanations:

- When placing a dental implant, many complications can arise during surgery and postoperatively. The patient in the clinical scenario presents with symptoms of lingual nerve injury, which includes loss of taste in the anterior two-thirds of the tongue, anesthesia, paresthesia, or hyperesthesia.
- To avoid this complication, the surgical landmark is often set conservatively 2 mm above the mandibular canal.
- Other complications of the procedure include perforated buccal or lingual plates, lingual, and facial artery injuries.
- Absolute care has to be taken during osteotomy preparation.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Dental Implants



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Question 123: A 94-year-old man is found to have gingivoalveolar squamous cell carcinoma located on the anterior mandible along the lingual cortex where his #20-#23 teeth used to be. He is edentulous. He has a medical history of extensive peripheral vascular disease, right carotid-subclavian bypass, coronary artery disease with coronary bypass grafting, hypertension, and diabetes. There is a cortical invasion observed on CT. The preoperative CT angiogram of his legs shows bilateral single vessel run-off. He also has a prior oncologic history of a right base of tongue squamous cell carcinoma treated with definitive chemoradiation 15 years prior, of which he has no current evidence of disease. He is cleared for and committed to surgery for segmental mandibulectomy, neck dissection, and reconstruction. Which of the following is the best reconstructive plan for this patient?

Choices:

1. Osteocutaneous radial forearm flap
2. Mandibular reconstruction bar wrapped with a left pectoralis major flap
3. Osteocutaneous fibular free flap
4. Mandibular reconstruction bar wrapped with a right pectoralis major flap

Answer: 2 - Mandibular reconstruction bar wrapped with a left pectoralis major flap

Explanations:

- For this patient, a mandibular reconstruction bar wrapped with a left pectoralis flap is the best option. Free tissue transfer is not absolutely contraindicated, but it may increase the length of time of the procedure and presents an additional risk of intraoperative and postoperative complications. This is an elderly man with multiple comorbidities. His age, extensive peripheral vascular disease, and the presence of a major vessel bypass suggest that this patient is not a good candidate for a free tissue transfer.
- The question stem also suggests that the right neck and chest are poor contributors for reconstruction. The prior radiation, peripheral vascular disease, and bypass procedure are suggestive of a less reliable arterial supply for the flap. Additionally, the bypass may discourage the surgeon from using the right pectoralis for reconstruction.
- Two free flaps are presented as options. The CT angiogram of the legs shows single-vessel runoff, which contraindicates the use of a fibular free flap.
- Osteocutaneous radial forearm flap is a viable option if the surgeon and patient wish to assume the risks of a free tissue transfer. Given the multiple comorbidities, this patient should be considered for a reconstruction that curbs the risk of complications and time under general anesthesia.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Osteocutaneous Radial Forearm Flap





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Question 124: A 60-year-old male patient reported with the complaint of difficulty in chewing for one year. His medical history revealed that he underwent treatment for nasopharyngeal carcinoma. The patient had surgical resection of the tumor along with radiotherapy within 100 days postoperatively with 60 Gy. Examination revealed no muscle tenderness or temporomandibular joint dysfunction. On soft tissue examination of the oral cavity, blanching of the buccal mucosa with melanin pigmentation was noticed. The salivary flow appeared to be normal. Hard tissue examination showed multiple root stumps in both the arches. The patient had chewing difficulty due to which of the following reason?

Choices:

1. Recurrence of carcinoma
2. Surgical resection that left a defect
3. Radiation-induced caries
4. Poor physical and manual dexterity of the patient after surgery

Answer: 3 - Radiation-induced caries

Explanations:

- The term “radiation caries” represents a severe form of rampant caries.
- Radiation caries is an indirect effect of irradiation-induced changes in salivary gland tissue that result in hyposalivation, altered salivary composition, a shift in oral flora toward cariogenic bacteria.
- Most characteristic features of radiation caries are the involvement of tooth at gum level and cusp tip in contrast to normal cavitation, which mostly affects smooth surfaces.
- The rate of progression of radiation caries is much faster than normal cavitation.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Dental Caries



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Question 125: A 73-year-old woman presents to the clinic for a mouth ulcer. Physical examination shows a small 3 cm patch of smooth, velvety erythematous mucosa on the right aspect of her hard palate. There is no apparent clinical explanation for its appearance. What is the most likely diagnosis?

Choices:

1. Leucoplakia
2. Erythroleukoplakia
3. Erythroplakia
4. Squamous cell carcinoma

Answer: 3 - Erythroplakia

Explanations:

- Erythroplakia is a precancerous condition that may progress to a squamous cell carcinoma if left untreated.
- Erythroplakia is characterized by smooth, flat, red, velvety areas of mucosa which cannot be scraped away.
- Leukoplakia is characterized by thick white patches on the surface of the mucosa that cannot be scraped away.
- Erythroleukoplakia is a combination of patches of both erythroplakia and leukoplakia.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Oral Mucosa Cancer



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Question 126: A 45-year-old man is undergoing flexible nasendoscopy for suspected polyps. The proceduralist is unable to obtain a clear view and delineate the nasal cavity structures. Which pre-procedural step is most likely to have provided a better examination view?

Choices:

1. Using a lubricant on the scope
2. Moistening the tip on the patient's own tongue
3. Sterilizing the scope
4. Using a nasal decongestant

Answer: 2 - Moistening the tip on the patient's own tongue

Explanations:

- Fogging of the lens of the scope does not allow for a clear view of the structures that need to be examined and can inadvertently cause trauma to the surrounding structures.
- The options to de-fog the scope would be to use an anti-fog solution, use an alcohol wipe on the tip, or moisten the tip on the patient's own saliva from the tongue.
- Avoid using the lubricant on the tip of the scope, as this may obscure the view. Rather apply it to the distal end, sparing the tip.
- Sterilizing the scope and using a nasal decongestant does not help in de-fogging the scope.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Flexible Nasopharyngoscopy



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Question 127: A 46-year-old man from Ghana presents to the clinic for foul-smelling breath. He states that brushing his teeth "is not feasible" with his job, which requires him to live on a fishing boat. He also reports a one-day history of tooth pain. On physical exam, he has extensive breakdown of the interdental papillae, and there is oozing of blood from the periodontal tissue. He has recently completed a course of penicillin prescribed to him by the urgent care for a potential apical abscess, but he reports that his symptoms have only worsened. Which of the factors is most likely responsible for his current condition?

Choices:

1. Recent use of antibiotics
2. Poor oral hygiene
3. Infection with HCV
4. Travel to Southern Africa

Answer: 2 - Poor oral hygiene

Explanations:

- Physiologic factors that play a main role in acute necrotizing ulcerative gingivitis (ANUG) include psychological stress, insufficient sleep, poor diet, alcohol and tobacco consumption, poor oral hygiene, preexisting gingivitis and HIV infection.
- Poor oral hygiene and other factors listed have been shown to impair the host immune response, which facilitates bacterial pathogenicity.
- Poor oral hygiene is present in almost 100% of ANUG diagnoses.
- ANUG can develop gradually in the setting of chronic poor oral hygiene.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Acute Necrotizing Ulcerative Gingivitis



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Question 128: A 68-year-old man presents to the clinic with missing teeth in the maxillary and mandibular arches. He has a history of parkinsonism for the last ten years. The patient requires assistance to walk and to get in or out of the dental chair. The mandibular movements of the patient exhibit marked trembling. On intraoral examination, both the maxillary and mandibular residual ridges are found to be resorbed according to Atwood's class IV. A reduction salivary flow is also noted. A conventional denture was fabricated, but the patient complains of an unstable lower denture. Which of the following is most likely responsible for this instability?

Choices:

1. Residual ridge resorption
2. Reduced salivary flow
3. Neuromuscular incoordination
4. Error in denture fabrication steps

Answer: 3 - Neuromuscular incoordination

Explanations:

- Parkinson's disease is a motor system disorder and is an irreversible, slowly progressive, neurodegenerative movement disorder.
- The stability of the denture largely depends on the ability of the patient to control the denture with oral musculature.
- The patient requires assistance to walk and get in/out of the dental chair, indicating a lower level of muscle coordination.
- The involuntary muscle movement and rigid musculature in parkinsonism patients may compromise the denture control and thus, stability.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Stability In Mandibular Denture



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Question 129: An 18-year-old is brought to the hospital after a road traffic accident. He has swelling in the lower one-third of the face. Intraoral examination revealed edema, reduced mouth opening, and bleeding. There is deviation noted on mouth opening and derangement in occlusion. Computed tomography shows a mildly displaced fracture of the parasymphysis, bilateral displaced fracture of the body of mandible on the right side, and fracture of left condylar head of the mandible. Which of the following complications is most likely to occur in this patient?

Choices:

1. Oral sepsis
2. Displacement of fractured fragments
3. Obstruction of the airway
4. Malunion or nonunion of the fractured segments

Answer: 3 - Obstruction of the airway

Explanations:

- If the fracture of the body of the mandible is bilateral along with the parasymphiseal, or condylar fractures, the airway may get impaired.
- This is due to the muscular action that pulls the distal mandibular segment backward.
- This results in obstruction of the oropharynx by the tongue.
- Such cases may also result in nerve damage such as neuropraxia in which function takes around 4-6 weeks to return or neurotmesis in which function may take around 18 months to return.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Mandible Body Fracture



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Question 130: An 80-year-old edentulous man with no history of smoking or alcohol use disorder is being evaluated for a lesion on the gingivoalveolar mucosa at the level of the right mandibular mid-body secondary to lichen planus. The patient undergoes a segmental mandibulectomy, ipsilateral neck dissection, and a left osteocutaneous radial forearm flap. The patient experiences postoperative numbness between the left thumb and index finger. Which of the following best describes the origin of the cutaneous innervation of this patient's palsy?

Choices:

1. The posterior cord of the brachial plexus
2. Axillary nerve
3. The lateral cord of the brachial plexus
4. The medial cord of the brachial plexus

Answer: 1 - The posterior cord of the brachial plexus

Explanations:

- The numbness described is secondary to surgical management of the superficial branch of the radial nerve during radial forearm flap harvest.
- During flap harvest, the superficial branch of the radial nerve can be seen running laterally to the radial artery pedicle under the brachioradialis. The nerve becomes more superficial after it passes through Wartenberg's point and is seen in the distal wrist during flap harvest.
- The superficial branch of the radial nerve is a sensory nerve that provides sensation the distal lateral forearm, dorsal skin of the hand over the thumb, index finger.
- The radial nerve arises from the posterior cord of the brachial plexus, which gets contributions from C5-T1.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Osteocutaneous Radial Forearm Flap



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Question 131: A 78-year-old man with a 55 pack-year smoking history, chronic obstructive pulmonary disease, and squamous cell carcinoma of the tongue undergoes a 13-hour resection, neck dissection, and free flap creation. The patient is maintained on 0.5 MAC sevoflurane, 50% nitrous oxide in oxygen, and fentanyl boluses as needed. At the end of the case, the patient is extubated without event. Immediately following extubation, the patient develops stridor, although his SpO₂ is stable at 98% with no apparent respiratory distress. His wound is hemostatic and is unchanged from initial closure. Which of the following is the next best step in the management of this patient?

Choices:

1. Prepare for immediate reintubation
2. Wound exploration
3. Racemic epinephrine
4. IV vancomycin and piperacillin-tazobactam

Answer: 3 - Racemic epinephrine

Explanations:

- This clinical scenario likely represents post-extubation stridor, and the patient is otherwise stable. It is appropriate to monitor without reintubation if clinically stable.
- When nitrous is used for long cases, it can diffuse into the tracheal tube cuff leading to laryngeal edema.
- Racemic epinephrine and intensive care is most appropriate for this patient.
- There is no reason to suspect a wound problem or an infectious process.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Nitrous Oxide



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Question 132: An 18-year-old male reports to the dental clinic for an annual examination. He states he brushes twice daily and flosses at night. He is well and has no clinical symptoms. His examination eruption of 32 permanent teeth and good dental hygiene. His right maxillary premolar and molar tooth have the presence of deep invaginations and clefts. The doctor recommends a non-invasive treatment to prevent dental decay. The procedure involves isolation and cleaning the affected tooth. This is followed by the application of pumice to the teeth. The teeth are etched with acid and a resin gel is applied to the occlusal surface. A light is then held over the applied gel for 30 seconds. What is the biochemical basis of subjecting the material to light?

Choices:

1. Reduce microbiological contamination
2. Enhance enamel demineralization
3. Reduce aqueous contamination
4. Enhance resin polymerization

Answer: 4 - Enhance resin polymerization

Explanations:

- This individual has presented for a dental examination which has revealed the presence of pits and fissures on his upper premolar and molar teeth. Pits and fissures increase the likelihood of dental caries. Preventive dental treatment by using sealants should be offered to these individuals.
- The application of sealants for pit and fissures have several steps. The final step in the process involves the application of energy source in the form of light; a process called curing. This allows polymerization of composites in sealant and allows appropriate adhesion to the occlusal surface.
- Light curing of sealant setting of sealants in a short time. The sealants can be applied onto the pits and fissures, and light can be used later, which will ensure proper application without time constraints.
- Light curing forms an integral part of light-cure sealants. The application of acid to the enamel surface results in demineralization and roughening of the surface to allow for adequate adhesion. The teeth should be dried thoroughly prior to the application of hydrophobic sealants.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Pit and Fissure Sealants



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Question 133: A 12-year-old boy is brought to the clinic with complaints of mobile teeth in the upper front teeth. The patient reports a bicycle accident and trauma the previous day. Clinical examination shows grade I mobility and gingival sulcular bleeding in relation to the fractured tooth. What is the best initial step in the management of this patient?

Choices:

1. Intraoral periapical radiograph of the mobile tooth
2. Vitality testing of the mobile tooth
3. Extraction of the mobile tooth
4. Root canal treatment of the mobile tooth

Answer: 1 - Intraoral periapical radiograph of the mobile tooth

Explanations:

- An intraoral periapical (IOPA) radiograph is required to confirm the root fracture of the mobile teeth. The IOPA also aids in identifying the level of root fracture.
- The marginal gingival bleeding is a classical sign of root fractures. Though marginal gingival bleeding suggests root fracture, IOPA is required to confirm the level of root fracture.
- The cervical root fracture has a poor prognosis and the apical root fractures are having the good prognosis to save the tooth.
- The mobile tooth can be conservatively treated by flexibly splinting the using fiber splints and followed by the root canal treatment. Though root canal treatment is indicated in the line of treatment, radiographic diagnostic aid (IOPA) is the indicated first.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Tooth Fracture



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Question 134: A 54-year-old male patient is brought to the emergency department by an ambulance after facial trauma. On physical examination of his face, a displaced fracture of a segment of the mandibular alveolar process is found, and the clinician notes a freshly empty socket in the oral cavity. The vitals measurements taken show a blood pressure of 120/80 mmHg and a heart rate of 88 beats per minute. Which of the following is the most important next step in the management of this patient?

Choices:

1. A dentist should be consulted for an immediate root canal treatment
2. A dentist should be consulted to arrange a replacement of the missing tooth
3. Question about the location of the missing tooth and chest radiography should be considered in an attempt to locate the tooth and exclude aspiration
4. An immediate esophagogastrosocopy should be performed because the patient probably swallowed the missing tooth

Answer: 3 - Question about the location of the missing tooth and chest radiography should be considered in an attempt to locate the tooth and exclude aspiration

Explanations:

- A fresh tooth socket after facial trauma requires accounting for the missing tooth.
- The most serious complication is an aspiration.
- Chest radiography is helpful to determine if aspiration has occurred and to potentially confirm the presence of the tooth in the gastrointestinal tract.
- An emergency physician can replace an avulsed tooth.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Avulsed Tooth



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Question 135: A 22-year-old G1P0 female patient just gave birth via vaginal birth to a baby girl born at 39 weeks of gestational age. The baby girl is noted to have a complete unilateral cleft lip on the left side. The mother wants to have her daughter's cleft lip repaired. What recommendations may be given to the mother?

Choices:

1. Repair between 2 and 3 months of age will provide the optimal amount of tissue to close the defect
2. Most surgeons prefer repairing defect within 48 hours after birth
3. Lip tape adhesion before the definitive repair is associated with unfavorable surgical outcomes
4. Employing nasoalveolar molding techniques allow definitive surgical repair to occur earlier in the patient's life

Answer: 1 - Repair between 2 and 3 months of age will provide the optimal amount of tissue to close the defect

Explanations:

- Most surgeons prefer repairing cleft lip deformities at 10 weeks of age.
- The rule of 10's of the timing of surgical repair of cleft lip states that repair is better performed when the patient weighs 10 lbs, is 10 weeks of age, and has a hemoglobin level of 10 g/dL.
- Lip tape adhesion prior to definitive surgical repair approximates the cleft margins creating a smaller defect and facilitates surgical repair.
- If nasoalveolar molding is to be used prior to surgical repair, surgery must be delayed while nasoalveolar molding is employed.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Cleft Lip Repair



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Question 136: Following a nasal trauma after a fall, a 17-year-old female patient comes to the emergency department (ED) on the next day, complaining of pain and difficulty with nasal breathing. Clinical examination reveals swelling of the septum, which is boggy to touch with a cotton bud and has a bluish-purple appearance. The X-ray of the skull does not show any deformity of the nose. What is the next best step in management?

Choices:

1. Start the patient on a nasal decongestant and discharge them
2. Admit the patient to the ward and start them on intravenous antibiotics
3. Admit the patient and contact a surgeon for the urgent management
4. Start the patient on oral antibiotics and arrange an urgent follow up in the outpatient department

Answer: 3 - Admit the patient and contact a surgeon for the urgent management

Explanations:

- Septal hematomas are medical emergencies caused by a collection of blood underneath the mucoperichondrial layer of the nasal septum. If not dealt with, they can develop into septal abscesses that can lead to septal perforations and nasal saddle deformity.
- A septal hematoma needs to be drained urgently. Usually, intravenous or oral antibiotics are given if a septal abscess is present.
- In the emergency department, a needle and syringe can be used to drain a small hematoma if the blood is not organized and thick. To prevent recollections, nasal packing can be used to give counterpressure to the septum.
- In the operating room, a hemitransfixion incision is used, and the hematoma/abscess can be irrigated. Then mattress sutures are used to reduce the dead space, and a small corrugated drain can be left in-situ for 48 hours.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Nasal Septal Hematoma



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Question 137: A 65-year-old white female patient presents to her primary care provider's office with several month complaints of worsening dysphagia, fatigue, and hair loss. She also has "cracks" at the corner of her mouth. Physical examination reveals atrophic fissuring at the angles of the mouth, a beefy red tongue with loss of papillae, and non-scarring alopecia. There are no neurological deficits. What type of anemia would one expect to see on this patient's peripheral blood smear?

Choices:

1. Normocytic anemia
2. Sideroblastic anemia
3. Megaloblastic anemia
4. Microcytic anemia

Answer: 4 - Microcytic anemia

Explanations:

- Ariboflavinosis (vitamin B2 deficiency) causes angular cheilitis and magenta glossitis with normocytic anemia, usually as a manifestation of impaired iron absorption. It also causes stomatitis, pharyngitis, and pseudo-syphilis (seborrhea-like dermatitis of the scrotum, vulva, philtrum, or nasolabial folds).
- Vitamin B6 deficiency causes sideroblastic anemia, atrophic glossitis, angular cheilitis but it is also associated with cognitive or psychiatric depression, hypertension, neuropathy, conjunctivitis, stomatitis, and intertrigo.
- Megaloblastic anemia (pernicious anemia), glossitis, and angular cheilitis are consistent with Vitamin B12 deficiency. A hallmark feature is neurological symptoms including peripheral neuropathy (paresthesia, ataxia, decreased sensation), cognitive impairment/dementia, motor deficits (absent reflexes). Lack of vitamin B12 can also cause glossitis and angular cheilitis. Patients susceptible to hypovitaminosis B12 also usually are folate deficient, as well.
- This patient presents with classic Plummer Vinson syndrome. Her signs and symptoms are consistent with severe iron deficiency, such as fatigue (from microcytic anemia), glossitis, angular cheilitis, and alopecia areata. She may also have koilonychia (spoon nails). The dysphagia is from esophageal webs, which may be seen on esophagogram or upper endoscopy. Iron supplementation can reverse many of her symptoms, but esophageal dilatation may be warranted for severe dysphagia.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Angular Chelitis

StatPearls Knowledge Base



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Question 138: A 16-year-old male patient reports with a complaint of retained primary teeth. The general health of the patient is excellent, with no history of allergies or hospitalizations. He has a female sibling with no relevant dental problem. Physical evaluation reveals that he is well built with no abnormalities in his hair, skin, or nails. Intraoral examination reveals that 16 of his permanent teeth have erupted which were of normal size and shape. He has 14 retained primary teeth. An orthopantomogram reveals the presence of primary teeth and few permanent teeth. The nonerupted teeth are covered with bone and had well-circumscribed follicles. Which of the following endocrine abnormalities is likely to be associated with the delayed eruption of teeth?

Choices:

1. Hypothyroidism
2. Hypocortisolism
3. Diabetes
4. Cushing syndrome

Answer: 1 - Hypothyroidism

Explanations:

- Congenital hypothyroidism is commonly complicated by delayed tooth eruption.
- The endocrinal disorders associated with delayed eruption are hypothyroidism, hypopituitarism, and hypoparathyroidism.
- The delayed eruption may also occur due to the effect of local factors (mucosal barrier, gingival fibromatosis, odontogenic and non-odontogenic tumors, premature loss of the primary tooth, radiation damage).
- Various syndromes such as down syndrome, Turner syndrome, Gardner syndrome, Cleidocranial dysostosis, Anhidrotic ectodermal dysplasia, Hutchinson–Gilford syndrome, Bloch–Sulzberger, Apert syndrome, Axenfeld–Rieger Syndrome have shown to cause a delayed eruption.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Anatomy, Head and Neck, Tooth Eruption



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Question 139: A 42-year-old woman from Peru presents with a six-week history of a sudden onset of a dark brown spot on the oral mucosa of her right cheek. She denies any symptoms associated with the lesion. The patient has no past medical history and takes no medications. She denies smoking tobacco or drinking alcohol. On examination, there is a 1.5 cm well-defined, flat, brown-black lesion on the inferior part of the buccal mucosa extending from the first lower premolar to the second molar. These teeth exhibit class V amalgam restorations. On inquiry, the patient mentions these fillings were performed about two months ago. A biopsy reveals clearly defined dendritic melanocytic proliferation contained in an acanthotic epithelium. There is a moderate inflammatory infiltration in the connective tissue. Although uncommon, which of the following symptoms may accompany this lesion?

Choices:

1. Burning sensation
2. Itchiness
3. Pain radiating to the throat
4. Dysphagia

Answer: 2 - Itchiness

Explanations:

- The patient in the clinical scenario presents with oral melanoacanthoma, which is a rare, benign macular brown-black lesion, distinguished by a sudden appearance and rapid growth.
- It is found to be secondary to tissue trauma and self-limiting in nature. The traumatic agent can be a mechanical or chemical irritant, like dental restoration materials.
- Oral melanoacanthoma is usually asymptomatic but rarely may be painful or itchy.
- The presentation typically involves a history of new darkening or dark spots in the mouth, generally brown or black, well-circumscribed, and flat.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Oral Melanoacanthoma



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Question 140: An 18-month-old male child presents to the clinic. The child is an immigrant and has an unknown history of healthcare, if any. He has a heart rate of 112 beats per minute, the respiration rate of 23 breaths per minute, and has a 99% oxygen saturation on room air. The child is playful. The parents say that they are concerned about the developmental delay. The physical exam is remarkable for a dental malocclusion secondary to retrognathia. The parents report the child underwent a procedure to close a unilateral left cleft palate. Which of the following lab values would be low in this child?

Choices:

1. Calcium
2. Alkaline phosphatase
3. Adrenocorticotrophic hormone (ACTH)
4. Thyroid-stimulating hormone (TSH)

Answer: 1 - Calcium

Explanations:

- This child displays the occlusal signs, a dental class II malocclusion with retrognathia, of DiGeorge syndrome.
- The history of cleft palate repair is another pointer to DiGeorge syndrome with the common presentation of cleft palate, though often not cleft lip. Cleft palates alone are more associated with syndromes than cleft lips.
- In DiGeorge syndrome, there is a deletion at 22q11.2 chromosome.
- Calcium levels are low in DiGeorge patients due to the disruption of the parathyroid hormone.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Physiology, Tooth



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Section 5

Question 141: A 23-year-old woman presents for an elective dental surgical procedure. She has no past medical history and takes no medications. The extraction of her right lower third molar is recommended since it is impacted, and it has an associated dentigerous cyst. Local articaine anesthesia for blocking the nerve that gives innervation to this tooth is about to be performed. The tip of the needle must be inserted near the area where the nerve emerges from its foramen. At which of the following distances is this foramen most likely located?

Choices:

1. At 4 mm posterior to the center of the width of the ramus
2. At 4 mm anterior to the center of the width of the ramus
3. At 19 mm from the coronoid notch
4. At 25 mm from the coronoid notch

Answer: 3 - At 19 mm from the coronoid notch

Explanations:

- Successful inferior alveolar nerve block requires the deposition of local anesthesia close to the mandibular foramen.
- The mandibular foramen is located at a distance of 19 mm from the coronoid notch, and it may be either above the or below the level of the occlusal plane.
- The location of the mandibular foramen is not at the exact center in the anterior-posterior dimension of the ramus.
- It is located approximately 2.75 mm posterior to the center of the width of the ramus.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Inferior Alveolar Nerve Block



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Question 142: A 57-year-old man undergoes fixation of an osteotomized maxilla. The patient is released from maxillo-mandibular fixation. Passive counterclockwise rotation of the mandible repeatedly demonstrates an anterior open bite, and the patient is no longer occluding in the splint. Which of the following is the most likely cause of this complication?

Choices:

1. Failure to adequately engage bone at the zygomaticomaxillary buttress
2. The thickness of the splint has created an occlusal prematurity
3. The maxillomandibular complex was not adequately rotated prior to fixation
4. The splint was not properly fitted to the dentition

Answer: 3 - The maxillomandibular complex was not adequately rotated prior to fixation

Explanations:

- Previously considered the most "posterior superior" position of the condyles in the glenoid fossa, centric relation is now considered placement in the most "superior anterior" position of the condyles in the glenoid fossa. The surgeon must identify a reproducible mandibular position with the teeth in occlusion. This position should be readily achieved pre-operatively and intra-operatively.
- After down-fracture of the maxilla, posterior bony interferences are removed first to allow for passive positioning of the maxilla. Once reduced, the maxilla and mandible are placed in maxillomandibular fixation (MMF) and rotated into position, taking care to seat the condyles properly. At this point, anterior maxillary interferences will be more easily identified and can be reduced.
- Failure to properly identify and consistently repeat the appropriate mandibular position with the condyles fully seated in the glenoid fossa can potentially alter the position of the maxilla or the mandible during fixation when the maxillomandibular complex is rotated, resulting in malpositioning when maxillomandibular fixation (MMF) is released. Typically relapse into an anterior open bite will be immediately identified upon release of MMF; however, on occasion, apertognathia will not be identified until later owing to intra-operative muscle relaxation and edema.
- An anterior open bite after the release of maxillo-mandibular fixation can result from failure to identify and relieve bony interferences in the maxilla prior to fixation. Placement in maxillo-mandibular fixation will compensate and overcome this interference by pulling the condyles out of the glenoid fossa.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Le Fort Osteotomy



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Question 143: A 1-month-old male presents with a lip deformity. He was born to a 35-year-old primigravid at 37 weeks age of gestation. His mother smoked cigarettes in the first trimester of her pregnancy and had no regular prenatal check-up. It was noticed that he has difficulty in feeding and swallowing milk. The vital signs show a temperature of 37.5 C (99.5 F), cardiac rate 130/min, and a respiratory rate of 40 breaths/min. The physical exam shows a shortened philtrum and an incomplete unilateral cleft lip. Which of the following surgical techniques can be used for the primary repair of the unilateral structure involved in this patient's condition?

Choices:

1. Double-opposing Z-plasties
2. Fisher repair
3. Mulliken repair
4. Von Langenbach procedure

Answer: 2 - Fisher repair

Explanations:

- Cleft lip deformity is one of the most common congenital deformities, and management requires an interprofessional approach to address the physical cleft deformity along with resulting issues in speech and swallowing.
- Cleft lip formation is most likely influenced by a patient's genetic make-up but is multi-factorial. An expectant mother's malnourishment as well as exposure to phenytoin, steroids, tobacco, alcohol, and Accutane is known to increase the likelihood of cleft lip deformity. It develops at the junction between the lateral and central segments of the upper lip. The cleft usually affects the upper lip and may extend into the maxilla and palate.
- Surgical intervention for initial cleft lip usually occurs at 3 to 5 months of age. A good rule of thumb in deciding the age at which is it safe to perform primary cleft lip repair is the "Rule of 10s." If the infant is ten weeks old, 10 pounds, and hemoglobin has reached 10mg/dL, surgical repair should be safe if no other comorbidities preclude it.
- There are many accepted surgical techniques for primary repair of unilateral (Millard repair rotation advancement, Fisher repair, and Mohler repair) and bilateral (Mulliken repair) cleft lip. The double-opposing Z-plasties and von Langenbach are surgical techniques used for cleft palate repair.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Cleft Lip Repair





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Question 144: A 22-year-old Black male patient with HIV, last known CD4 count 150, presents for routine follow up. Last year, he developed a pulmonary embolism and was found to have antiphospholipid syndrome, for which he is on chronic warfarin therapy. He is intermittently compliant with highly active antiretroviral therapy (HAART). Oral examination reveals white removable plaques with an erythematous base on the inside of the cheek and palate. The angles of the mouth exhibit triangular deep atrophic fissures with erythema and purulent exudate. He reports odynophagia that has been worsening over the past two weeks. He has no drug allergies. In addition to compliance with HAART, what medication would best treat this patient's condition?

Choices:

1. Oral caspofungin
2. Oral voriconazole
3. Oral fluconazole
4. Oral nystatin

Answer: 1 - Oral caspofungin

Explanations:

- Caspofungin is indicated for severe oral and any esophageal candidiasis. It is not a triazole, thus it would not interact with warfarin via the hepatic cytochrome P450 system.
- Voriconazole is used to treat moderate and severe cases of oral candidiasis and any cases extending into the esophagus, only when fluconazole and either itraconazole or posaconazole have failed.
- Triazoles, such as fluconazole, is used to treat moderate and severe cases of oral candidiasis and any cases extending into the esophagus. However, they are inhibitors of the hepatic cytochrome P450 system and would interact with the patient's warfarin, thus making them contraindicated.
- Nystatin is used in mild cases of thrush and those isolated to the oral cavity. This patient's odynophagia, in the presence of oral thrush and lowered immune system, is sufficient to presume that he is suffering from esophageal candidiasis. Nystatin is not systemically absorbed and would not provide sufficient tissue distribution to treat this patient.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Angular Chelitis



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Question 145: A 69-year-old female presents to the clinic for evaluation of a 0.5 cm painless bluish-black lesion of the maxillary gingiva. Physical examination reveals as slightly raised lesion with ulceration and surrounding small pigmented lesions. Lymphadenopathy is not present. Excisional biopsy reveals 0.8mm thickness of the lesion and overexpression of CD117. Which of the following is the correct classification for this lesion?

Choices:

1. T1N0M0
2. T2N0M0
3. T2NXM0
4. T3N0M0

Answer: 4 - T3N0M0

Explanations:

- TMN is a classification system that allows for practitioners to communicate cancer information properly. In mucosal melanoma, there is no T1 or T2. In TMN classification of mucosal melanoma, T3 is classified as tumors limited to the mucosa and immediately underlying soft tissue, regardless of thickness or the greatest dimension.
- Primary mucosal melanomas are aggressive tumors that are rarer than cutaneous melanoma. Head and neck mucosal melanomas are the most common.
- Oral melanoma is complicated by the fact that detection does not usually occur until the lesion is advanced. There is a poor 5-year survival at approximately 15% to 30% likely due to delayed detection.
- The etiology mostly is unclear in malignant melanoma of the mouth. Mucosal melanoma of the mouth is not related to sun exposure. Risk factors largely remain obscure.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Oral Melanoma



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Question 146: A 3-year-old is evaluated for a retrognathic mandible at an initial wellness visit. This is the first time he has seen a health care professional. The child appears delayed and has unique facial features. Further testing shows a deletion on chromosome 22q11.2. He is also referred to a cardiologist where some abnormalities are discovered. Which further lab test is indicated?

Choices:

1. Erythrocyte sedimentation rate
2. C-reactive protein
3. Serum potassium levels
4. Serum calcium levels

Answer: 4 - Serum calcium levels

Explanations:

- The patient presents with severe retrognathia of the mandible which can be indicative of a multitude of congenital disorders and syndromes.
- The description of the patient above should lead to the diagnosis of DiGeorge syndrome.
- A common anomaly in DiGeorge syndrome is thymic aplasia and resulting issues with serum calcium levels due to problems with the parathyroid glands or frank aplasia, leading to dysregulation of the calcium system.
- Common craniofacial disorders that can manifest with retrognathia include DiGeorge syndrome, Pierre Robin sequence, Stickler syndrome, and many others.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Retrognathia



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Question 147: A 60-year-old male with a history of lymphoma develops pain in the jaw, and ulceration of the mucosa following radiation treatment. He is treated with IV antibiotics, hyperbaric oxygen therapy, and surgical resection of the affected tissue, but still has symptoms. What additional therapy may benefit this patient?

Choices:

1. Addition of misoprostol therapy
2. Addition of pentoxifylline and tocopherol therapy
3. Addition of cisplatin and docetaxel therapy
4. Addition of rivastigmine therapy

Answer: 2 - Addition of pentoxifylline and tocopherol therapy

Explanations:

- Osteoradionecrosis is a possible complication of radiation therapy to the neck and jaw.
- Osteoradionecrosis results in ulceration and necrosis of the mucosa with exposed bone, inevitably leading to infection and necrotic bone. Exposed bone often leads to irritation of surrounding oral soft tissues.
- The mainstay of treatment for osteoradionecrosis is IV antibiotic therapy, hyperbaric oxygen therapy, and surgical resection of the affected tissue.
- Failed treatment of osteoradionecrosis with conventional therapy indicates the addition of pentoxifylline and tocopherol therapy.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Osteoradionecrosis



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Question 148: A nine-year-old girl presents to the clinician with swelling on the left lower region of her jaw. Extraoral examination revealed severe swelling that was non-fluctuating in nature and submandibular lymphadenopathy on the left. Intraoral examination revealed normal oral mucosa except for a discolored first molar tooth on the left side. A lamellar appearance was noted on the radiograph on the external cortical surface and at the lower edge of the mandible. In Cone-beam computed tomography (CBCT), a tunnel-like defect was noted in the cortical bone with bone deposition in the center. A diagnosis of Garre's osteomyelitis is made. Which among the following is the most probable etiology of osteomyelitis in the patient?

Choices:

1. Nonodontogenic infection
2. Carious left mandibular first molar tooth
3. Trauma from occlusion
4. Gingival abscess

Answer: 2 - Carious left mandibular first molar tooth

Explanations:

- Garre's osteomyelitis is a localized periosteal thickening caused by mild irritation or infection.
- A moderate infection such as dental decay may lead to osteomyelitis in which the body of the mandible may show irregular lucent or opaque changes with subperiosteal thick layering along the inferior border.
- If dental caries are left untreated for a long period, it may lead to several complications based on the nature of the carious lesion.
- If the host immune response is weak, dental caries may result in inflammation of pulp leading to apical periodontitis, periapical abscess or periapical granuloma, periapical cyst, cellulitis, abscess, periostitis and may progress to osteomyelitis.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Dental Caries



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Question 149: A 55-year-old male presents to the dentist for evaluation. He states that he has been having difficulty chewing food due to restricted mouth opening. He has had the symptoms for the past several months, but it has been getting worse. He does not report any trauma or pain. He also has a history of diabetes, hypertension, and osteoarthritis. He is a chronic smoker and has a smoking history of 10 pack years. He also chews betel nut frequently. Examination reveals poor dental hygiene and restriction of mouth opening. His maximal inter-incisor opening is measured to be 15 mm. His maximal tongue protrusion is measured 10 mm horizontally. Oral cavity examination is limited but reveals a pale, blanched oral mucosa. The temporomandibular joint examination reveals the presence of a painless click. What is the likely etiology of this patient's presentation?

Choices:

1. Periodontal inflammation
2. Joint ankylosis
3. Lamina propria fibrosis
4. Masticatory myospasm

Answer: 3 - Lamina propria fibrosis

Explanations:

- This patient has presented with restricted mouth opening and difficulty chewing food. His examination confirms the presence of trismus. A history of betel nut use, along with the presence of a blanched mucosal appearance, suggests the development of submucosal fibrosis.
- Submucous fibrosis is an important cause of trismus. It is mainly seen in individuals from the Indian subcontinent and those who chew betel nut. There is fibrosis of lamina propria and the resultant loss of elasticity and stiffness leading to trismus.
- The trismus is gradual in onset and is progressive. Treatment included intralesional injections of corticosteroids and surgical release of fibrotic bands. Jaw opening exercises are important to prevent a recurrence.
- Submucous fibrosis is an important non-infectious cause of trismus and should be recognized as it is a premalignant condition. Temporomandibular joint ankylosis, periodontal inflammation, and spasm of muscles of mastication can all lead to trismus but are not likely in this patient.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Trismus



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Question 150: A 33-year-old woman presents to the clinic for follow up. She has a 1-year history of a left non-healing ulcer on the lateral oral tongue. This was treated with nystatin for two weeks without resolution, then biopsied revealing squamous cell carcinoma. The depth of invasion is 7 mm. She denies any other neck masses and denies dysarthria, dysphagia, hemoptysis, or unexplained weight loss. She has a 20 pack-year history of smoking, though she quit since this lesion appeared due to pain. What is the most appropriate management strategy for this patient?

Choices:

1. Left selective neck dissection
2. Bilateral neck dissection
3. Radiation therapy to the left neck
4. Left extended neck dissection to include the posterolateral triangle

Answer: 1 - Left selective neck dissection

Explanations:

- This is a stage II (T2N0MX) oral tongue squamous cell carcinoma, and the risk of occult metastasis is >25%.
- This condition warrants elective treatment of this N0 neck.
- Left selective neck dissection, including levels Ib - IV, is indicated. If pathologically negative, then radiation therapy can be avoided if there are no other adverse histologic features. Because she is a smoker, if adverse pathologic features such as perineural or lymphovascular invasion are identified, then radiation with or without chemotherapy is indicated for optimal curative treatment.
- Primary radiation therapy has very poor results in oral tongue squamous cell carcinoma.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Neck Cancer Resection and Dissection



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Question 151: A 34-year-old man presents to the hospital for acute jaw pain. His recent history reveals that he has just gotten off a dive boat after a 10-meter SCUBA dive, with appropriate decompressions stops. He noted the acute onset of the jaw pain upon ascent. His physical exam reveals marked tenderness at the root of #18 molar. There is marked tenderness to percussion at the jawline at this location. What is the most likely cause of the patient's symptoms?

Choices:

1. Expansion of an infected apical root abscess
2. Implosion of a carious tooth
3. Collapse of a filling
4. A hairline fracture of his jaw

Answer: 1 - Expansion of an infected apical root abscess

Explanations:

- Gas trapped in an abscess will obey Boyle's law and will expand, causing pain on the ascent phase of the dive.
- Carious teeth may implode on the descent but will explode on the ascent.
- The spaces around fillings may expand and create pain, but the filling does not characteristically collapse.
- Jaw fractures occurring during scuba diving are unrelated to barotrauma.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Barotrauma



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Question 152: A 41-year-old female patient with no significant past medical history presents complaining of an asymptomatic rash on her tongue for the last three months that moves around. Upon examination, erythematous atrophic circinate patches were seen on the dorsal aspect of her tongue. What can most likely be seen histologically for this disorder?

Choices:

1. Subepithelial infiltrates with a predominance of neutrophils forming microabscesses.
2. Subepidermal blister with spongiosis and eosinophils.
3. Granulomatous infiltrate with caseating necrosis.
4. Intraepithelial blister with a pagetoid spread.

Answer: 1 - Subepithelial infiltrates with a predominance of neutrophils forming microabscesses.

Explanations:

- Geographic tongue usually shows subepithelial infiltrates with a predominance of neutrophils forming microabscess histologically.
- Geographic tongue can also show acantholysis, parakeratosis, glycogen deposits in the epithelial cells and exfoliation of necrotic cells in the surface layer histologically.
- Geographic tongue can also show mononuclear subepithelial infiltrate, suprapapillary hypertrophy and vascular ectasia histologically.
- Under electron microscopy loss of filiform papillae and necrotic cells can be seen in geographic tongue.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Geographic Tongue



We update eBooks quarterly and Apps daily based on user feedback. Please tap flag to report any questions that need improvement.

Question 153: A 72-year-old female presents to the clinic for evaluation of an enlarging oral lesion. It was noted to be pale in coloration, elevated, and ulcerated. Surgical excision and histologic examination revealed CD117 overexpression. What was the likely location of this lesion?

Choices:

1. Palate and maxillary anterior gingiva
2. Mandibular anterior gingiva
3. Tonsillar pillars
4. Floor of the mouth

Answer: 1 - Palate and maxillary anterior gingiva

Explanations:

- Approximately 80% of oral malignant melanomas develop in the mucosa of the upper jaws (maxillary anterior gingiva). The majority of these lesions occur in the keratinizing mucosa of the palate and alveolar gingivae.
- Compared to other melanomas, mucosal melanomas have the lowest percentage of five-year survival at approximately 15% to 30%. This likely is due to delayed detection.
- Mucosal melanomas account for less than 1% of all melanomas. However, mucosal melanoma accounts for roughly 10% of melanomas of the head and neck.
- The most common sites for mucosal melanoma in order are nasal, paranasal sinuses, oral cavity, and nasopharynx. Of all mucosal melanomas, paranasal sinus melanoma has the worst prognosis. The best prognosis locations are nasal and the oral cavity.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Oral Melanoma



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Question 154: A 67-year-old male with 50-year pack history of smoking comes for his initial oncology office visit. He was recently diagnosed with a tumor in one of the minor salivary glands in the oral cavity. The CT scan of the head and neck revealed a 2 cm localized tumor without extension into neighboring structures, and the biopsy of the lesion confirms it to be consistent with the most commonly encountered tumor in the minor salivary glands. The patient inquires regarding his prognosis. Which of the following is the most suitable answer from the clinician?

Choices:

1. The tumor usually cannot be removed through surgery because of high vascularity, and the prognosis is generally very poor.
2. The malignancy is generally slow-progressing with the 5-year survival around 75%
3. Systemic chemotherapy is the mainstay of therapy, with the prognosis depending on the response to chemotherapy.
4. This is a benign tumor and does not have a negative impact on life span.

Answer: 2 - The malignancy is generally slow-progressing with the 5-year survival around 75%

Explanations:

- The most prevalent malignant minor salivary gland tumor is adenoid cystic carcinoma.
- The highest incidence of malignant salivary gland tumors is found in the submandibular glands.
- Adenoid cystic carcinoma is generally well-differentiated and slow-growing, so even patients with metastatic disease may survive for years with the average 5-year survival around 75%
- Treatment is primarily surgical, but complete resection can be difficult given that it tends to grow along nerves. A delay in diagnosis and treatment is associated with poorer prognosis. Unclear surgical margins after resection of the primary tumor despite postoperative radiation therapy is the single most important risk factor for local recurrence.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Adenoid Cystic Cancer



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Question 155: A 31-year-old man presents for cosmetic advice regarding his smile. The patient mentions that every time he smiles, he shows his gums in excess and that this affects his social interactions to the point that he does not like to smile a lot. He also says his teeth are too short. He has no past medical history and takes no medications. On examination, the resting position of the lips is normal, and when the patient is instructed to smile, 4 mm of gum exposure is seen. The distance between upper gingival margins and incisal edges is decreased. The gingiva is healthy. Which of the following is the most appropriate diagnostic tool to perform a correct smile analysis?

Choices:

1. Study models
2. Video documentation
3. Photographs
4. Extra and intraoral clinical examination

Answer: 2 - Video documentation

Explanations:

- The patient in the clinical scenario presents with a gummy smile likely because his teeth did not erupt completely, and they remain partially covered by gum tissue.
- When there is more than 2 mm of gum exposure, it is considered a gummy smile. Necessary data for a proper diagnosis include medical and dental histories, extraoral and intraoral clinical examinations, study models, and photographs.
- Spontaneous and posed smiling records are highly recommended for diagnostic purposes. However, they do not give all the information needed for a smile analysis. Because of a smile's dynamic nature, it is proposed to have video documentation of the smile.
- The use of dynamic documentation of the smile is vital to esthetic rehabilitative treatment, enhancement of communication between the orthodontist and his patients, and integration between all specialists working in collaboration.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Orthodontics Gummy Smile



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Question 156: A mother comes with a child who is having a painless swelling for 14 days on the inner side of the lower lip. The swelling has not increased in size for the past 7 days. On examination of the oral cavity of the child, there is a 0.5 cm x 0.5 cm translucent swelling on the lateral aspect of the inner lower lip, which is soft in consistency, non-tender, and fluctuant. The mother is concerned about the complications of the swelling. What is the next best step in the management of this patient?

Choices:

1. Reassurance and follow-up
2. Surgical excision
3. Aspiration
4. Incision and drainage

Answer: 1 - Reassurance and follow-up

Explanations:

- The given scenario is of superficial mucocele. These mucoceles tend to resolve spontaneously in most cases and for this reason, reassurance and follow-up are required in this patient.
- If the mucocele persists for longer duration of time such as 6 months or become bothersome, surgical excision can be considered.
- A common site for superficial mucoceles is the inner aspect of the lower lip. Other sites involve soft palate, retromolar region, or anywhere inside the oral cavity.
- Mostly they arise secondary to the trauma, such as lip biting. Therefore such history must be probed for in these cases.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Mucocele And Ranula



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Question 157: A patient has persistently dry eyes and mouth. She reports that this started several months ago and has not improved. She has been using artificial tears for the past few weeks without much relief. On examination, there is a mildly tender, hard, nodular swelling at the angle of the mandible on the right in the area of the parotid gland. Labs show an erythrocyte sedimentation rate of 40 mm/hour. Sjogren syndrome A (SSA), Sjogren syndrome B (SSB), and double-stranded-DNA are all negative. There is no monoclonal protein on serum protein electrophoresis. There are diffusely elevated globulins as well as an elevated rheumatoid factor. A chest x-ray is normal. MRI shows an enlarged left parotid gland with an ill-defined 2 x 2 x 2.5 cm dense signal in the center with no neurovascular compromise. What is the most appropriate step in the management of this patient?

Choices:

1. Lip biopsy
2. Biopsy of lesion
3. Artificial tears and observation
4. Prednisone 20 mg per day, calcium 500 mg twice per day, and vitamin D 400 international units per day

Answer: 2 - Biopsy of lesion

Explanations:

- Lip biopsy would be helpful to diagnose Sjogren syndrome, but the mass should be evaluated first.
- Treatment and observation are not options until a definitive diagnosis is made.
- In general, fine needle aspiration is preferred to incisional biopsy for fear of seeding.
- After a clinical diagnosis is made from biopsy, a decision to perform surgical excision would be the next step.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Malignant Salivary Gland Tumors



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Question 158: A 50-year-old woman is being evaluated for blue discoloration intraorally near the right posterior gingiva and extra orally near her cheek. She says she got a filling on her molar with anesthesia several days ago. What is the lateral boundary of the fossa in which the structure sits in that was most likely damaged by the dental procedure?

Choices:

1. Carotid sheath
2. Posterior wall of the maxillary sinus
3. Greater wing of the sphenoid bone
4. Ramus and condylar process of the mandible

Answer: 4 - Ramus and condylar process of the mandible

Explanations:

- The fossa that the pterygoid plexus sits in is the infratemporal fossa.
- The lateral pterygoid muscle superior head inserts onto the temporomandibular capsule and disc. The inferior head inserts onto the condylar process and neck of the condyle of the mandible. The pterygoid plexus is wrapped around and associated very closely with the lateral pterygoid.
- The temporalis muscle inserts onto the anterior border of the ramus and the coronoid process. The pterygoid plexus lies in close association between the lateral pterygoid and the temporalis muscles. Therefore, knowing where these muscles attach/insert as well as what muscles the pterygoid plexus is associated with can provide you with information to answer this question.
- None of the other options are located laterally on the skull or body although they are boundaries of the infratemporal fossa. It is important to know the anatomy to determine how everything is situated.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Neuroanatomy, Pterygoid Plexus



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Question 159: A 21-year-old woman with a history of anorexia nervosa is brought to the hospital after a major motor vehicle accident that resulted in her jaw being broken, and consequently, her mouth being wired shut. She cannot open her mouth wide enough to chew and has issues swallowing. Which of the following best describes the most appropriate diet for this patient?

Choices:

1. A diet that restricts no food
2. A diet that is limited to foods that are soft
3. A diet that strictly includes only clear liquids
4. A diet that prohibits the use of solid food but allows for supplementation of nutrients to liquids

Answer: 4 - A diet that prohibits the use of solid food but allows for supplementation of nutrients to liquids

Explanations:

- A patient who is prescribed a full liquid diet follows a specific diet type requiring the intake of all liquids and semi-liquids, but no forms of solid intake.
- Historically, full liquid diets have been more likely than clear liquid diets to be supplemented with commercial formulas that provide a higher caloric intake for patients.
- This difference can be as drastic as a less than 1000 kilocalorie daily intake in patients on clear liquid diets that are not supplemented with commercial formulas to greater than 15000 kilocalories intake for patients on a full liquid diet supplemented with commercial formulas.
- Full liquid diets are also potentially beneficial for patients suffering from dysphagia, as the texture and consistency provide less risk of penetration-aspiration; however, more research is necessary to understand its role in relation to swallowing physiology fully.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Full Liquid Diet



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Question 160: A 16-year-old patient presents to the clinic with a complaint of persistent hoarseness of her voice. The attending clinician, after a complete history and physical, decides to proceed with nasopharyngoscopy for further evaluation. The clinician performing the procedure decides to examine the piriform fossa along with the vocal cords, which of the following is a recognized maneuver to help look at the anatomy of the piriform fossa?

Choices:

1. Asking the patient to sniff through their nose
2. Asking the patient to stick out their tongue
3. Asking the patient to blow out their cheeks
4. Asking the patient to say "Eee"

Answer: 3 - Asking the patient to blow out their cheeks

Explanations:

- Asking the patient to breathe through their nose allows relaxation of the soft palate, which in turn allows easier passage of the scope forwards. It in itself, does not give a better anatomical view.
- Sticking out of the tongue allows a better view of the valleculae. This is the area between the base of the tongue and epiglottis and can be a hidden location for cancer.
- Blowing out of the cheeks opens up the piriform fossae and again allows a better view of the anatomy and allows the clinician to look for any sinister lesions in this area. Alternatively, ask the patient to rotate their neck to the right, and the left shoulder will reproduce the same effect.
- Saying "Eee" allows the clinician to look at vocal cord movements. Any cause for hoarseness of voice can be functionally observed. Lesions, palsies, and dysfunctional movements of the vocal cords can be assessed.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Flexible Nasopharyngoscopy



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Question 161: A 57-year-old male presents to the clinic for evaluation of a 1 cm painless brown lesion of the maxillary gingiva. Surgical excision and histologic evaluation confirm the presence of CD117 overexpression. Which of the following is consistent with the patient's diagnosis?

Choices:

1. The peak age for diagnosis is between 65 and 80 years
2. The peak age for diagnosis is between 55 and 60 years
3. Lesions involving the lip have a female predominance
4. Lesions involving the oral mucosa have a male predominance

Answer: 1 - The peak age for diagnosis is between 65 and 80 years

Explanations:

- Mucosal melanoma is an aggressive form of melanoma not related to ultraviolet light exposure.
- Mucosal melanoma has a peak age for diagnosis between 65 and 79 years, which is one to two decades later than cutaneous melanoma.
- Mucosal melanoma is more often found in women than men. Melanocytes in mucosal membranes are distributed to the oral cavity, nasal cavity, paranasal sinuses, esophagus, larynx, vagina, cervix, rectum, and anus.
- Oral melanoma has an equal gender distribution. However, melanoma of the lip has a slight male predominance.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Oral Melanoma



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Question 162: A 75-year-old man presents concerned about an ulcer in his soft palate. He has also been experiencing poor appetite and weight loss over the past 4 months. His past medical history includes hypertension and a 50 pack-year smoking history. All his vital signs are within normal limits. On examination, there is a white patch on the alveolar ridge and an ulcer on the soft palate that does not appear to be obstructing the patient's airway. A biopsy is performed. What is the most likely type of tumor present in this patient?

Choices:

1. Adenoid cystic carcinoma
2. Mucoepidermoid carcinoma
3. Squamous cell carcinoma
4. Adenocarcinoma, unspecified type

Answer: 3 - Squamous cell carcinoma

Explanations:

- Almost 80% of soft palate tumors are squamous cell carcinomas, with minor salivary gland tumors accounting for most of the rest.
- Squamous cell carcinomas also account for more than half of hard palate tumors.
- Malignant tumors of the soft palate are more common than benign tumors.
- Overall, tumors of the soft palate are rare, accounting for only 2% of all cancers.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Malignant Tumors of the Palate



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Question 163: A 66-year-old female with hypertension and angina attends with a periodontal abscess on her lower left 4. On examination, submandibular lymphadenopathy, an intra-oral swelling, and dental floss adjacent to the intraoral swelling were evident. A periapical radiograph was taken, which reveals periodontal ligament widening and vertical bone loss. Which of the following would be justification for prescription systemic antimicrobials?

Choices:

1. Pain on biting
2. Intraoral abscess
3. Submandibular lymphadenopathy
4. Medical history of hypertension

Answer: 3 - Submandibular lymphadenopathy

Explanations:

- Antibiotics are indicated for periodontal abscesses when there is evidence of a spreading infection such as lymph node involvement, extra-oral swelling, or cellulitis.
- Other indications for antibiotics for periodontal abscesses include systemic involvement such as pyrexia or malaise.
- The use of antibiotics is to be in conjunction with local measures; in this case, incision and drainage of the abscess and debridement of the periodontal pocket with an appropriate antimicrobial would be efficient.
- The antibiotic of choice, in this case, would be amoxicillin with clavulanic acid as the patient does not have any known drug allergies. If the patients were allergic to penicillin, then clindamycin would be recommended as an alternative.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Periodontal Abscess



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Question 164: A 45-year-old man is brought in by emergency medical services (EMS) after being involved in a motor vehicle accident. All his vital signs are within normal limits. A CT scan of the cervical spine is unremarkable. On extraoral examination, there are several hematomas on his face. On bimanual palpation of the mandible, there is fragment mobility. On inquiry, the patient says his bite feels uncomfortable. There is normal sensation in the lower lip. On intraoral examination, there are several dental fractures. An orthopantomography x-ray shows a radiolucent vertical line in the mandibular symphysis. Which of the following clinical findings would be most likely seen with this injury?

Choices:

1. Glandular odontogenic cyst
2. Sublingual hematoma
3. Condylar dislocation
4. Periodontal abscess

Answer: 2 - Sublingual hematoma

Explanations:

- This patient presents with a symphyseal mandibular fracture. A sublingual hematoma is considered a pathognomonic finding of mandible fracture.
- A sublingual hematoma can be described as a characteristic bluish, tense swelling under the tongue.
- There are cases in which the sublingual hematoma is large enough to cause extreme swelling and may produce airway obstruction.
- On examination of a suspected mandibular fracture, the maxillofacial area should be inspected for deformity, including ecchymosis and swelling, malocclusion, trismus, and facial asymmetry.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Mandible Fracture



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Question 165: A 29-year-old man presents to the hospital after an altercation with right-sided facial swelling and pain. CT scan reveals a displaced fracture of the zygoma involving all 4 of its bony articulations. The body of the zygoma is comminuted. The zygomatic arch appears to be impinging on the coronoid process. The patient is otherwise healthy, and there are no contraindications to surgery. What is the most appropriate management of the patient's injury?

Choices:

1. Observation
2. Closed reduction via an intraoral incision
3. Two-point fixation via transoral and lateral brow incisions
4. Coronal incision followed by reduction and four-point fixation

Answer: 4 - Coronal incision followed by reduction and four-point fixation

Explanations:

- "Tetrapod" fractures that involve all 4 articulations of the zygoma can be reduced via closed methods, but almost always remain unstable and should be rigidly fixated.
- A type C fracture (tetrapod fracture with comminution of the body of the zygoma) is an indication for open reduction and internal fixation. If the zygomatic arch is to be plated, it is best accessed via a coronal incision.
- In isolated zygomatic arch fractures, closed reduction alone is often sufficient. Reduction can be accomplished with an elevator via a temporal incision (Gillies approach), intraoral incision (Keene approach), or transcutaneously with a Carroll-Girard screw.
- Indications for surgical management of ZMC fractures include cosmetic deformity and functional morbidity (trismus, fracture instability).

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Zygomatic Arch Fracture



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Question 166: An 11-week-old girl with symmetric complete bilateral cleft lip deformity is undergoing single-stage repair. While determining anatomic landmarks and performing surgical planning, it is noted that the prolabium's vertical height is markedly less than the lateral lip segments' vertical height. What is the most appropriate management strategy for this patient?

Choices:

1. Tissue transfer to the prolabium
2. Excision of excess tissue from the lateral lip segments at the level of the vermilion border
3. Excision of half-crescent segments beneath the nasal alae at the lateral lip segments
4. Use of postoperative prosthesis

Answer: 3 - Excision of half-crescent segments beneath the nasal alae at the lateral lip segments

Explanations:

- The vertical height of the upper lip after definitive repair for complete bilateral cleft lip is determined by the prolabium.
- A significant discrepancy between the prolabium and lateral lip segments in bilateral cleft lip may lead to deformity after surgical repair if this problem is not addressed during surgery.
- When height discrepancy between the lateral lip segments and prolabium is significant, an adjustment may be made by removing the excess tissue from the lateral lip segments in half-crescent shapes beneath the nasal alae.
- The deficiency of vermilion in the midline relative to the lateral lip segments may lead to whistling deformity.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Cleft Lip Repair



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Question 167: A 46-year-old man presents to the emergency department with dental pain, fever, and tongue swelling. He has significant edema of the tongue and floor of the mouth. The decision is made to proceed to the operating room for securing the airway. The anesthetic team proceeds to attempt to intubate. Which of the following complications is most likely to occur with the preferred technique of securing the airway in this patient?

Choices:

1. Dental injury
2. Lip injury
3. Epistaxis
4. Tongue laceration

Answer: 3 - Epistaxis

Explanations:

- Ludwig angina is edema of the floor of mouth and tongue due to an oral bacterial infection, most commonly secondary to a dental abscess. This edema and potential trismus can obstruct the airway. Oral intubation is often impossible in these patients, and awake fiberoptic intubation can be a safe next step in some cases.
- In stable patients who are planned for awake fiberoptic intubation, it can be useful to decongest the nasal cavities with pledgets soaked in oxymetazoline or adrenaline prior to attempting the fiberoptic intubation. This reduces trauma to the nasal mucosa, thus reducing the potential for epistaxis, which could impede visualization at the time of intubation.
- During awake fiberoptic intubation, the nasal cavities can also be anesthetized with local anesthetic spray, along with the pharynx. The fiberoptic scope is then passed through an endotracheal tube (ETT), and once the fiberoptic flexiscope is passed through the nasal cavities to the oropharynx, the vocal cords are sprayed with lidocaine to avoid laryngospasm. Once the flexiscope is passed through the vocal cords, the ETT can be advanced, and the patient is then intubated.
- The ENT team should be scrubbed on standby with an open tracheostomy instrument set, in case of any difficulty on fiberoptic intubation, as the patient may require either a cricothyroidotomy or a tracheostomy if the intubation fails. The patient should be consented for both of these potential procedures prior to an attempt at awake fiberoptic intubation.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Upper Airway Obstruction

StatPearls Knowledge Base



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Question 168: A 35-year-old man presents with a temporal bone fracture after falling off a motorcycle without a helmet. On examination, the patient has a facial weakness. He is not bothered by the resulting slight asymmetry in his smile; however, he has noticed increased nasal crusting since his accident. Where was the facial nerve most likely damaged?

Choices:

1. Mastoid segment
2. Labyrinthine segment
3. Geniculate ganglion region
4. Chorda tympani segment

Answer: 3 - Genuiculate ganglion region

Explanations:

- Although the mastoid segment would eventually include the motor branches, the nerve to stapedius as well as a nerve carrying sensation fibers to the external acoustic meatus, it does not relay parasympathetic fibers to the nasal cavity as the greater superficial petrosal nerve does this.
- The labyrinthine segment is the portion most likely to be damaged by viral-induced insults or from inflammation and would not impact his greater superficial petrosal nerve.
- The greater superficial petrosal nerve gives rise to parasympathetic preganglionic nerve fibers that join with the deep petrosal nerve that innervates the mucous glands of the nasal cavity as well as the lacrimal gland. An injury to this nerve would induce nasal dryness, which is what is causing the nasal crusting.
- The chorda tympani carries afferent sensory fibers for taste from the anterior two-thirds of the tongue. This would not induce nasal dryness and crusting. The chorda tympani also arises from the mastoid segment of the facial nerve.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Facial Nerve Intratemporal Trauma



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Question 169: A 38-year-old woman develops facial droop and difficulty closing her eye 24 hours after reconstruction of her left condyle. Which of the following is the next best step in the management of this patient?

Choices:

1. Surgical drainage
2. Adjustment of the plate position
3. Microscopic neurorrhaphy
4. Eye taping and lubrication

Answer: 4 - Eye taping and lubrication

Explanations:

- The patient has had an injury to the main trunk of the facial nerve, and the eye must be protected with lubricating drops, taping, and similar conservative measures to prevent exposure keratopathy.
- Given symptoms did not develop until 24 hours after surgery, the nerve likely experienced a traction injury but is otherwise physically intact. It does not require re-exploration in the operating room with neurorrhaphy.
- The patient has symptoms of facial nerve injury and weakness. A hematoma would present with facial swelling and pain and is unlikely to cause drooping and lagophthalmos.
- The patient does not complain of jaw pain, inability to close her mouth, or malocclusion, so the plate position does not need to be adjusted.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Mandible Reconstruction



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Question 170: A 45-year-old man presents with pain in the preauricular area. He wanted to come for a check-up earlier, but he could not find the time because he works up to 60 hours per week. He has no past medical history but has a 20 pack-year smoking history. On extraoral examination, there is tenderness in the jaw musculature and temporomandibular joint (TMJ). A mouth opening of 15 mm is noticed. On intraoral examination, there is mild tooth wear and gingival recessions. On further inquiry, he mentions he sometimes wakes up with headaches, but they usually resolve within a couple of hours. Which of the following is correct regarding the pharmacological treatment of this patient's most likely condition?

Choices:

1. It is the first line of treatment of moderate to severe cases
2. It is the first line of treatment when the TMJ is affected
3. It is recommended in combination with occlusal adjustments
4. It is only recommended after other treatment options have failed

Answer: 4 - It is only recommended after other treatment options have failed

Explanations:

- The patient in the clinical scenario presents with signs and symptoms of nocturnal bruxism.
- The use of drugs in the treatment of bruxism should be limited to short periods and severe cases where occlusal devices and psychological approaches are ineffective.
- Pharmacological management includes the use of antianxiety agents, tranquilizers, sedatives, and muscle relaxants. Medications such as diazepam can be prescribed for a few days to alter the sleep disturbance and anxiety level.
- Low doses of tricyclic antidepressants may be used to inhibit the amount of rapid eye movement (REM) sleep.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Bruxism Management



We update eBooks quarterly and Apps daily based on user feedback. Please tap flag to report any questions that need improvement.

Question 171: A 66-year-old male presents with a lump in his right parotid gland. Ultrasound-Guided fine-needle aspiration of the lump is planned. He is subsequently diagnosed with the most common benign type of parotid tumor. What kind of cells does this tumor originate from?

Choices:

1. Squamous and epithelial
2. Epithelial and myoepithelial
3. Columnar and epithelial
4. Myoepithelial and columnar

Answer: 2 - Epithelial and myoepithelial

Explanations:

- The most common benign type of parotid tumor is a pleomorphic adenoma. It accounts for 70-80% of all salivary gland tumors.
- Pleomorphic adenomas are mixed tumors and usually arise from epithelial and myoepithelial cells.
- The incidence of such tumors is 2-3 per 100,000 population.
- It is usually found in the superficial lobe of the parotid gland, and the most common surgical treatment is superficial parotidectomy.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Parotid Cancer



We update eBooks quarterly and Apps daily based on user feedback. Please tap flag to report any questions that need improvement.

Question 172: A 68-year-old man presents with a six-month history of mottling of the lower lip. He denies any pain, numbness, or burning sensation associated with the lesions. On inquiry, the patient mentions he used to work in construction, where he spent most of his life outdoors. He has a past medical history of hypertension, well-controlled on medication. All his vital signs are within normal limits. On examination, there are multiple rough and irregular macules on the vermillion border of the lower lip. When the lesions are palpated, a sandpaper surface is noticed. The patient has Fitzpatrick type 1 skin. An incisional biopsy reveals a diagnosis of a premalignant condition. Which of the following clinical characteristics are most likely to be found in this condition?

Choices:

1. Thickening and induration
2. The blurring of the vermillion border between the cutaneous and mucosal lip
3. Trismus and numbness of the lip
4. Co-existence with skin macules and ulceration

Answer: 2 - The blurring of the vermilion border between the cutaneous and mucosal lip

Explanations:

- The patient in the clinical scenario presents with actinic cheilitis, which is a precursor of squamous cell carcinoma (SCC) of the lips.
- The clinical aspects of this condition include a persistent white plaque or macule with a sandpaper surface in the lower lip, usually asymptomatic. The blurring of the vermilion border between the cutaneous and mucosal lip is also a likely finding.
- In a patient who is chronically exposed to ultraviolet light there should be a high suspicion of actinic cheilitis.
- SCC on the lips poses a higher metastasis rate compared to other body locations. Therefore its recognition and prompt management are essential.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Actinic Cheilitis



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Question 173: A 33-year-old gravida 1 para 0 woman at 28 weeks gestation presents for a bump that has developed on her gums. On exam, there is a solitary friable, red papule on the lower gingiva. When counseling this patient, which of the following best describes the expected clinical course and most appropriate treatment plan?

Choices:

1. The lesion should be excised today because it has malignant potential
2. The patient should be admitted for immediate delivery and surgical resection of the lesion
3. The lesion is benign and in most cases will resolve after delivery
4. It is treatable so prescribe a topical retinoid to apply to the lesion nightly and she should expect resolution within the month

Answer: 3 - The lesion is benign and in most cases will resolve after delivery

Explanations:

- Intraoral mucosal pyogenic granuloma (PG) occurs in approximately in up to 2% of pregnancies, usually in the second or third trimester.
- In this setting, PG is often referred to as granuloma gravidarum, granuloma of pregnancy, epulis gravidarum, or pregnancy tumor.
- Mucosal PG in pregnancy occurs most frequently on buccal mucosa and gingivae.
- Oral pyogenic granulomas occurring in pregnant women usually regress after childbirth.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Pyogenic Granuloma



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Question 174: A 71-year-old male with biopsy-proven P-16+ squamous cell carcinoma of the left tonsil presents for preoperative evaluation. A CT neck with contrast demonstrates cervical metastasis with an invasion of the internal jugular vein and the sternocleidomastoid muscle. An area of matted lymphadenopathy occupies the majority of level II in the neck but does not involve the skull base or prevertebral fascia. There is a clear plane of fat between the parotid and the aberrant lymph nodes. If the patient chooses to undergo surgery, what are the predicted postoperative deficits for the patient to be cautioned?

Choices:

1. Facial plethora, shoulder pain, and cosmetic deformity
2. Shoulder pain, cosmetic deformity, and lagophthalmos
3. Shoulder pain and cosmetic deformity
4. Facial plethora, shoulder pain, and oral incompetence

Answer: 3 - Shoulder pain and cosmetic deformity

Explanations:

- This patient's disease will require a radical neck dissection due to the tumor involving the spinal accessory nerve (by virtue of its location), the internal jugular vein, and the sternocleidomastoid muscle.
- The loss of the spinal accessory nerve will cause limited shoulder mobility and pain, and the loss of the sternocleidomastoid muscle causes a significant cosmetic deformity (although its impact on function is minimal).
- The loss of the internal jugular vein is generally well tolerated.
- Oral incompetence may occur if the lower division of the facial nerve is sacrificed during the radical neck dissection but may also be preserved if the parotid is not involved, as is the case for this patient. Additionally, this option fails to counsel the patient on the cosmetic deformity caused by the loss of the sternocleidomastoid muscle. Facial plethora does not commonly occur with unilateral internal jugular vein sacrifice. Lagophthalmos occurs from injury to the upper division of the facial nerve, which is not at risk during a radical neck dissection.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Radical Neck Dissection



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Question 175: A 19-year-old woman presents for cosmetic advice regarding her smile. The patient says she is not comfortable with the appearance of her gums, and for that reason, she avoids smiling. She has a past medical history of type 1 diabetes mellitus and epilepsy, which are well-controlled on medication. On intraoral examination, there is poor oral hygiene, caries, and an overgrowth of gingival tissue in the maxilla and mandible, most severe in the vestibular aspect of the maxilla. When the patient is instructed to smile, there is 4 mm of gum exposure. Which of the following is most likely causing the excess of gum exposure?

Choices:

1. Diabetes mellitus
2. Poor oral hygiene and caries
3. Phenytoin
4. Periodontal disease

Answer: 3 - Phenytoin

Explanations:

- Gum exposure of more than 2 mm when smiling is considered as a gummy smile.
- Gingival growth can be associated with the use of certain drugs known for their hyperplastic effects. These drugs include cyclosporin A used as an immunosuppressive agent in transplant patients to prevent tissue rejection, and phenytoin prescribed for people with epilepsy.
- Hormonal imbalances such as pregnancy and puberty, as well as certain hematological conditions such as leukemia, may be responsible for the genesis or aggravation of gingival enlargement.
- The enlargement of the gingival tissues due to drug use can lead to greater exposure of gum when smiling, causing a gummy smile. This can be reversed if the causative medication is discontinued.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Orthodontics Gummy Smile



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Section 6

Question 176: A 61-year-old woman presents for the extraction of the roots of her second left upper molar as part of an oral rehabilitation scheme. The molar has lost all the crown due to caries, and just the roots remain. An x-ray shows an 8 mm radiolucence associated with the distal apex. The procedure is accomplished, minimizing trauma to the extraction socket. A socket grafting procedure with the most commonly used synthetic alloplastic graft is performed to prepare the site for the placement of a future implant. Regarding the fabrication process of this material, how does prolonged heat treatment affect its mechanical properties?

Choices:

1. It increases the grain and size and eliminates the water content, therefore reducing the mechanical properties of the material
2. It refines the grain boundary of the particles, therefore increasing the mechanical stability of the material
3. It reduces the stoichiometry value, therefore making the structure of the material brittle
4. It promotes the transformation of polycrystalline particles to singular particles, therefore decreasing the mechanical properties of the material

Answer: 1 - It increases the grain and size and eliminates the water content, therefore reducing the mechanical properties of the material

Explanations:

- The prolonged heat treatment during the fabrication of hydroxyapatite (HA) transforms the singular crystalline particle to more blocky crystals.
- It fuses the particle grain boundary, which is associated with the agglomeration of the hydroxyapatite grain/particle.
- The blocky structure of HA crystal has a low grain boundary that can not impede applied stress propagation.
- The flow of the stress that is not impeded leads to stress sliding and decreases mechanical properties. This is associated with the aging process of the material.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Hydroxyapatite Dental Material



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Question 177: A 54-year-old woman is undergoing excision of a right submandibular gland for recurrent sialadenitis. The mylohyoid muscle is retracted anteriorly and the submandibular gland inferiorly and posteriorly to expose the submandibular ganglion. The neural fibers between the ganglion and the submandibular gland are then incised. Which of the following best identifies these fibers?

Choices:

1. Presynaptic sympathetic fibers
2. Postsynaptic sympathetic fibers
3. Presynaptic parasympathetic fibers
4. Postsynaptic parasympathetic fibers

Answer: 4 - Postsynaptic parasympathetic fibers

Explanations:

- Parasympathetic innervation to the submandibular gland originates at the superior salivatory nucleus and travels via the chorda tympani nerve, which joins the lingual nerve and synapses at the submandibular ganglion.
- Postsynaptic parasympathetic fibers travel from the submandibular ganglion to the submandibular gland.
- Since fibers synapse within the submandibular ganglion, the fibers incised during submandibular gland excision between the gland and the submandibular ganglion are postsynaptic parasympathetic fibers.
- Sympathetic innervation to the submandibular gland originates from the superior cervical ganglion, where fibers synapse and postsynaptic fibers travel as a plexus within the carotid sheath. Fibers following the facial branch of the external artery and subsequently submental arteries then enter the gland.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Submandibular Excision



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Question 178: A 52-year-old man presents after Mohs micrographic resection of a basal cell carcinoma of the nasal dorsum. He has no significant comorbid medical conditions, and his only relevant surgical history is a LeFort III fracture at age 15 requiring multi-approach repair, including pericranial flaps and a midfacial degloving approach. There is a well-healed bicoronal incision, as well as a well-healed gingivobuccal sulcus incision present on examination. Which preoperative study is warranted before utilizing a paramedian forehead flap to repair this defect?

Choices:

1. CT angiogram to confirm the patency of the supratrochlear vessels
2. Facial bone x-rays to determine the position of any implanted hardware from his LeFort III repair
3. Doppler ultrasound of the supratrochlear and supraorbital arteries
4. MRI of the anterior cranial fossa to ensure there is no undetected encephalocele

Answer: 3 - Doppler ultrasound of the supratrochlear and supraorbital arteries

Explanations:

- While all of these studies can provide helpful information, the only essential one is the doppler of the supratrochlear and supraorbital arteries in the setting of a prior pericranial flap.
- Pericranial flaps are very often raised dependent upon the supratrochlear and supraorbital arteries, redirecting them intracranially to supply the flap. This leaves them unavailable to supply a paramedian forehead flap.
- The pericranial flap is often bilateral (when it is anteriorly-based), but can be unilateral. It is worthwhile to doppler both sides, as one vessel could possibly remain.
- While the paramedian forehead flap is nearly always based on the supratrochlear artery, it can be raised off of the supraorbital system as well. The pedicle, when raised in this manner, nearly completely obstructs the visual field of the ipsilateral eye, and the vessels tend to be of smaller caliber. For these reasons, it is a suboptimal choice in most circumstances.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Forehead Flaps



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Question 179: A 16-year-old patient presents to the office with a dull pain on the floor of the mouth for the past 10 days. On physical exam, the clinician is able to palpate a well defined submucosal mass and ultrasound helps to confirm the diagnosis. What is the most likely etiology of this patient's condition?

Choices:

1. Recurrent infections
2. Salivary stasis
3. Trauma
4. Food allergy

Answer: 2 - Salivary stasis

Explanations:

- Infections may contribute to sialadenitis coinciding with sialolithiasis, however salivary stasis is the primary mechanism.
- The primary etiology for this observation is salivary stasis that can be attributed to two factors. First, Wharton's duct is longer and vertically angulated, which leads to greater salivary stasis. Second, the submandibular gland tissue as discussed above is composed of mucinous and serous acini, which produce a more viscous fluid adding to the mechanical stasis caused by Wharton's duct.
- Trauma does not cause salivary stones. Primary etiology is salivary stasis.
- Food allergies do not contribute to salivary stones. The stones are attributed to the mucinous, viscous fluid that is traveling in the angulated Wharton's duct.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Sialolithiasis



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Question 180: A 48-year-old female patient presented to the hospital with frequent episodes of otorrhea, pain over right temple, deafness, nasal blockage, and spells of nasal regurgitation. On examination, the patient had multiple bilateral neck masses involving jugular and posterior triangles. Endoscopic examination revealed an infiltrative growth extending from the roof of the nasopharynx to the hypopharynx. Biopsy showed prominent lymphocytic infiltrate on a background of poorly differentiated cells. The patient was advised imaging studies that showed local and intracranial extension and consequently was started on concomitant chemoradiation. After 1 year, the patient started developing dizziness, diplopia with restriction of neck and jaw movement. Which of the following would be the next best step in the management of this patient?

Choices:

1. Nasopharyngectomy as salvage surgery
2. Radical neck dissection
3. Magnetic resonance imaging
4. Positron emission tomography (PET)

Answer: 4 - Positron emission tomography (PET)

Explanations:

- The presentation is consistent with Nasopharyngeal carcinoma with trotter's triad (unilateral hearing loss, neuralgia involving branches of the trigeminal nerve, and defected mobility of the soft palate).
- The management of the initial stages of the disease involves radiotherapy however, progressed disease involves concomitant chemoradiotherapy.
- Post-radiotherapy patients develop soft tissue fibrosis as a consequence of the radiation, but if there is a suspicion of recurrence, positron emission tomography (PET) is the modality of choice for investigation.
- Nasopharyngectomy is the surgical option undertaken after recurrence is confirmed or residual disease is detected.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Nasopharyngeal Carcinoma



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Question 181: A 42-year-old man presents to the clinic for a follow-up. He was recently diagnosed with a large ameloblastoma of the anterior mandible. He states that he is very sensitive about his appearance and smile. He has a history of untreated diabetes and has had previous surgery on both lower legs. What is the most appropriate management strategy for this patient?

Choices:

1. Nonvascularized bone grafts
2. Scapula osseous free tissue transfer
3. Fibula free tissue transfer
4. Pectoralis myofascial regional flap

Answer: 2 - Scapula osseous free tissue transfer

Explanations:

- Nonvascularized free tissue transfer is a less robust reconstruction and less likely to allow later dental rehabilitation.
- Further, this patient has uncontrolled diabetes mellitus, which sets him up for poor wound healing.
- Thus, a vascularized graft is the best option.
- Vascularized bony free tissue transfer is the best option to reconstruct the anterior mandible and allow for dental rehabilitation. This patient's sensitivity to his appearance and smile suggests he will be interested in dental implants. Patients without adequate arterial runoff to the foot are not candidates for fibula free tissue transfer, the preferred vascularized bone graft. In this case, the patient's history of lower leg surgery suggests he may have compromised vasculature, so other sources of bone should be investigated. Bony reconstruction should be performed to allow dental rehabilitation and prevent soft tissue contraction leading to an Andy Gump deformity. Soft tissue flaps and grafts are not ideal reconstructive options in this case.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Mandible Reconstruction



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Question 182: A 41-year-old woman presents with a three-week history of enlarged gums. She says this is affecting her mastication. She has a past medical history of hypertension, for which she takes verapamil. On examination, there is a firm and pale pink gingival overgrowth with minute lobulations, which does not bleed on touch. Blood tests are unremarkable. A biopsy shows an accumulation of extracellular matrix-like collagen with inflammatory infiltrates, predominantly plasma cells. In which of the following groups is this condition more prevalent?

Choices:

1. Adults over 65 years
2. Adolescents
3. Young adults
4. Newborns

Answer: 2 - Adolescents

Explanations:

- Patients with drug-induced gingival overgrowth typically have hypertension, epilepsy, renal transplant, or be on drug-induced gingival overgrowth (DIGO)-inducing medication. They may report hypertrophy of the gums for a variable period and complain of pain during mastication or cosmetic disfigurement.
- Studies have shown that it is more commonly seen in male children and adolescents.
- Genetic heterogeneity also plays a vital role, and the extent and the degree of overgrowth depend on the drugs.
- Bacterial plaque appears to be a contributory factor, and the severity of gingival overgrowth is believed to be directly proportional to the degree of plaque buildup and plaque-induced inflammation.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Drug Induced Gingival Overgrowth



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Question 183: A 78-year-old woman presents to the clinic with ongoing pain in her jaw for the last 3 weeks. She has a history of metastatic colon cancer, receiving best supportive care. She is an ex-smoker, stopped 10 years ago, she smoked for 25 years. She takes lisinopril and atenolol for hypertension and atorvastatin for hypercholesteremia. She also takes acetaminophen and codeine for her pain with little benefit. She further receives IV zoledronic acid infusion every 3 months. Her vital signs show temperature 37.6 C, blood pressure 98/65 mmHg, pulse 107/min, respiratory rate 17/min, and SpO2 97% on room air. Oral examination shows poor dentition with evidence of inflamed gum and exposed bone. Which of the following is the best initial step in the management of this patient?

Choices:

1. Early surgical debridement of the affected tissue
2. Discontinuation of bisphosphonates
3. IV ampicillin
4. Hyperbaric oxygen therapy

Answer: 2 - Discontinuation of bisphosphonates

Explanations:

- Prevention and early identification of high-risk patients is a key strategy in the management of osteonecrosis of the jaw.
- Conservative management is still considered first-line. Surgery can be considered where conservative management has failed, or significant exposed bone is present from the start.
- A drug holiday is a concept that has been used to prevent the incidence of osteonecrosis of the jaw. It simply means the temporary withdrawal of bisphosphonates before a planned dental surgery.
- Hyperbaric oxygen therapy and the use of mesenchymal cells to recreate bone tissue are promising adjunctive modalities that can be considered along with conservative management.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Bisphosphonate Toxicity



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Question 184: An 11-year-old girl is brought in by her mother 30 minutes after falling and hitting her teeth against the floor while practicing gymnastics. The patient's upper incisor was totally dislodged from its socket during the incident. The mother says she did not know what to do at that moment, and she lifted up the tooth and kept it in milk. What is the most appropriate next step in the management of this patient's tooth?

Choices:

1. Grab the tooth by the apical root and wash it
2. Apply pressure on the avulsed site to reduce bleeding
3. Wash the tooth's root and replant it in the alveolar socket
4. Scrub the tooth root and replant it in the alveolar socket

Answer: 3 - Wash the tooth's root and replant it in the alveolar socket

Explanations:

- Maintaining the viability of the periodontal fibers remaining in the root of the tooth after avulsion is essential for the long-term prognosis. Immediate replantation will allow the periodontal dental ligament (PDL) to reform the connections within the socket.
- Studies have shown that if the tooth is not going replanted within five minutes, it should be placed in a storage media such as a balanced salt solution and milk.
- The reimplantation of avulsed teeth is a highly successful procedure. The long and short term prognosis is strongly affected by the dry time.
- Avulsed teeth should be handled by the crown to prevent damage to the root surface and PDL fibers. Rubbing or scratching the avulsed teeth is counterproductive.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Avulsed Tooth



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Question 185: A 56-year-old man presents for an elective dental extraction as part of his periodontal treatment. He has a past medical history of type 2 diabetes mellitus and a 30 pack-year smoking history. His past dental history includes severe periodontitis. Conventional anesthesia for the right alveolar inferior nerve is performed. After that, the branch of the alveolar nerve that exits the foramen, usually located between the apices of the premolars, is blocked intraorally. Which of the following statements is correct regarding the second step in the anesthesia technique described?

Choices:

1. The intraoral approach is less painful than the percutaneous approach
2. The percutaneous approach is less painful than the intraoral approach
3. Skin anesthesia is more effective with a percutaneous approach
4. Skin anesthesia is more effective with an intraoral approach

Answer: 1 - The intraoral approach is less painful than the percutaneous approach

Explanations:

- In dentistry, mental nerve block, either alone or in addition to an inferior alveolar nerve block, is part of daily practice. The mental nerve exits bilaterally through the mental foramen in the mandible.
- There are two described techniques for performing this nerve block, intraoral and extraoral, also known as percutaneous.
- The intraoral approach with the pre-application of topical anesthetic has been shown to be less painful than the percutaneous approach.
- Intraoral procedures are more successfully anesthetized via an intraoral approach, while skin anesthesia can be achieved using either approach with equal efficacy.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Mental Nerve Block



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Question 186: A 36-year-old woman is being evaluated for a mouthguard. The dental office is very warm. The clinician plans to use alginate for making the impressions of the patient's teeth and adjacent soft tissue structures. Which of the following is the most appropriate method to achieve the best results?

Choices:

1. A slight modification in the water/powder (W/P) ratio
2. Add a retarder
3. Use cool water for mixing
4. Use tap water for mixing

Answer: 3 - Use cool water for mixing

Explanations:

- Hot weather will accelerate the setting of alginate, thus giving insufficient working time to the dentist.
- The use of cool water and the precooled mixing bowl and spatula always help to provide sufficient working time.
- The usage of cool water does not cause premature gelation.
- The addition of a retarder also helps in preventing premature gelation, but this is done at the factory level. Modification in W/P ratio can have marked effects on tear strength and elasticity, hence not recommended. The use of tap water may accelerate the setting of alginate due to the presence of naturally occurring metallic ions.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Dental Alginate Impressions



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Question 187: An otherwise healthy 42-year-old male presents to the emergency department who sustained approximately 8% total body surface area partial-thickness burn to his anterior neck and face, involving his mouth and lips. He was found to have an inhalational injury and required intubation. The patient was stabilized, intubated, and transferred to a major burn center. The patient is currently hemodynamically stable. Which of the following is the best option to prevent a common complication related to oral burn injury?

Choices:

1. Intravenous steroids
2. Continue topical burn management and observing the oral burn until the full extent of scarring becomes apparent
3. Early surgical intervention with dynamic splinting
4. Physical therapy and oral stenting with delayed surgical intervention

Answer: 3 - Early surgical intervention with dynamic splinting

Explanations:

- Microstomia is a common complication with oral burns.
- Early surgical management of facial burns involving oral commissure is recommended to improve functional and aesthetic outcomes.
- In patients with facial burns involving the mouth, early surgical management, dynamic splinting, and intralesional steroid injections have been shown to improve outcomes and decrease the extent of microstomia.
- Despite adequate early surgical release, stenting, and months to years of physical therapy, patients typically have some persistent loss of vertical and horizontal opening of the mouth.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Facial Burns



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Question 188: A 45-year-old man presents with recurrent broken fillings. He also mentions he often has headaches, usually upon waking up. He has a past medical history of hypertension, well-controlled on medication, and a 30 pack-year smoking history. On examination, there is teeth crowding, and moderate wear facets on the anterior teeth. Fractured class I and class II restorations are seen. The use of an occlusal device to alleviate the patient's symptoms and to prevent further damage is advised. Which of the following should this device satisfy?

Choices:

1. It should cover the occlusal surfaces of all maxillary or mandibular teeth
2. It should cover the occlusal and lingual surfaces of all maxillary or mandibular teeth
3. It should cover the occlusal and vestibular surfaces of all maxillary or mandibular teeth
4. It should cover the occlusal and vestibular surfaces only the posterior teeth

Answer: 1 - It should cover the occlusal surfaces of all maxillary or mandibular teeth

Explanations:

- Bruxism is defined as a diurnal or nocturnal parafunctional activity, including clenching, bracing, gnashing, and grinding of the teeth. This patient presents with the clinical manifestations of nocturnal bruxism due to the morning headaches.
- There are many points of view regarding the therapeutic approach to this condition. Which include stress and anxiety management, relaxation before sleeping, occlusal splints, physical therapy, electro-galvanic stimulation, biofeedback, equilibration therapy, and botulinum toxin.
- Splints should cover the occlusal surfaces of all the teeth. With the use of a splint, there will be a reduction in increased muscle tone.
- Occlusal splints prevent tooth wear, injury, and reduce nighttime clenching.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Bruxism Management



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Question 189: A 65-year-old man underwent primary chemotherapy and radiation therapy for an anterior floor of mouth squamous cell carcinoma one year ago. He underwent pre-treatment pan-mouth dental extraction and completed his treatment without incidents. Three weeks ago, he noticed a swelling of his submandibular area, and over the past week, it has begun to drain a cloudy fluid, particularly after eating. On examination, there is a pinpoint fistula in his submental area, with some granulation tissue intraorally, but no exposed bone. Palpation of his submandibular gland is painful but expresses clear saliva. He has not undergone hyperbaric oxygen (HBOT), and a biopsy of this area is negative for malignancy. What is his next best step in treatment?

Choices:

1. Surgical resection with or without reconstruction without hyperbaric oxygen (HBOT)
2. 10 dives HBOT then surgical resection, followed by 30 dives HBOT
3. Surgical resection with or without reconstruction then 10 dives HBOT
4. 30 dives HBOT, then reassessment for surgical intervention

Answer: 4 - 30 dives HBOT, then reassessment for surgical intervention

Explanations:

- The 30 hyperbaric oxygen treatments (HBOT) preceding surgery has shown to increase the odds of improved healing after surgery.
- All stage III osteoradionecrosis cases require surgical resection of necrotic, non-viable bone.
- Patients did not see meaningful improvements in outcomes with less than 30 preoperative HBOT.
- The staging with the Marx protocol is based on response to HBOT and the presence of characteristic signs and radiographic findings.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Mandible Osteoradionecrosis



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Question 190: A 12-year-old female comes to the clinician because of a 1-year history of progressive mandibular retrognathia and bilateral temporomandibular joint pain. There is no history of trauma. Examination shows slightly decreased interincisal opening without chin point deviation and an Angle class II malocclusion with an anterior open bite. Which of the following is the most likely cause of this patient's symptoms?

Choices:

1. Bruxism
2. Condylar hyperplasia
3. Infection
4. Rheumatoid arthritis

Answer: 4 - Rheumatoid arthritis

Explanations:

- Retrognathia is a term used to describe an unusual position of the mandible. Retro implies that there is deficient growth and 'gnathia' means about the jaws (particularly mandible).
- Radiology plays a significant role in determining retrognathia. The standard lateral cephalometric radiograph and associated analysis are part of the determination. There are hundreds of different interpretations and, suffice to say, that there are many points and combinations of angles that measure the relationship between the cranial vault and the facial skeleton to determine growth and are used in treatment planning for orthodontics and orthognathic surgery.
- Rheumatoid arthritis can lead to the destruction of the temporomandibular joint (TMJ) destruction.
- TMJ destruction may present as retrognathia.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Retrognathia



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Question 191: A 2-year-old girl is brought in by her mother for a dental check-up. She has no past medical history and continues to be bottle-fed before going to sleep. On examination, there are bands of demineralization around the necks of the four maxillary incisors near the gum line; the mandibular incisors are unremarkable. On further inquiry, the mother says the girl brushes her teeth by herself twice a day and has one lollypop every time she does it correctly. Given the most likely condition, which of the following is the most appropriate advice to give to this patient's mother?

Choices:

1. Increase the frequency of dental brushing
2. Adults should perform dental hygiene for children under the age of seven
3. Avoid candies and lollypops
4. Restrict nighttime bottle-feeding

Answer: 4 - Restrict nighttime bottle-feeding

Explanations:

- The patient in the clinical scenario presents with clinical findings of nursing bottle syndrome. The most appropriate advice should be restricting nighttime bottle-feeding.
- Nighttime bottle-feeding is usually related to the child's habit of getting sleep while feeding due to the accumulation of the milk in the mouth for longer periods, allowing the bacteria to metabolize the sugar contained in the milk and produce acids as a result, which decreases the saliva pH, causing caries.
- The maxillary incisors are among the first to erupt, so they will have to experience the cariogenic challenge first and will suffer the longest caries attack. The mandibular incisors are protected by the tongue and washed by saliva. If the habit continues, the other teeth will be affected in sequence with their order of eruption.
- Initially, the condition can go undetected by the parents. Usually, as a first sign, the maxillary incisors develop a band of dull white demineralization along the gum line. If the condition progresses, the white lesions develop into brown cavities around the neck of the teeth in a collar pattern.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Diet and Nutrition To Prevent Dental Problems



We update eBooks quarterly and Apps daily based on user feedback. Please tap flag to report any questions that need improvement.

Question 192: A 25 year old female diagnosed with maxillary anterior-posterior hypoplasia has elected to undergo a LeFort I osteotomy to correct her dentofacial abnormality. Intra-operatively, while performing lateral nasal osteotomies, care should be taken to terminate the osteotomies at the junction of the pyramidal process of the palatine bone or just slightly beyond this landmark. What is the clinical significance of the structure(s) encountered if this osteotomy is overextended?

Choices:

1. No compromise of blood supply to the osteotomized segment if the vessel is sacrificed
2. Compromised blood supply to the osteotomized segment increasing the risk for avascular necrosis
3. Potential for neurosensory deficits to the hard and soft palate
4. Potential for neuromotor deficits to the velum of the soft palate

Answer: 1 - No compromise of blood supply to the osteotomized segment if the vessel is sacrificed

Explanations:

- The descending palatine artery branches off the internal maxillary artery in the pterygopalatine fossa and subsequently enters the more significant palatine canal before exiting the greater palatine foramen. To avoid damage to the descending palatine arteries, care should be taken to avoid extending the lateral nasal osteotomy more than 30mm in females and 35mm in males.
- The research demonstrates that preservation or sacrifice of the descending palatine arteries is inconsequential in the maxillary down fracture and does not compromise blood supply.
- If the descending palatine arteries are damaged or bleeding intra-operatively, they should be ligated or sacrificed to prevent late or delayed hemorrhage from these vessels.
- Damage to the descending palatine arteries without bleeding (i.e., laceration without ligation) will disrupt the shift of perfusion to the more significant palatine artery via the lesser palatine artery resulting in the potential compromise of blood supply to the maxilla.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Le Fort Osteotomy



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Question 193: A 9-year-old girl is brought to the hospital with a discolored upper front tooth. The patient reports a history of trauma to the upper front teeth while playing one year ago. No pulpal exposure is observed in the tooth on clinical examination. What is the best initial therapy for this patient?

Choices:

1. Composite restoration
2. Apexogenesis
3. Apexification
4. Pulpotomy

Answer: 3 - Apexification

Explanations:

- Apexification is a method of inducing a calcified barrier formation in a root with an open apex or allow the continued apical development of an incomplete root, especially in teeth with necrotic pulp tissues.
- The objective of the apexification is to prevent the passage of toxins and bacteria into the periapical tissues from the root canal.
- Calcium hydroxide is considered as the material of choice for apexification in the past. However, with superior properties like non-toxicity, biologic compatibility, and repair stimulation mineral trioxide aggregate (MTA) is advised as a material of choice for apexification.
- The apexification procedure includes the following steps: 1. Root canal opening and biomechanical preparation of the tooth, 2. Placement of MTA plug at the apex of the tooth in five-millimeter thickness, and 3. Obturation of the remaining root canal using gutta-percha and permanent restoration.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Tooth Fracture



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Question 194: A 55-year-old male patient presents with a neck mass, which was significantly enlarged over the last couple of months. The mass proves to be malignant on fine-needle aspiration. Further evaluation with direct laryngoscopic examination, esophagoscopy, and CT scan of the neck, did not clarify any obvious mucosal lesions. What is the next preferred management?

Choices:

1. Surgical resection of the cricoid cartilage
2. Indirect laryngoscopy, and biopsy
3. Repeat esophagoscopy, and biopsy
4. Surgical tonsillectomy

Answer: 4 - Surgical tonsillectomy

Explanations:

- Chondrosarcoma does not usually present with adenopathy. Squamous cell carcinoma confined just to the vocal cord does not present with adenopathy because no lymphatic drainage of the cord occurs.
- If adenopathy is present, then the tumor has spread above or below the cord. Metastatic tumor of unknown primary is usually the last diagnosis and is possible but unlikely.
- In performing random biopsies of mucosa in patients who present with adenopathy and normal mucosa on direct inspection and laryngoscopic examination, performing a biopsy of the tonsillar mucosa results in the highest yield for determining the source of the adenopathy. The management of cervical adenopathy with unknown origin compromise of diagnostic evaluations, including direct laryngoscopy, esophagoscopy, and CT-scan. However, when the results remain unclear, it should proceed with the tissue diagnosis of the other most probable ones, including tonsils.
- Squamous cell carcinoma of the pyriform sinus has a predilection for local nodal spread, but the mucosal lesion is often evident on either laryngoscopic examination or CT scan.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Nasopharyngeal Cancer



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Question 195: A 69-year-old man from India presents for dental cleaning. He has a 45 pack-year smoking history and a history of betel leaf chewing. On examination, there is plaque and calculus accumulation. There are red-black stains on the vestibular, lingual, and palatine surfaces of maxillary and mandibular teeth. On dental probing, there is moderate periodontitis mostly in the anteroinferior mandible. After scaling and root planning, some of the red-black stains remain. A selective prophylaxis technique with an abrasive agent is going to be performed to remove them. Which of the following should be taken into consideration when selecting the abrasive agent?

Choices:

1. Its hardness should be less than the hardness of the surface
2. Its hardness should be more than the hardness of the surface
3. Its hardness should be similar to the hardness of the surface
4. Its hardness does not affect the efficacy of the treatment

Answer: 1 - Its hardness should be less than the hardness of the surface

Explanations:

- The patient in the clinical scenario presents with extrinsic dental stains most likely caused by betel quid chewing and tobacco smoking. Extrinsic dental stains caused by chewing betel nut, betel leaf, and lime, known as pan, found in Western pacific and South Asian cultures, are usually red-black.
- Nowadays, polishing is not recommended in stain free surfaces. It is only implemented in selected surfaces and not as a procedure performed in the whole mouth.
- When selecting a polishing agent, its hardness should be less than the hardness of the surface to be polished.
- Pastes with small particle sizes will increase the smoothness and cleanliness of teeth, making them more resistant to plaque accumulation.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Teeth Polishing



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Question 196: A 35-year-old man presents with a one-month history of sore throat and eating difficulty. He says that he experiences severe pain when swallowing food and he has lost 6 kg in the last three months. On examination, there is a white patch on the base of the tongue and a mass is palpated on his neck. A biopsy shows dysplastic cells. Which of the following tests is most likely to be conducted to detect the etiology of this patient's condition?

Choices:

1. Ultrasonography
2. Positron emission tomography scan
3. Human papillomavirus testing
4. MRI

Answer: 3 - Human papillomavirus testing

Explanations:

- The sign and symptoms and the biopsy sample results of this patient are suggestive of HPV-associated oropharyngeal squamous cell carcinoma.
- HPV associated oropharyngeal squamous cell carcinoma occurs in the people who have been infected with the human papillomavirus. Among the many types of human papillomavirus, HPV16 is the most common type found in oropharyngeal cancers. Oral sex and open-mouthed kissing have been regarded as the probable causes of oral HPV infection.
- The American society of clinical oncology recommends that HPV testing should be done on all the newly diagnosed oropharyngeal cancers. This is done by polymerase chain reaction, which detects the HPV DNA.
- Surgery and radiotherapy are the two principle modalities used the treatment of the patients suffering from oropharyngeal cancers. Surgery or radiotherapy can be used primarily if the tumor is small and has not advanced.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Oropharyngeal Squamous Cell Carcinoma



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Question 197: A 14-year-old male has his frontal and maxillary incisors hit by a baseball bat. He brought the avulsed tooth along with him. He is immediately taken to the nearest emergency department. What is the appropriate management?

Choices:

1. If the teeth are clean, replace them immediately and if this is not possible, the teeth can be transported in milk, urgently, to a dentist
2. Rinse the teeth in hot water, scrub off foreign material, and carry the teeth in weak tea to a dentist
3. Place the teeth in cola, and see a dentist within 24 hours
4. No treatment is necessary as these are deciduous teeth

Answer: 1 - If the teeth are clean, replace them immediately and if this is not possible, the teeth can be transported in milk, urgently, to a dentist

Explanations:

- The teeth are permanent and should be replanted as soon as possible.
- The rate of success is 90% within the first 30 minutes but falls to 5% after 2 hours.
- Hanks solution, saline, or milk can be used for transport.
- Only permanent teeth should be replanted as re-implantation of primary teeth can cause root resorption, ankylosis, morphological, and hypoplastic changes to permanent incisor crowns.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Avulsed Tooth



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Question 198: A 27-year-old woman presents for cosmetic advice regarding her smile. The patient mentions that every time she smiles, she feels uncomfortable because she does not like her gums. She has a ten pack-year smoking history. She takes the contraceptive pill. On examination, the resting position of the lips is normal, and when the patient is instructed to smile, there is 3 mm of gum exposure. The distance between the upper gingival margins and incisal edges are normal. The gingival tissue is erythematous, soft, and swollen. No caries are seen. Which of the following is the most appropriate next step in the management of this patient's condition?

Choices:

1. Panoramic x-ray
2. Cephalometric studies
3. Study models and photographs
4. Search for coagulopathies

Answer: 3 - Study models and photographs

Explanations:

- When there is more than 2 mm of gum exposure, the patient is considered as having a gummy smile. The etiology of this condition includes abnormal dental eruption proved by a short clinical crown of teeth, low-length or hyperactivity of the muscles of the upper lip, or excessive vertical growth of the maxilla.
- Necessary data for a proper diagnosis include medical and dental histories, extraoral and intraoral clinical examinations, study models, and photographs.
- Spontaneous and posed smiling records are highly recommended for diagnostic purposes. Because of a smile's dynamic nature, it is proposed to also have video documentation of the smile.
- The cephalometric analysis provides comprehensive information on craniofacial structures. However, the evaluation of a gummy smile is mainly clinical. Thus, this analysis serves to confirm the possible alveolar-skeletal etiologies.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Orthodontics Gummy Smile



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Question 199: A 59-year-old male patient undergoes reconstruction of his tongue following resection for a malignant lesion using a sensate left radial forearm free flap. In the immediate postoperative period, the patient complains of numbness in the first digit of the left upper extremity. Physical exam reveals mild paresthesia and decreased two-point sensation of the left first digit without evidence of skin pallor or cold limb. What is the most likely explanation of the patient's numbness?

Choices:

1. Collateral ulnar circulation was compromised
2. Numbness in this area is expected given that a sensate left radial forearm free flap was used in the reconstruction of the tongue
3. Numbness reflects injury to the distal branches of the radial nerve
4. Numbness reflects injury to the common palmar digital nerve

Answer: 3 - Numbness reflects injury to the distal branches of the radial nerve

Explanations:

- During the harvest of the radial forearm free flap, it is crucial to identify the superficial branch of the radial nerve.
- The superficial branch of the radial nerve is not to be included to provide sensation to the radial forearm free flap and should be preserved. For a sensate radial forearm free flap, the lateral or medial antebrachial cutaneous nerve is included when harvesting the flap.
- Compromise to the superficial branch of the radial nerve can result in sensory deficits along its distribution to include that of the posterior aspect of the thumb. Such sensory deficits are considered a less frequent complication of radial forearm free flap harvest.
- Inadequate ulnar collateral circulation would more likely cause ischemia and possibly tissue loss to include that of the first and second digits and not present as an isolated numbness of the first digit of the upper extremity.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Radial Forearm Tissue Transfer



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Question 200: A 21-year-old woman presents with a one-month history of painless enlarged gums. She has a past medical history of recently diagnosed psoriasis for which she was started on ciclosporin three months ago. On examination, there is a firm, nodular, moderate enlargement of the interdental gingival papilla, extending to the vestibular and lingual gingival margins. There is dental plaque, but no calculus is found. There are no caries. Which of the following is correct about this condition?

Choices:

1. The severity of gingival overgrowth is dependant of plaque buildup up to a certain point
2. The severity of gingival overgrowth is not related to the degree of plaque buildup
3. The severity of gingival overgrowth is directly proportional to the degree of plaque buildup
4. The severity of gingival overgrowth is not dose dependant

Answer: 3 - The severity of gingival overgrowth is directly proportional to the degree of plaque buildup

Explanations:

- This patient has drug-induced gingival overgrowth (DIGO) caused by ciclosporin, which generates an abundance of the connective tissue matrix.
- Bacterial plaque appears to be a contributory factor, and the severity of gingival overgrowth is believed to be directly proportional to the degree of plaque buildup and plaque-induced inflammation.
- The majority of DIGO cases are reported in patients with poor oral hygiene.
- Plaque removal, including periodic root scaling, is an essential step in the treatment of DIGO.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Drug Induced Gingival Overgrowth



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Question 201: A 54-year-old non-smoker female has recently been diagnosed with a tumor of the hard palate. She undergoes a CT scan of the head and neck prior to surgery for staging purposes, which reveals the spread of the tumor to the pterygopalatine fossa. A subsequent excisional biopsy of the tumor shows small cells of secretory nature with hyperchromatic nuclei and minimal cytoplasm arranged in a cylindrical pattern within a hyaline stroma interspersed with cyst-like spaces. Which of the following is the most common mechanism by which the tumor spreads the pterygopalatine fossa?

Choices:

1. Perineural spread through the greater and lesser palatine branches of the maxillary nerve
2. Hematological spread via the greater palatine branch of the maxillary artery
3. Perineural spread via the glossopharyngeal nerve
4. Hematological spread via the axillary vein

Answer: 1 - Perineural spread through the greater and lesser palatine branches of the maxillary nerve

Explanations:

- The pterygopalatine fossa is known as the neuromuscular crossroad containing many important neurovascular structures like the maxillary nerve (V2), pterygopalatine ganglion, terminal part of the maxillary artery, veins as well as their associated branches.
- Adenoid cystic carcinoma is known for its key feature of invasion through perineural tissues.
- Adenoid cystic carcinoma is known for its neurotropism and very rarely spreads through lymphatics and vascular structures.
- The greater palatine and lesser palatine nerves are branches of the maxillary nerve which innervates posterior palate. It is via perineural spread along these nerves by which adenoid cystic carcinoma of the hard palate most commonly spread to the pterygopalatine fossa.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Adenoid Cystic Cancer



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Question 202: A 56-year-old man presents for an elective dental procedure. He has no past medical history and takes no medications. The patient has been diagnosed with a chronic periapical abscess in his left lower second molar at a previous appointment, and a root canal procedure was indicated. As the first step of the procedure, a conventional inferior alveolar nerve block is performed, and after two hours, the first session of the root canal is completed uneventfully. After two days, the patient presents with smiling difficulty and heaviness on the left side of his face. What is the most likely cause of this patient's postoperative presentation?

Choices:

1. Tearing of the mucosa during the progression of the needle
2. Deposition of anesthesia in the parotid region
3. Intravascular injection of the anesthesia
4. Cutting of the pterygoid venous plexus

Answer: 2 - Deposition of anesthesia in the parotid region

Explanations:

- Complications arising from inferior alveolar nerve block may vary from being common to rare. The patient in the clinical scenario presents with facial paralysis.
- Facial paralysis due to dental treatments is very rare. It can be associated with errors during the injection of local anesthetic, like the inadvertent deposition of the local anesthetic solution in the parotid area region due to the advancement of the needle more toward the posterior border of the mandible may cause facial paralysis.
- Hematomas and trismus are more common complications of the local inferior alveolar nerve block.
- Very rare reported complications include ptosis, extraocular muscle paralysis, and skin necrosis of the chin, diplopia, and abducens nerve palsy.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Inferior Alveolar Nerve Block



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Question 203: A 19-year-old man presents with speech difficulty since birth. On examination, there is a tongue-free length of 9 mm. The patient can protrude the tongue up to the lower lip. On a speech articulation test, the pronunciation of the letters 'd', 't', and 'th' is not accurate. Which of the following occlusal problems would be most likely present in this patient?

Choices:

1. Premature contact in canines
2. Anterior cross-bite
3. Open bite
4. Functional cross-bite

Answer: 3 - Open bite

Explanations:

- This patient presents with ankyloglossia, also known as tongue-tie, which is defined as a short lingual frenum that interferes with normal tongue movement.
- The term free tongue is defined as the tongue's length from the insertion of the lingual frenum into the tongue's base to the tongue's tip. This method of measurement can be used in older patients as well as infants. The normal range of free tongue is more than 16 mm.
- Complications that have been reported in patients with ankyloglossia include orthodontic problems such as open bite. Other difficulties include eating certain foods that require licking, like ice cream, playing wind instruments, and even with kissing.
- Self-esteem and psychological issues can also be a concern in patients with tongue-tie.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Ankyloglossia



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Question 204: A 70-year-old female patient with a past medical history of diabetes mellitus presents to the clinic with skin ulceration and swelling of the right chin. Physical examination revealed a 6 cm ulcerated and keratotic lesion in the right submandibular region associated with purulent discharge. Oral examination reveals gingival swelling in line with the lesion. Squamous cell carcinoma is suspected. Histopathological examination of the skin biopsy specimen revealed pseudoepitheliomatous hyperplasia admixed with dense inflammatory infiltration. Which of the following is the best next step in the management of this patient?

Choices:

1. Excision of the lesion
2. Computed tomography
3. Fine-needle aspiration of the lesion
4. Bacteriological and fungal culture swabs

Answer: 2 - Computed tomography

Explanations:

- This is a rare case of oral cutaneous fistula mimicking squamous cell carcinoma given the infiltrative nature of the lesion. Cases like this should not be misdiagnosed.
- The location of the lesion should help make the diagnosis. The most frequent locations of odontogenic cutaneous fistula were the mandible angle followed by the chin and the cheeks.
- Radiographic analysis can be used to show bone loss in the apex of the infected tooth. Computed tomography is useful, seeking for a fistula continuing from the cutaneous surface to the molar pericoronitis.
- Even though squamous cell carcinoma of the oral region usually shows pseudoepitheliomatous hyperplasia, this finding should not be misleading as the abundant purulent discharge is not a clinical feature of squamous cell carcinoma.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Oral Cutaneous Fistula



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Question 205: A 65-year-old male presents to the office for evaluation of a mass anterior and inferior to his right ear, which he noticed while shaving. He states the mass has been present for the past 2 months. At first, he thought it was due to his cold, as he read on the internet that lymph nodes can swell due to the flu. He is concerned as the mass has not been reduced in size. His past medical history is significant for hypertension, diabetes mellitus, and hyperlipidemia. He has a smoking history of 30 pack years. He drinks 2 to 3 beers in a month. On physical examination, the mass is soft and mobile. A fine needle biopsy is performed, which reveals cells consisting of papillary formations lined by tall columnar cells enclosing a dense lymphoid population. What is the single most important risk factor associated with the patient's suspected diagnosis?

Choices:

1. Alcoholism
2. Radiation
3. Smoking
4. Salivary gland stones

Answer: 3 - Smoking

Explanations:

- Given the histopathology findings, this patient most likely has a Warthin tumor. Smoking has been linked to the development of Warthin tumors.
- The other distinct feature of Warthin tumor is that it can be bilateral in about 10% of patients. It consists of papillary formations around a lymphoid population.
- Warthin tumor most commonly occurs in the parotid gland and is very rarely seen in the other salivary glands.
- After the pleomorphic adenoma, the Warthin tumor is the second most common salivary gland tumor.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Malignant Salivary Gland Tumors



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Question 206: A 16-years old male presented to the emergency department with a history of trauma to his face. On examination, the patient has a heart rate of 86beats/min, BP of 115/80mmHg, and a respiratory rate of 19 breaths/min. On local examination, he has malocclusion and decreased mobility of his jaw, no fragment mobility is noted on bimanual palpation. X-rays reveal cortical discontinuity at the level of the condyle. At what location is the pathology most commonly located?

Choices:

1. The angle of the mandible
2. Neck of mandible
3. Middle of mandible
4. At the temporomandibular joint

Answer: 1 - The angle of the mandible

Explanations:

- Overall, mandibular fractures occur with equal frequency in the body, condyle, and angle of the mandible.
- However, after an automobile accident, the condyles are most commonly fractured. After a motorcycle accident, the symphysis is most commonly fractured. When the individual is assaulted, the angle is most commonly fractured.
- A neurological exam is necessary when evaluating a mandibular fracture. One should check for paresthesia or anesthesia along the distribution of the inferior alveolar nerve. Numbness in this region is almost a sure sign of a fracture distal to the mandibular foramen.
- Also, one should check for associated injuries such as nasal fractures, cervical spine fractures, and ocular injuries.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Mandible Fracture



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Question 207: A 7-year-old child comes in along with his mother, who is concerned about the small swelling inside the mouth of the child for 1 month. This swelling is asymptomatic and has not grown in size for the last 20 days. The child was born prematurely, and both her parents smoke frequently. On general inspection, the child looks anxious and frequently bites his lower lip from time to time. On examining the oral cavity, the clinician notices a 0.5 cm x 0.5 cm translucent swelling on the lateral aspect of the inner side of the lower lip. This swelling is non-tender, soft, and fluctuant. Which of the following risk factors could have led to the swelling in this patient?

Choices:

1. Pre-maturity
2. Parental history of smoking
3. Anxiety
4. Lip biting

Answer: 4 - Lip biting

Explanations:

- Trauma is the most common cause of mucoceles. The less common causes include chronic inflammation, chronic infection, and obstruction of the salivary duct due to stones.
- Mucoceles usually resolve in 3-6 months. Therefore, such patients should be reassured.
- Surgical excision, along with the associated salivary gland, is the best treatment of choice for mucoceles provided they are symptomatic, persistent, and interfering with speech or swallowing.
- Parental smoking has nothing to do with mucoceles. However, smoking can lead to the development of such lesions via chronic irritation in smokers.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Mucocele And Ranula



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Question 208: A 35-year-old man presents to the emergency department with a broken jaw. The patient states that he was hit in the face by a baseball bat during an altercation. An x-ray of the patient's head and neck shows a fracture of the left lingual foramen of the mandible. Which portion of the lingual artery is most likely to be damaged in this patient?

Choices:

1. Deep lingual artery
2. Sublingual artery
3. Inferior alveolar artery
4. Dorsal lingual artery

Answer: 2 - Sublingual artery

Explanations:

- The lingual artery has four major branches: suprahyoid artery, dorsal lingual artery, sublingual artery, deep lingual artery.
- The sublingual artery, the third branch of the lingual artery, is a major supplier of the buccal mucosa, gingival mucosa, and the mandible.
- The right and left terminal branches of the sublingual artery anastomose on the posterior side of the mandible in the lingual foramen.
- The inferior alveolar artery is a branch of the maxillary artery and runs with the inferior alveolar nerve in the mandible. The function is to supply the teeth, it does not anastomose in the lingual foramen of the mandible.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Anatomy, Head and Neck, Lingual Artery



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Question 209: An 8-year-old boy is brought in by his father for a dental check-up. He has no past medical history. On examination, there are no caries or gum disease. On examination of the occlusion, the buccal cusps of the lower molars and premolars surpass buccally the upper teeth during occlusion bilaterally. Which of the following devices is the most appropriate to treat this patient's condition?

Choices:

1. Tongue blade
2. Quad helix
3. Chin cup appliance
4. Face mask

Answer: 2 - Quad helix

Explanations:

- This patient has bilateral posterior crossbites. A crossbite should be treated as soon as it is found, early recognition and treatment increase the orthopedic effects and improve the long-term stability of the results.
- There are different devices that can be used for the treatment of these discrepancies. Quad helix is a fixed appliance, soldered to molar bands cemented to first permanent molars.
- It can produce slow expansion. Forces generated by the appliance can be controlled depending on the amount of activation. Reactivation is done using the three-prong pliers.
- Other devices use for the management of the posterior crossbite include Coffin spring, hyrax screw, NiTi Expanders, and fixed orthodontic appliances.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Posterior Crossbite



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Question 210: A 21-year-old woman presents to the clinic a few days after sustaining facial trauma. Her medical history is remarkable for hypothyroidism for which she takes levothyroxine. She reports that a week ago, during a softball game, she was hit in the front, top, teeth and lost all of them, including her canines, lateral incisors, and central incisors. She has not seen a dentist yet. Due to the changes in her occlusion, which of the following forces is most likely to be increased in her posterior teeth?

Choices:

1. Anterior guidance
2. Crushing force
3. Shear force
4. Vertical force

Answer: 3 - Shear force

Explanations:

- Anterior guidance is the interaction, specifically of the canine teeth, that disclude the posterior teeth as the mandible functions in lateral excursion. When lost, this increases the shear force, or lateral stresses, of the posterior teeth.
- The teeth are strongest in vertical forces and weakest in shear forces, thus the need to restore lost teeth and proper occlusion, to prevent excessive wear and breakdown of remaining teeth.
- The teeth sit in a shock-absorbing ligament, the periodontal ligament or PDL that helps to bear the forces expressed on it.
- The patient should be referred for restoration right away.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Physiology, Tooth



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Section 7

Question 211: A 40-year-old female presents complaining of dental pain for the past 3 days. The patient denies a history of trauma. She states that she has not been to the dentist for 7 years, but the last time she had cavities and refused fillings. The patient denies fever and shortness of breath. She has had chronic difficulty swallowing, along with dry eyes for several years. She has been taking oral antihistamines and using eye drops for the past month, in an attempt to alleviate symptoms, but states neither help. There is some pain when chewing foods. On physical exam, the patient has a localized area of swelling in the gum line adjacent to the right first premolar. The swelling is fluctuant and tender. The right first premolar has a visible area of complete erosion through the enamel surface and underlying dentin. She has a very dry mouth. The patient is given oral clindamycin and has made an appointment with a dentist. Which of the following factor most heavily contributed to this patient's condition?

Choices:

1. Antihistamine use
2. Sjogren syndrome
3. Absent tooth filling
4. Recent trauma

Answer: 2 - Sjogren syndrome

Explanations:

- The factor that most predisposed this patient to dental caries and abscess is Sjogren's syndrome. Evidence of Sjogren syndrome includes dry eyes, dry mouth, and her age.
- Sjogren syndrome damages the parotid glands that help with oral secretions. This causes mouth dryness, which is a major predisposing factor for poor oral health.
- CT and MRI are sensitive modalities in detecting abscess. Initial workup should include an x-ray of the head and neck and complete blood cell count. X-ray of the head and neck can help identify compression or deviation of the trachea and subcutaneous air related to necrotic tissue. These imaging modalities can be useful if there is a need to evaluate possible ascending bacterial spread to the sinus cavities. Complete blood cell count can help rule in infectious etiology based on total white blood cell count and a predominant white blood cell line that appears. For bacterial infections, there should be an increase in neutrophil count in individuals that are not immunocompromised.
- Treatment involves draining the abscess, providing antibiotic support, pain control, and removal of infectious tooth sources. Often oral antibiotics with a timely dentist appointment for dental carries intervention is sufficient. Dental abscesses may not require admission to the hospital and administration of intravenous (IV) antibiotics unless the patient presents with worrisome features that include fever, dyspnea, or airway compromise secondary to swelling. Most dental abscesses can be treated with antibiotics to cover gram negatives, facultative anaerobes, and strict anaerobes.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Dental Abscess



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Question 212: A 15-year-old male patient is admitted to the emergency department (ED). He is brought to the ED via emergency medical services as a restrained rear passenger in a low-velocity motor vehicle collision. After the primary and secondary surveys, his only injury is a 0.5 cm superficial laceration to his left forehead. The tetanus vaccination is up to date, and after thorough irrigation of the wound, the choice is made to use 2-octyl cyanoacrylate for wound closure. After the application of the third layer of 2-octyl cyanoacrylate, what is the next best in the management of the patient's wound?

Choices:

1. Immediate application of a dry bandage
2. Topical antibiotic ointment
3. Apply a 4th layer of 2-octyl cyanoacrylate
4. Continue to manually approximate the wound for 30 seconds

Answer: 4 - Continue to manually approximate the wound for 30 seconds

Explanations:

- Three thin layers of the application are used when administering adhesive to the wound.
- After the application of the adhesive, no further materials are necessary, although a bandage may be used after drying to prevent picking from children.
- Topical antibiotics can erode the adhesive polymer and should not be used.
- While maximal bonding strength is reached within 2.5 minutes, the manual approximation is only recommended for at least 30 seconds following the application of the third layer of 2-octyl cyanoacrylate.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

2-Octyl Cyanoacrylate



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Question 213: A 43-year-old man presents to the clinic with acute mouth bleeding after falling off his bike while cycling in the mountains. He reports pain in the right side of his face that was hit when landing. He denies any head injury or loss of consciousness. On examination, the patient is orientated to time, place, and space. On extraoral examination, there are mild erosions on the right cheek. On intraoral examination, the right first molar has an enamel and dentin fracture with exposed dental pulp, which is the source of the bleeding. Endodontic treatment with local anesthesia is planned. Which of the following ligaments is most likely to be damaged during this block?

Choices:

1. Temporomandibular
2. Interdental
3. Sphenomandibular
4. Stylomandibular

Answer: 3 - Sphenomandibular

Explanations:

- The inferior alveolar nerve block provides temporary anesthesia to the mandibular teeth in the ipsilateral quadrant, gingival tissue, and mucoperiosteum of the mandibular arch. It blocks the sensory innervations of the lower lip.
- The inferior alveolar nerve block requires the insertion of the needle in the mandibular foramen's surroundings to deposit local anesthetic solution near the entry of the nerve into the inferior alveolar canal.
- The inferior alveolar nerve travels between the mandible ramus and the sphenomandibular ligament before accessing the mandibular foramen.
- Therefore, the sphenomandibular ligament may be injured during the administration of this nerve block.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Inferior Alveolar Nerve Block



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Question 214: A 16-year-old African American man presents to the emergency department (ED) with an inability to completely close his jaw since waking up this morning, associated with sharp pain. He has been unable to chew his food properly. The patient has also noticed that his pain increases when he touches his lower face. His vital signs in the ED are stable, except sinus tachycardia of 120/min. Physical exam findings include tenderness on palpation of jaw muscles and restricted jaw movements. CT scan reveals anterior displacement of the intra-articular disc. Which of the following warrants an urgent referral to an oral maxillofacial surgeon?

Choices:

1. His ethnicity
2. Duration of illness
3. Anterior displacement of disc
4. Character of pain

Answer: 4 - Character of pain

Explanations:

- The temporomandibular joint syndrome is also known as temporomandibular disorder (TMD) is a common type of musculoskeletal disorder in the orofacial region involving the masticatory muscles, temporomandibular joint (TMJ) and associated structures. The typical features are a pain in TMJ with restriction of mandibular movement, TMJ sound, and facial deformities.
- Acute anterior displacement of the intraarticular disk is a rare condition that causes the jaw to lock in the open position. This can lead to painful inflammation and can inhibit swallowing and eating.
- Urgent referral to an oral and maxillofacial surgeon is recommended if the patient has an acute anterior displacement of the intraarticular disc to prevent permanent damage.
- The first step in the treatment of TMJ disorders is symptomatic care which usually consists of (a) soft diet (b) mild inflammatory agents (c) moist heat packs and/ ice (d) voluntary disengagement of the teeth. Further treatment modalities can be grouped into definitive and supportive treatment.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Temporomandibular Joint Syndrome



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Question 215: A 59-year-old male patient presented to the clinician with the complaint of a swelling on the right side of the face. The patient noted the swelling while shaving the other day. On examination, the swelling was mobile, non-tender, and firm. Salivation was normal, and the parotid duct was patent in the patient. Fine needle aspiration biopsy revealed characteristic cystic spaces that were lined by a bilayer of oncocytic cells and abundant lymphocytes in the subepithelial stroma. Which of the following is associated with the disease in this case?

Choices:

1. Tobacco
2. Nitrosamines in the food
3. Alcohol
4. Cocaine

Answer: 1 - Tobacco

Explanations:

- Histopathology findings are consistent with the diagnosis of Warthin tumor.
- A Warthin tumor is supposedly caused by tobacco, ionizing radiation, autoimmune disease, and chronic inflammation.
- A Warthin tumor is generally removed with surgery. It is, most of the time, a benign tumor. No chemotherapy or radiotherapy is needed for its treatment.
- Warthin tumor is slow-growing in nature and is usually painless. Its most common presentation is in the parotid gland (can present at the angle of the mandible just below the auricle).

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Malignant Salivary Gland Tumors



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Question 216: A 9-year-old is brought to the clinic due to concerns over loose mandibular teeth, which are affecting his ability to chew food. The patient denies any pain or bleeding in his oral cavity. He regularly follows with a dentist and denies a history of oral surgeries. On evaluation, three of the patient's lateral mandibular teeth are noted to be loose. There are no apparent surrounding malformations or discoloration. MRI is consistent with a benign vascular lesion in the mandible. What adverse effect is this patient at an increased risk of due to the location of this lesion?

Choices:

1. Ulceration
2. Speech impairment
3. Dysphagia
4. Hemorrhage

Answer: 4 - Hemorrhage

Explanations:

- Oral hemangiomas (OHs) are benign vascular lesions that most frequently involve the lips, tongue, buccal mucosa, and palate. OHs have also been noted in the mandible and maxilla (central hemangiomas) and within the masseter and other muscles of mastication (intramuscular hemangiomas).
- Intraosseous, especially mandibular, hemangiomas are associated with a higher risk of spontaneous and post-procedural hemorrhage.
- Ulceration is the overall most common complication associated with oral hemangiomas.
- If an intraosseous hemangioma is suspected, a contrast-enhanced MRI is the imaging modality of choice.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Oral Hemangiomas



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Question 217: A 56-year-old is undergoing a root canal procedure for the left lower second molar. He has a history of diabetes and ischemic heart disease. His current medications include aspirin, clopidogrel, atorvastatin, bisoprolol, sitagliptin, and metformin. He is administered an inferior alveolar nerve block, and his procedure is completed uneventfully. He returns to the dentist's office two days later complaining of pain during mouth opening. Examination reveals no visible deformity. His maximal interincisional opening is measured to be 10 mm. An MRI is performed, which shows the presence of a hyperintense signal in a muscle. Which of the following is likely affected in this patient?

Choices:

1. Masseter
2. Hyoglossus
3. Medial pterygoid
4. Mylohyoid

Answer: 3 - Medial pterygoid

Explanations:

- This patient has undergone a root canal treatment requiring an inferior alveolar nerve block. He has presented with restricted mouth opening and decreased maximal interincisional opening distance, indicating the development of trismus. A history of antiplatelet use and the presence of a hyperintense signal on MRI indicate the possibility of an intramuscular hematoma.
- The medial pterygoid is at an increased risk of needlestick injury following an inferior alveolar nerve block. Hematoma formation in this muscle will lead to myospasm and trismus. The hematoma can organize and lead to fibrosis, which can lead to chronic trismus.
- Using short needles with smaller size and slow anesthetic injection can reduce the chances of medial pterygoid muscle injury. Treatment should compromise rest, analgesia, and muscular relaxants.
- Early physiotherapy and range of motion exercises are essential in preventing the development of chronic immobility. The masseter, hyoglossus, and mylohyoid are usually not injured in an inferior alveolar nerve block.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Trismus



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Question 218: A forensic dentist is working on determining the age of a cadaver that was found in a lake heavily disintegrated. The dentist uses a technique that involves six criteria: attrition, amount of recession in the gingiva, secondary dentin formation, apposition of cementum, resorption, and transparency of the root. What is the most likely method utilized?

Choices:

1. Average stage of attrition (ASA)
2. Ubelaker
3. Gustafson method
4. Gustafson method modified by Kashyap

Answer: 3 - Gustafson method

Explanations:

- The selected method of age determination based on dental data in the scenario is the Gustafson method. This technique is considered as the standard for human age estimation and is being used ever since its development.
- The alterations in the criteria are itemized with a predetermined score ranging from zero to three.
- An equation is put together for linear regression aimed at calculating the age of an individual.
- The relationship constant achieved is 0.98. The main shortcoming of the Gustafson method was the setting of equality for all the standards for equivalency.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Forensic Odontology



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Question 219: Forensic odontology personnel are working in a multidisciplinary team to identify the bodies of several victims of a bomb explosion in a shopping mall. The ethnicity of the victims is being estimated based on their dental characteristics. Which of the following would be most likely seen in the Asian population?

Choices:

1. Cusp of Carabelli
2. Enamel pearls
3. Straight axial orientation of the central incisors
4. Absence of expressions of the protostylid of the sixth cusp

Answer: 2 - Enamel pearls

Explanations:

- There have been attempts to determine to what extent the tooth crown morphology can be used to determine expectable forms of biological relationships among humans.
- Nowadays, due to globalization, it is difficult and even not possible to categorize a person into one ethnic group.
- Traditionally a person from Asia would be more prone to exhibit some dental characteristics than other ethnicities. An example of this are the enamel pearls occurring more commonly on the premolars.
- Cusp of Carabelli or tubercle commonly presents in the negative form with pits and grooves, and a high incidence of shovel-shaped incisors.

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Research Concepts:

Forensic Odontology



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Question 220: A 77-year-old woman presents to the clinic for routine follow up. She has a background history of osteoporosis. She receives a yearly zoledronic acid infusion. On examination of her oral cavity, she has some mobile teeth, and poor dental hygiene but denies any pain or tenderness. Which of the following additional features is most likely to be associated with this condition?

Choices:

1. Numbness
2. Exposed bone
3. Gray-white membrane formation
4. Fistula formation

Answer: 2 - Exposed bone

Explanations:

- Pain and exposed bone tissue are the two most common presentations of osteonecrosis of the jaw (ONJ).
- The type and total dose of bisphosphonates play a significant factor in the development of ONJ. The more potent the drug the higher the chance of developing ONJ.
- Prevention and early identification of high-risk patients are key in managing these cases. Once it happens, management can be challenging.
- Conservative management is preferable first. Surgical debridement is confined to severe cases with exposed bones and where conservative management has failed.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Bisphosphonate Toxicity



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Question 221: A 55-year-old woman presents for advice regarding her dental prosthesis. She reports that she is not happy with her current prosthesis since it is uncomfortable and constantly moving. She has no past medical history and takes no medications. On examination, the patient uses a partial removable denture for the pieces 3.5 and 4.5 that are missing. The facial-lingual width of the bone of the edentulous area is decreased, and there is little interdental space. A one-piece titanium implant with a square prosthetic head is considered as a treatment option. Which of the following leads to faster osseointegration of these devices?

Choices:

1. The extra available osseous blood supply for the implant supporting bone leading to better angiogenesis
2. Flapless placement
3. Bone expansion during their placement
4. Immediate stabilization and loading leading to fewer treatment visits

Answer: 2 - Flapless placement

Explanations:

- Improvement of implant shape, thread patterns, and surface treatment lead to enhanced primary stability and faster osseointegration.
- Minimal osteotomy size provides an extra available osseous blood supply for the implant supporting bone and so better angiogenesis.
- Small implants have less linear percutaneous exposure, thus exposing less of the implant-gingival attachment to bacterial attack.
- In large diameter implants, a barrier to blood supply may hinder angiogenesis and subsequent osteogenesis around a newly placed implant compared to the smaller implants.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Dental Mini-Implants



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Question 222: A 66-year-old man from India presents with a burning and metallic sensation in his mouth. He has a past medical history of chronic obstructive pulmonary disease. The patient has a 40 pack-year history of reverse smoking. On examination, there is a bright, well-defined 2 cm red velvety patch in the right posterior area of the hard palate. On palpation, it is soft, and there is no induration. An incisional biopsy shows thin atrophic epithelium, subepithelial vascularity, and inflammation, with mild cellular dysplasia. A premalignant lesion is diagnosed. Which of the following carcinomas is most likely associated with this patient's smoking habit?

Choices:

1. Polymorphous adenocarcinoma
2. Epidermoid carcinoma
3. Adenoid cystic carcinoma
4. Lymphoma

Answer: 2 - Epidermoid carcinoma

Explanations:

- The patient in the clinical scenario presents with erythroplakia, which has a higher risk of converting into a malignant condition compared to other premalignant lesions.
- In the Eastern coastal region of Andhra Pradesh in India, they practice the habit of reverse smoking, known as chutta.
- Epidermoid carcinoma of the hard palate is associated with this practice.
- Some cultural values influence tobacco consumption. The communities using indigenously manufactured cigarettes, bidi, chutta, chillum, hookah (hubble-bubble), and inhalation as snuff are at increased risk of developing oral mucosal cancer.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Oral Mucosa Cancer



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Question 223: A 78-year-old man presents to the clinic with a history of stage I mandibular gingival squamous cell carcinoma treated with primary radiation therapy 18 months ago. He underwent pre-treatment dental care, and his remaining dentition is in good repair. On examination, there is a 1x1cm area of exposed bone with minimal local tissue response at the site of the primary tumor with no exposed tooth roots. He is unwilling to accept surgical intervention. What is the proposed mechanism of action of the most effective non-surgical treatment option, assuming this does not represent persistent cancer?

Choices:

1. Reducing the burn
2. Causing vasoconstriction
3. Reducing edema
4. Promoting angiogenesis

Answer: 4 - Promoting angiogenesis

Explanations:

- Delayed radiation-induced tissue damage causes a hypovascular-hypoxic-hypocellular tissue bed.
- Hyperbaric oxygen (HBO) therapy is shown to improve angiogenesis in hypoxic tissues.
- Increased neovascularity promotes tissue repair mechanisms tipping the balance towards repair rather than cellular loss.
- HBO treatments before and after dental extractions of teeth in a previously irradiated area can decrease the incidence of osteoradionecrosis, a specific example of delayed radiation-induced tissue damage.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Mandible Osteoradionecrosis



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Question 224: A 2-year-old boy is brought to the clinic by his mother, who states that she has noticed a speech impediment as her son is learning new words. Upon further questioning, the mother reveals that the patient had occasional difficulty breastfeeding after he was born. Today, the patient has normal vital signs and is afebrile. On examination, the patient makes appropriate eye contact and has a symmetric smile. Upon examining the oral cavity, the patient is noted to have a heart-shaped tongue and is unable to fully stick out his tongue. However, no lateral deviation of the tongue is observed. No lingual fissures are noted on the surface of the tongue, but the patient does have malodorous breath and begins to cry when you attempt to use the tongue depressor in further examination of the oral cavity. The mother states that the patient now adamantly refuses to brush her teeth, and is concerned about him developing oral cavities. What is the most likely cause of this patient's presentation?

Choices:

1. Cognitive disability
2. Hyperplastic labial frenulum
3. Chronic oral abscess
4. Ankyloglossia

Answer: 4 - Ankyloglossia

Explanations:

- Ankyloglossia, or "tongue-tie," occurs due to a thickened lingual frenulum which creates a band that tethers the base of the distal tongue to the floor of the mouth.
- It is present at birth, and often manifests as trouble breastfeeding with subsequent difficulty pronouncing certain sounds, including "d," "t," "s," "z," "r," and "l." Patients may also develop poor oral hygiene due to the inability to protrude the tongue sufficiently enough to thoroughly clean the oral cavity.
- Many patients choose not to correct the defect and instead adapt their phonation and eating habits to accommodate. However, the surgical options for the treatment of bothersome ankyloglossia include frenotomy, frenulectomy, and frenuloplasty. These procedures are typically performed without the need for sedation.
- Hyperplastic labial frenulum may cause difficulty breastfeeding, but it is much less pronounced and less common than ankyloglossia. Furthermore, the patient's speech would be unlikely to be affected. The patient interacts appropriately and does not show any signs of cognitive deficiencies. There are no signs of oral abscesses in the patient, who has normal vital signs and does not appear to have significant oral pain, oral drainage, or fluctuant masses.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Anatomy, Head and Neck, Tongue





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Question 225: A 65-year-old male presents to the clinic with the complaints of blisters on the skin and mucous membranes, which initially started on the limbs. Physical examination revealed round and oval blisters filled with clear fluid arising from red flat and elevated patches. A blood test is done, which reveals IgA antibodies (indirect immunofluorescence). His past medical history includes inflammatory bowel disease, for which he is under treatment. Which medication is most likely to help in the treatment of this patient?

Choices:

1. Corticosteroids
2. Skin ointments
3. Dapsone
4. Erythromycin

Answer: 3 - Dapsone

Explanations:

- The sign and symptoms in the scenario are suggestive of linear IgA bullous dermatosis. The most commonly involved mucosal surfaces are the oral mucosa and conjunctiva. The medication most commonly used to treat the disorder is oral dapsone. Fortunately, the disease is exceptionally responsive to dapsone, and improvement can be seen within 2 to 3 days of drug initiation. Relatively low doses of dapsone are required for successful disease management, with an average of 100 mg daily for adults, while children generally require 1 to 2 mg/kg/day.
- The examination of mucous membrane surfaces such as the oral mucosa, conjunctivae, nares, and genital areas are an important component of a complete examination in patients with suspected vesiculobullous disorders.
- The mucosal involvement in linear IgA bullous disease may result in significant scarring.
- Inflammatory bowel disease is the most common association in this disease.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Linear IGA Dermatitis



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Question 226: A 17-year-old woman presents with a three-week history of jaw pain. The pain exacerbates upon waking up, and she describes it as a seven out of ten. She mentions she did not seek attention earlier because she was too busy studying for her annual exams. She has no past medical or dental history. On examination, there is stiffness on the mandibular muscles. On intraoral examination, there is a gingival recession and mild wear facets in the upper and lower incisors. Which of the following is the most appropriate device to alleviate this patient's signs and symptoms?

Choices:

1. An occlusal hard resin-acrylic splint on the upper maxilla
2. An occlusal soft-resin splint on the upper maxilla
3. An occlusal hard resin-acrylic splint on the lower maxilla
4. An occlusal soft-resin splint on the lower maxilla

Answer: 1 - An occlusal hard resin-acrylic splint on the upper maxilla

Explanations:

- The patient in the clinical scenario presents with signs and symptoms of bruxism, which is the involuntary, unconscious, and excessive grinding of teeth while awake or during sleeping.
- The recommended approach of bruxism management includes the use of occlusal splints preferable the hard acrylic-resin devices, which have demonstrated to be more effective in treating bruxism than soft devices.
- Occlusal splints work more as a protector of the teeth preventing further damage.
- A behavioral approach to increase the patient's awareness of the disorder, relaxation, lifestyle, and sleep hygiene instructions should also be installed.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Bruxism Management



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Question 227: A 16-year-old female is undergoing a non-invasive dental procedure to prevent the development of dental caries. A 'K' shaped invagination was found on her right upper pre-molar during a routine checkup. During the technique, the clinician first isolates the affected tooth using a rubber dam. This is followed by the application of pumice slurry to the tooth, which is thoroughly washed. Orthophosphoric acid is then added to applied to the occlusal surface for 30 seconds. The tooth is thoroughly washed to remove the acid. A gel resin is applied then applied to the moist tooth, especially over the invaginations. A light was then applied to the tooth for 30 seconds, which resulted in the hardening of the gel. A post-procedure evaluation revealed adequate application. However, a follow up 3 months later revealed loss of more than 50 % of the applied resin. Which inadequately performed step has resulted in this outcome?

Choices:

1. Duration of orthophosphoric acid application
2. Usage of pumice slurry prior to acid application
3. Application of gel on the moist dental surface
4. Hardening of material using a light source

Answer: 3 - Application of gel on the moist dental surface

Explanations:

- This patient is undergoing sealant application of dental fissures. Sealant application is an efficient method of preventing dental caries in individuals with at-risk lesions such as pits and fissures. The sealant forms a micro-mechanical barrier and slows the development of dental decay. An inappropriate technique will result in poor sealant retention at follow up.
- It is paramount to ensure that the dental surface is completely dry prior to the application of a sealant. This is especially true when using older hydrophobic sealants. The tooth must be protected from saliva, which can be achieved by using a rubber dam or an Isolite device.
- The tooth, after being thoroughly washed, should be air-dried. Compressed air can be used to thoroughly dry the tooth. The dried tooth will appear as chalky white.
- Moisture resold in poor sealant adhesion and poor retention. Pumice shines the teeth, and orthophosphoric acid is used as an etching material. Both are important is the application of sealant and were performed appropriately in this patient. Newer sealants are light-cured and are hardened after a brief exposure to a light source.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Pit and Fissure Sealants



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Question 228: A 21-year-old man presents because his gums have become more prominent, to the extent that he feels uncomfortable about their appearance. He has a past medical history of recently diagnosed epilepsy, for which he was started on sodium valproate. On examination, there is a firm and pale pink gingival overgrowth with minute lobulations, which does not bleed on touch. There are no caries or dental calculus. Given the most likely diagnosis, what vitamin supplementation is used as adjuvant therapy in the management of this condition?

Choices:

1. Niacin
2. Thiamine
3. Folic acid
4. Vitamin E

Answer: 3 - Folic acid

Explanations:

- The aim of treatment in DIGO is to alleviate the discomfort and do simple acts like eating and chewing pain-free, to treat the inflammation and reduce the swelling, and also give a better cosmetic appearance to the gingiva.
- Plaque removal, including periodic scaling and the discontinuation of the causative drug or switching over to another medication without the same side-effects, is the first line of treatment, and surgery is reserved for recurrences or cases that persist despite proper medical treatment.
- Folic acid (B9 vitamin) supplementation is recommended.
- Control of inflammation, including non-steroidal anti-inflammatory agents, antibiotics to control infection, and topical application of antifungal medication like nystatin are also recommended.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Drug Induced Gingival Overgrowth



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Question 229: A 5-year-old boy is scheduled for adenoidectomy. He was admitted to the hospital last night and scheduled to undergo procedure around 12 pm. He has been nil-per-orum (NPO) since 4 am. Around 8 am, the patient becomes restless due to hunger and starts throwing temper tantrums. He is crying uncontrollably and refuses to cooperate for any pre-operative assessment until he is fed. What is the next best step in the management of this patient?

Choices:

1. Observe strict NPO until the procedure time
2. Administer oral midazolam
3. Offer the boy some apple juice
4. Postpone the procedure to next available date

Answer: 3 - Off the boy some apple juice

Explanations:

- The incidence of aspiration in both the adult and pediatric patient population is very small. Nonetheless, preoperative fasting must be observed whenever possible. NPO guidelines state that no clear liquids should be ingested for 2 hours before surgery; no breast milk for 4 hours before surgery; no infant formula or light snack for 6 hours before surgery; and no solids (fatty or fried foods) for 8 hours before surgery.
- Midazolam has a reliable amnestic affecting anterograde memory with our affecting retrograde memory. The primary objectives of the medication are to relieve anxiety and produce amnesia. However, the use of safe and effective non-pharmacologic approaches are preferred.
- In certain circumstances, exceptions can be made for a hungry child who is crying uncontrollably. In this case, offering apple juice up to two hours before a procedure may calm the child.
- Considerable effort goes into scheduling a procedure. It would be inadvisable to reschedule a procedure in this instance. Instead, the application of non-pharmacologic and pharmacologic interventions would be more appropriate.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Pediatric Preoperative Management



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Question 230: A 66-year-old man with a history of multiple myeloma presents to the hospital with chief complaints of loss of his teeth and multiple mucosal ulcers. He currently takes numerous medications for the management of his multiple myeloma and its associated symptoms. Which of the following best describes a step in the mechanism of action of the drug most likely responsible for the patient's symptoms?

Choices:

1. Inhibition of COX1 and 2 enzymes
2. Inhibition of tetrahydrofolate reductase
3. Binding to hydroxyapatite crystals within areas of remodeling bone
4. Binding to unbound serum calcium molecules

Answer: 3 - Binding to hydroxyapatite crystals within areas of remodeling bone

Explanations:

- Osteonecrosis of the jaw is a feared side-effect of bisphosphonate use. Symptoms include jaw pain, swelling of nearby tissue, pus formation, and loosening of teeth.
- IV bisphosphonates like pamidronate, are the drugs of choice to treat multiple myeloma.
- Bisphosphonates exert their effects by inhibiting and inducing apoptosis of osteoclasts.
- Bisphosphonates are chemical derivatives of inorganic pyrophosphate (PPi), and thus bind with high affinity to hydroxyapatite crystals found in areas of remodeling bone.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Pamidronate



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Question 231: A 7-year-old boy is brought to the clinic with pain in the upper front teeth for about one hour. The patient reports trauma one hour ago while playing in the school. On clinical examination, a pinpoint bleeding spot is observed in the left maxillary central incisor. What is the most appropriate treatment for this patient?

Choices:

1. Partial pulpotomy
2. Root canal treatment
3. Apexogenesis
4. Apexification

Answer: 1 - Partial pulpotomy

Explanations:

- The bleeding spot in the tooth indicates the involvement of the pulp. The patient reports trauma one hour ago which indicates that no much microbial contamination has occurred. The partial pulpotomy is indicated in these cases, which is also called as the Cvek's partial pulpotomy.
- The suggestion of partial pulpotomy in the tooth fractures involving the pulp depends on the few factors such as the stage of root development, size of pulpal exposure, the time elapsed between injury and treatment, and the presence of luxation injuries.
- In partial pulpotomy, the pulp tissue at the site of injury is removed, and calcium hydroxide is placed over the healthy pulp tissue and fractured tooth portion will be restored.
- As only a tiny pinpoint bleeding spot is observed in the above case, apexogenesis is not indicated. As the tooth is vital, apexification is also not indicated in the above case.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Tooth Fracture



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Question 232: A 65-year old woman comes to her physician with complaints of pain and swelling of her right mandible. The patient also gives a history of ulceration in her mouth that was asymptomatic initially but is painful from the past few weeks. The patient's past medical history is significant for osteoporosis, for which she is taking medications. The examination of the patient's oral cavity reveals mucosal swelling, erythema, and a necrotic area along the medial aspect of her right mandible. Which of the following is the diagnostic hallmark of this patient's current condition?

Choices:

1. Exposed bone in the oral cavity that heals within 4 weeks after identification by a healthcare provider
2. Exposed bone in the oral cavity that heals within 6 weeks after identification by a healthcare provider
3. Exposed bone in the oral cavity that does not heal within 8 weeks after identification by a healthcare provider
4. Exposed bone in the oral cavity that does not heal within 10 weeks after identification by a healthcare provider

Answer: 3 - Exposed bone in the oral cavity that does not heal within 8 weeks after identification by a healthcare provider

Explanations:

- Bisphosphonates (BPs) are synthetic pyrophosphate analogs used to treat hypercalcemia secondary to malignancy, osteoporosis, multiple myeloma, Paget disease, osteosclerosis, fibrous dysplasia, and other bone diseases in which bone resorption is involved.
- Infrequent side effects with BPs use include pyrexia, renal function impairment, hypocalcemia, and recently recognized avascular osteonecrosis of the jaw.
- Exposed bone in the oral cavity that does not heal within 8 weeks after identification by a healthcare provider is the diagnostic hallmark of bisphosphonate-related osteonecrosis of the jaw (BRONJ).
- Most of the surgical or infectious sites heal in the 8-week time period, even if there are complications such as post-surgical infection, chemotherapy use, or systemic disease.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Bisphosphonate Related Jaw Osteonecrosis



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Question 233: A 69-year-old man originally from India presents with a one-month history of sore throat and swallowing difficulty. He has a past medical history of hypertension, which is well controlled on lisinopril. The patient mentions that he has had the habit of chewing betel quid for the last 40 years; however, he does not smoke or drink alcohol. On examination, there is a 2.5 cm ulcer at the posterior third of the tongue and poor dental hygiene. Oral brush biopsy reveals dysplastic changes in the cells of the affected area. Which of the following is the treatment of choice for this patient's most likely condition?

Choices:

1. Cisplatin-based chemotherapy
2. Transoral laser microsurgery
3. Paclitaxel-based chemotherapy
4. Radiotherapy

Answer: 2 - Transoral laser microsurgery

Explanations:

- The sign and symptoms, along with the history of betel quid chewing in addition to the site of the ulcer, are highly suggestive of oropharyngeal squamous cell carcinoma.
- Surgery and radiotherapy are the two principle modalities used the treatment of the patients suffering from oropharyngeal cancers.
- The use of minimally invasive procedures, such as transoral laser microsurgery (TLM), as a first-line treatment modality for oropharyngeal carcinomas, has been found safe and efficient.
- Other resection methods include transoral robotic surgery, transoral video laryngoscopic surgery, transoral ultrasound surgery, and endoscopic laryngopharyngeal surgery.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Oropharyngeal Squamous Cell Carcinoma



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Question 234: An 8-year-old girl is brought to the clinic for routine follow-up. During the physical examination, a 1-centimeter elevated, red lesion is noted superior to her right maxillary lateral incisor. She states that this lesion has been present for at least several years, is stable in size, and does not bleed. Which of the following features, if present, is most likely to confirm the diagnosis in this patient?

Choices:

1. Blanching of the lesion when compressed with a glass slide
2. No change of lesion color when compressed with a glass slide
3. Blanching of the lesion when the patient lowers her head and the abdomen is compressed
4. The lesion becoming more prominent and darkening in color when the patient raises her head

Answer: 1 - Blanching of the lesion when compressed with a glass slide

Explanations:

- Oral hemangiomas (OHs) are soft, compressible masses with characteristics that can vary depending on lesion location, size, and depth. Superficial OHs are typically bright or deep red in color, elevated, and can be lobulated, sessile, or pedunculated. OHs located in deeper layers are more difficult to visualize and may appear as a soft blue or violent discoloration distinct from the surrounding mucosa.
- Diascopy, the blanching of an oral lesion following compression with a finger or glass slide, is a physical examination maneuver that can be used to distinguish hemangiomas (blanching) from purpura (non-blanching).
- OHs are also noted to become more prominent and darken when lowering the head and/or compressing the abdomen due to increased blood flow.
- Oral hemangiomas can be distinguished from oral vascular malformations due to the absence of palpable thrill on examination.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Oral Hemangiomas



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Question 235: A 17-year-old White female presents with jaw pain, swelling, and drainage. The diagnosis of odontogenic keratocyst is made on a jaw x-ray. The patient reports his father also developed jaw cysts at an early age. On exam, the clinician notices numerous pits on the bilateral palmar and plantar surfaces. What other features are associated with the most likely diagnosis?

Choices:

1. Squamous cell carcinoma
2. Calcification of the falx cerebri
3. Adenocarcinoma
4. Seizures

Answer: 2 - Calcification of the falx cerebri

Explanations:

- Jaw cysts (odontogenic keratocysts) are strongly associated with Gorlin syndrome, also known as basal cell nevus syndrome.
- Gorlin syndrome is most often inherited in an autosomal dominant pattern showing mutations in the PTCH gene. PTCH encodes the patched tumor suppressor protein in the sonic hedgehog signaling pathway.
- Other findings in Gorlin syndrome include basal cell carcinomas (>2 BCC or 1 before 20-years-old), medulloblastoma (typically presents within the first three years of life), skeletal rib abnormalities, cleft palate or cleft lip, frontal bossing, ovarian or cardiac fibromas, and ocular abnormalities.
- Gorlin syndrome can be treated systemically with vismodegib (smoothed inhibitor, which acts as an artificial PTCH).

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Gorlin Syndrome



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Question 236: An 18-year-old military recruit presents to the ER after a bar fight. His friend states that he was punched in the jaw by a bouncer as he was escorted from the club. He now complains that he cannot close his mouth or speak clearly. His friend reports that his mouth was open when he was struck, and since then, it has been stuck in an open position. He denies losing consciousness. The patient has a past medical history of an ACL repair. He takes no medications. Physical exam reveals an alert patient with a partially open jaw that cannot be closed, garbled speech, and a bulge in the temporal region of the face that is tender. What deficit would likely be seen as a result of this injury?

Choices:

1. Anosmia
2. Hearing loss
3. Homonymous hemianopia
4. Horner syndrome

Answer: 2 - Hearing loss

Explanations:

- The external auditory canal can be damaged from both posterior and superior dislocation. It may result in nerve damage to the facial nerve (CN VII) or vestibulocochlear nerve (CN VIII), which may lead to hearing loss.
- Superior dislocation or central dislocation result for a direct blow to a partially open mouth causing upward migration of the condyle of the mandible. This mechanism can cause fracture of the glenoid fossa and dislocation of the mandibular condyle into the middle skull base. In a superior dislocation, a bulge will often be present in the preauricular and temporal areas of the face.
- The trigeminal nerve (CN V), facial nerve (CN VII) and vestibulocochlear nerve (CN VIII) should undergo testing in superior dislocations as damage to these nerves can occur. Secondary to the movement of the mandible, other injuries can occur, including injuries to the facial nerve (CN VII), vestibulocochlear nerve (CN VIII), intracranial hematoma, leakage of cerebrospinal fluid (CSF) and cerebral contusion. Superior dislocation has correlations with deafness, facial nerve palsy, and cerebral injury.
- Anosmia is the loss of smell related to the pathology of the olfactory nerve (CN I). Homonymous hemianopia is a loss of the same side of the vision from both visual fields, usually caused by damage to the retrochiasmal pathway of the optic nerve. Horner syndrome presents with miosis, ptosis, and anhidrosis as a result of a lesion to the sympathetic nerve that provides innervation to the head and neck.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Mandible Dislocation

StatPearls Knowledge Base



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Question 237: A 58-year-old man presents to the clinic for follow up. He is scheduled to undergo radial forearm tissue transfer for a left tongue defect. He desires to achieve some sensation after surgery to his neo-tongue. Which of the following is the accepted technique for achieving sensation with donor radial forearm tissue transfer?

Choices:

1. Neuroorrhaphy and connection to the chorda tympani
2. Neuroorrhaphy and connection to the lingual nerve
3. Neuroorrhaphy with a nerve graft and utilizing the hypoglossal nerve for attachment to the medial/lateral antebrachial nerves
4. To achieve possible sensation, the surgeon must raise the flap deep to the sub-dermal plane

Answer: 2 - Neuroorrhaphy and connection to the lingual nerve

Explanations:

- Medial and lateral antebrachial nerves can be harvested with the flap to possibly achieve a sensate skin flap.
- While sensation can be achieved, the taste is unlikely to be achieved even with the harvest of the lateral and medial antebrachial nerves.
- The flap must be elevated in a subdermal plane so as to not violate and sacrifice lateral and medial antebrachial nerves.
- A unique aspect of this tissue transfer is the ability to achieve a sensate skin flap through reliable donor anatomy

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Radial Forearm Tissue Transfer



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Question 238: A 9-year-old is seen at the community dental clinic as part of a free health checkup. He is from a low social-economic background, and this is his first medical evaluation. His mother states that he has no chronic ailments. His dental evaluation reveals eruption of several permanent teeth, including all four of his first molars. He has poor dental hygiene, and his left lower first molar has multiple deep invaginations and burrows on its occlusal surface. The gingival surface of the same tooth has a cavitory carious lesion. The mother states that she will not be available to bring the child for a follow-up visit as they have to relocate frequently. The dentist plans for a preventive intervention that involves the application of resin over the invaginations on the occlusal surface. Which of the following patient characteristics precludes the use of this technique?

Choices:

1. Age of the patient
2. Presence of carious lesion
3. Location of the burrows
4. Inability to follow up

Answer: 2 - Presence of carious lesion

Explanations:

- This patient has presented for a dental evaluation. His examination reveals the presence of deep invaginations and burrows on the occlusal surface of the teeth, findings which are consistent with dental fissures and pits. The preventive procedure being contemplated is the use of sealants to prevent the development of dental caries.
- The presence of active cavitory gingival caries in this patient is a contraindication to the use of dental sealant. Though sealant use may slow the progression of carious lesions, its use for sealing pits and fissures should be avoided in patients with extensive caries activity.
- Radiological assessment of the affected teeth may be required to detect the presence of underlying dental caries. Sealant use should be avoided in teeth with extensive proximal carious activity.
- Sealant use is effective in preventing the development of dental caries. Children from low socioeconomic groups are at risk of developing caries are ideal candidates for sealant application. If the patient is cooperative with the procedure, age should not be a contraindication. Similarly, the inability to follow should not be the sole reason to deny the use of this preventive technique. The location of fissures and pits on the occlusal surface is ideal for the application of sealant.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Pit and Fissure Sealants



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Question 239: An 18-year-old male high school football player is tackled and his mouthguard is ejected. He receives a kick to his unprotected face and sustains an injury to his mouth. On the sideline, the coach examines the player's face and notes a missing upper central right incisor. A search of the tackle site reveals an intact tooth. The tooth is encrusted with dirt. The tooth is transported to the dentist in milk. What is the most appropriate management strategy for this patient?

Choices:

1. Immediate reimplantation of the tooth with hard wire splint
2. Reimplantation after tooth lavage with 5% dextrose
3. Reimplantation after soaking the tooth in disinfectant and prescribing antibiotics
4. Reimplantation with delayed root canal procedure

Answer: 3 - Reimplantation after soaking the tooth in disinfectant and prescribing antibiotics

Explanations:

- Contamination of the socket from a dirt-encrusted tooth is highly likely to create infection and ultimate inflammatory resorption of the root, with ensuing loss.
- Various solutions such as fluoride or thymosal alpha 1 are available to disinfect the tooth after careful, gentle washing. Attention must be taken to avoid disruption of the remnant periodontal ligament fibers. The tooth should be handled by the crown, avoiding direct contact with the root.
- Antibiotics are a mainstay of preventing infection and inflammatory resorption, which would lead to ankylosis of the root and loss of the tooth.
- Close management during the first three months is essential to monitor for infection or inflammatory response, as well as to assure healing is progressing.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Avulsed Tooth



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Question 240: A 70-year-old male patient presents with a painless, fixed walnut-sized hard lump at the base of his right jaw. It appeared nearly 2 years ago and has only gradually increased in size. He has never smoked in his life and drinks alcohol only socially. Malignancy of a gland is suspected. The patient undergoes a CT scan of the head and neck and chest for staging purposes that reveals a nodule in the right lung concerning for malignancy. The biopsy for the tumor confirms its characteristic tendency of perineural invasion. The patient is counseled regarding the diagnosis. Which of the following features on biopsy are further associated with this tumor?

Choices:

1. A capsulated tumor composed of mitochondria-rich oncocytes pressing on the nerve sheath
2. Lymphoid stroma with germinal centers and cystic spaces growing in a papillary fashion along the nerve sheaths
3. Cribriform or tubular growth of acinar-like cells along the nerve sheaths
4. Cords and sheets of atypical Schwann cells

Answer: 3 - Cribriform or tubular growth of acinar-like cells along the nerve sheaths

Explanations:

- Acinar-like cells growing in a cribriform pattern are characteristic of adenoid cystic cancer, which most commonly involves the salivary glands
- The cancer is known for its very slow growth, and most patients survive decades after diagnosis.
- Adenoid cystic cancer is well known for its ability to invade nerves.
- The lung is the most common site of metastases, followed by the liver and bone.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Adenoid Cystic Cancer



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Question 241: A 16-year-old male has significant bleeding after a tooth extraction. His blood work reveals a slight reduction in factor 8, and ristocetin fails to cause platelet aggregation. What is the next step in his treatment?

Choices:

1. Desmopressin
2. Vitamin K
3. Protamine
4. Factor IX replacement

Answer: 1 - Desmopressin

Explanations:

- In patients with von Willebrand disease with a reduction in factor VIII, bleeding is mild under most circumstances.
- However, if trauma occurs or surgery is scheduled, cryoprecipitate or desmopressin can be given to raise the levels of von Willebrand factor and decrease the tendency toward bleeding.
- Fresh plasma or certain factor VIII preparations also may be used to decrease bleeding.
- Von Willebrand Factor is a glycoprotein that plays a part in hemostasis. It functions as a carrier for factor VIII in order to maintain its levels, as well as help in platelet adhesion and binding to endothelial components after a vascular injury. Any qualitative or quantitative deficiency in VW factor will lead to increased bleeding, and this syndrome is called Von Willebrand disease.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Von Willebrand Disease



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Question 242: A 25-year-old woman with a past medical history of depression and fibromyalgia presents to the emergency department with jaw pain for the last 2 weeks. She denies any other associated symptoms. She reports that she has heard a "clicking" sound while opening her mouth. The patient denies any recent trauma or falls. She smokes 1 pack per day for the last 8 years. She is on amitriptyline 25 mg nightly for fibromyalgia. The patient denies any current symptoms of depression. What is the best initial therapy for this patient?

Choices:

1. Biobehavioural feedback
2. Benzodiazepines
3. Muscle relaxants
4. Surgery

Answer: 1 - Biobehavioural feedback

Explanations:

- Several factors either alone or in combinations are responsible for the temporomandibular joint disorder (TMD). Behavioral, social, psychological, cognitive, and biological factors; all play a pivotal role in the development of temporomandibular joint (TMJ) symptoms.
- Biobehavioral management is considered as adjunctive therapy along with self-care and patient education in patients with comorbid anxiety or depression.
- For muscle spasm and chronic bruxism, muscle relaxants or benzodiazepines may be necessary if conservative relaxation techniques fail.
- Surgical interventions were reserved for patients whose symptoms did not improve after a trial of conservative therapy.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Temporomandibular Joint Syndrome



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Question 243: A 50-year-old man presents to the clinic three weeks postoperatively. He underwent surgery for right chronic parotitis secondary to recurrent sialolithiasis. He was deemed a suboptimal candidate for sialoendoscopy due to the location of his stone. He underwent superficial parotidectomy with facial nerve dissection, and all branches were identified and preserved. He denies dry mouth symptoms though reports ear numbness. What is the likely mechanism of his symptoms?

Choices:

1. Dissection of the facial nerve branches from the deep lobe of the parotid gland
2. Dissection of the superficial lobe of the parotid gland
3. Retraction of the greater auricular nerve
4. Division of anastomosis between midfacial divisions of the facial nerve

Answer: 3 - Retraction of the greater auricular nerve

Explanations:

- Chronic parotitis not responding to optimal medical therapy and sialoendoscopy is best served with total parotidectomy with preservation of the facial nerve. Removal of the entire glandular tissue is recommended.
- Proximal sialolithiasis may necessitate total parotidectomy if sialoendoscopy is not possible or unavailable.
- Facial and neck numbness are very common complaints after total parotidectomy due to retraction of the greater auricular nerve.
- While postoperative numbness is common enough to be expected, facial paralysis remains rare. It is indeed more common in total parotidectomy relative to superficial parotidectomy; thankfully, both are rare.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Parotidectomy



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Question 244: A 57-year-old woman presents to the clinic with painless swelling in her lower jaw for the last 2 years, which has been progressively increasing in size. On exam, a firm, immobile, non-tender, solid mass with intraoral extension is seen. Which of the following is the next best step in the management of this patient?

Choices:

1. CT scan of the head and neck
2. Fine needle aspiration of the mass
3. Biopsy of the mass
4. Excision biopsy

Answer: 2 - Fine needle aspiration of the mass

Explanations:

- Without histologic confirmation of the mass, it is difficult to differentiate between benign and malignant ameloblastoma.
- Even with histological confirmation, it takes a combination of clinical and histologic features to differentiate benign and malignant ameloblastoma.
- The next best option to characterize the location and extent of the mass would be a CT scan.
- It is important to rule out any malignancy, so the next option would be an FNA.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Ameloblastoma



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Question 245: A 19-year-old man presents with dental pain. He has no past medical history, and his last dental appointment was three years ago. He describes the pain as an eight out of ten and throbbing. He says he could not sleep last night because of the severity of the pain. On vital pulp testing, cold and hot stimulations confirm the diagnosis of irreversible pulpitis. What is the recommended frequency of sugar consumption per day to prevent this patient's condition?

Choices:

1. Up to four times per day
2. Up to five times per day
3. Twice per day
4. Three times per day

Answer: 1 - Up to four times per day

Explanations:

- The frequency of consuming free sugars should be limited and should not exceed four times a day to prevent caries. Diet soda and energy drinks include citric and phosphoric acids which may lead to demineralization of tooth enamel.
- Regular brushing and rinsing of mouth, using straws and sugar-free chewing gums, may help to prevent the harmful effects of liquid fermentable carbohydrates.
- Dairy products, which are rich in calcium and phosphorous, help in remineralization by preventing the pH of the mouth from falling below 5.5.
- The flow of the saliva is increased by crunchy and fibrous food, which has antibacterial properties.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Diet and Nutrition To Prevent Dental Problems



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Section 8

Question 246: A 58-year-old man presents to the clinic with the chief complaint of difficulty in chewing food due to missing teeth in upper and lower arches. The patient was diagnosed with squamous cell carcinoma one year back that involved the left lateral border of the tongue. He has had impaired speech due to partial glossectomy along the left lateral border of the tongue after the surgery. Intraorally, the lingual sulcus is found to be almost completely lost on the left side. The mandibular denture may be unstable in the present patient due to various reasons, one of which is difficulty in positioning the teeth. Which of the following problems is most likely to cause this instability?

Choices:

1. Residual ridge resorption
2. Difficulty in recording neutral zone
3. Difficulty in impression making
4. Difficulty in speech

Answer: 2 - Difficulty in recording neutral zone

Explanations:

- Stability of the mandibular denture may be affected in patients with partial glossectomy due to difficulty in recording the neutral zone.
- The neutral zone is the area in the mouth where during function, the forces of the tongue musculature pressing outwards are neutralized by the forces of the musculature of cheek and lips pressing inwards.
- The aim of the neutral zone is to construct a denture in muscle balance. If the denture is out of harmony with the neutral zone, it will result in instability.
- In order to achieve stability, mandibular teeth should be positioned in the neutral zone.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Stability In Mandibular Denture



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Question 247: A 19-year-old woman with a diagnosis of vertical maxillary excess undergoes a LeFort I osteotomy and maxillary impaction. The surgery is performed without complications; however, at her one week follow up appointment, she complains of altered sensation in her midface. Which of the following is the most likely cause of the patient's symptoms?

Choices:

1. Neuroma formation
2. Reversible neurosensory deficit
3. Irreversible neurosensory deficit
4. Postanesthesia effect

Answer: 2 - Reversible neurosensory deficit

Explanations:

- Neurosensory deficits in the infraorbital nerve distribution are common after maxillary surgeries secondary to intra-operative retraction or compression.
- Neurosensory deficits in V2 resulting from retraction or compression are typically temporary and resolve completely within 6 months.
- Care should be taken during the exposure of the maxilla to create a low circumvestibular incision and identify and protect the infraorbital nerve as it exits the infraorbital foramen to prevent more serious injury to the nerve.
- Following a LeFort I osteotomy, patients may experience numbness of gingival or palatal mucosa, and teeth may not respond appropriately to electronic pulp stimulation, heat, or cold testing. This does not necessarily indicate a loss of vitality/blood supply. Following a LeFort I osteotomy, root canal therapy should not be initiated on a tooth based on vitality testing alone in the absence of other signs of necrosis (i.e., periapical radiolucency, parulis, or sinus tract formation).

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Le Fort Osteotomy



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Question 248: A 45-year-old man presents with bilateral parotid masses. Physical exam shows non-tender masses bilateral the tail of the parotids. Fine needle aspiration shows a benign lesion with bi-layered eosinophilic epithelium with stroma of lymphocytes and germinal centers. What is the most likely diagnosis?

Choices:

1. Pleomorphic adenoma
2. Warthin tumor
3. Myoepithelioma
4. Basal cell adenoma

Answer: 2 - Warthin tumor

Explanations:

- Warthin tumor presents with a classic bi-layered eosinophilic, oncocytic epithelium with papillary projections and interspersed goblet cells. The epithelium is surrounded by stroma of varying amounts of lymphoid tissue and germinal centers.
- Warthin tumor can present bilaterally in 7-10% of cases, either metachronously (90%) or synchronously (10%).
- Warthin tumor presents as a painless, cystic, compressible encapsulated mass, usually at the tail of the parotid. A bilateral exam is warranted as it can present with bilateral lesions.
- Papillary cystadenoma lymphomatosum, also known as Warthin tumor, is the second most common benign salivary tumor and comprises 15-36% of all benign salivary gland tumors, with 94.7% of cases located in the parotid.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Benign Salivary Gland Tumors



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Question 249: A 60-year-old man with a history of poor oral hygiene, multiple tooth extractions, and a history of alcohol abuse presents to the hospital complaining of facial flushing and persistent vomiting for the last 8 hours. He was recently evaluated for new-onset gum bleeding and severe breakdown of his gum tissue and was prescribed oral antibiotics. Which of the following is the most likely cause of his symptoms?

Choices:

1. Metronidazole
2. Penicillin
3. Clindamycin
4. Co-trimoxazole

Answer: 1 - Metronidazole

Explanations:

- Alcohol consumption results in increased serum acetaldehyde, which causes symptoms, including diaphoresis, palpitations, facial flushing, nausea, vertigo, hypotension, and tachycardia. This is referred to as a disulfiram-like reaction and is common in patients taking metronidazole.
- Although most commonly associated with metronidazole, co-trimoxazole has also been reported to cause a disulfiram-like reaction when combined with alcohol. However, this patient with acute necrotizing ulcerative gingivitis (ANUG) is most likely being treated with metronidazole as this is the most common first-line therapy.
- All the listed antibiotics are potential therapies that have been supported in the literature for ANUG. However, metronidazole is by far the most commonly used first-line treatment.
- Many drugs can cause a disulfiram-like reaction if consumed with alcohol. This should be considered in patients specifically with an alcohol abuse history, and a different option should be recommended.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Acute Necrotizing Ulcerative Gingivitis



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Question 250: A patient presents to the emergency department with a 3 cm laceration to the right upper lip. It does not cross the midline. There is vermilion border involvement. What is the correct location to inject bupivacaine to perform a nerve block for this patient?

Choices:

1. Mucosa above the upper second bicuspid
2. Inferior edge of the eyebrow
3. Posterior portion of the zygoma
4. Vermillion border

Answer: 1 - Mucosa above the upper second bicuspid

Explanations:

- Anesthesia would best be achieved with an infraorbital nerve block.
- Injection of anesthetic medication into the mucosa above the upper second bicuspid is one of the ways to perform an infraorbital nerve block.
- Injection of anesthetic into to inferior edge of the eyebrow is the correct location to inject for a supraorbital nerve block. Injection of anesthetic into to the posterior portion of the zygoma is the correct location for injection for an auriculotemporal nerve block.
- Injection at the vermilion border may distort the landmarks and make cosmetically acceptable repair difficult.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Infraorbital Nerve Block



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Question 251: A 31-year-old man presents because he is concerned that he makes sounds with his teeth while sleeping. The patient says his wife told him that he grinds his teeth at night and it is affecting her sleep. He has a nine pack-year smoking history and is an avid coffee drinker. On extraoral examination, stiffness is palpated in the muscles of the jaw. On occlusal examination, there are premature contacts in the mandibular molars and mild wear facets in the upper canines. Avoiding smoking and coffee in the afternoon and near nighttime, and the use of an occlusal device is recommended. Which of the following is the most likely function of this device?

Choices:

1. Prevention of tooth wear
2. Correction of class II dental mobility
3. Definitive treatment for daytime clenching
4. Compensate premature contacts

Answer: 1 - Prevention of tooth wear

Explanations:

- The effect of occlusal splints seems not to address the cause of bruxism and serves mostly for the management of patients' signs and symptoms.
- Occlusal splints are generally utilized to prevent tooth wear and injury and reduce nighttime clenching.
- Occlusal splints are worn at night to guide the movement so that the periodontal damage is minimal.
- With the use of a splint, there will be a reduction in increased muscle tone.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Bruxism Management



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Question 252: A 15-year-old girl presents to the clinic with red spots appearing on her face. The appearance of spots is related to sour foods, such as sour flavored candies and yogurt. Five years prior to her presentation, she had suffered an episode of blister rash on the left side of her face, including lesions in the buccal mucosal membrane and ear canal. A diagnosis of herpes zoster was made then, and she was treated with acyclovir with complete skin recovery. A hearing examination shows mild-to-moderate sensorineural hearing loss. Since then, she is having short episodes of redness on her face at the distribution of zoster blisters five years ago. A branch of which of the following nerves carries the motor fibers of the ganglion involved in the pathogenesis of this condition?

Choices:

1. Maxillary nerve
2. Mandibular nerve
3. Ophthalmic nerve
4. Facial nerve

Answer: 2 - Mandibular nerve

Explanations:

- The condition the patient is suffering from is Frey syndrome. It occurs following surgery, trauma, or any pathology to the parotid gland or the auriculotemporal nerve that, in turn, damages the postganglionic parasympathetic, sympathetic and sensory nerves within them. Herpetic infection can damage the auriculotemporal nerve causing Frey syndrome.
- The medial pterygoid nerve, which is a branch of the mandibular nerve, carries the motor fibers from the otic ganglion to innervate the medial pterygoid muscle, tensor veli palatini, and tensor tympani muscles.
- The postganglionic parasympathetic fibers from the otic ganglion traverse through all branches of the mandibular division of trigeminal nerve to provide secretomotor fibers to mainly the parotid gland via the auriculotemporal nerve and also supplies other areas of the orofacial region like the submandibular gland, sublingual gland, other salivary glands in the buccal mucosa and blood vessels of the masticatory muscles through the other branches of the mandibular nerve.
- The different treatment options for Frey syndrome include the topical application of antiperspirants, injection of anticholinergics like scopolamine and intradermal injections of botulinum toxin A.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Neuroanatomy, Otic Ganglion



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Question 253: A 71-year-old man with a past medical history of smoking, hyperlipidemia, and diabetes, presents with a maxillary alveolar ridge squamous cell carcinoma with an epicenter around teeth #12-#16 with superior extension into the maxillary sinus. CT angiogram of the lower extremities demonstrates a 2-vessel run-off in his left leg; and a single vessel run-off on the right leg. Allen test and upper extremity dopplers show collateral flow to the hand when either the ulnar artery or the radial artery is compressed. The decision is made for left inferior maxillectomy and osteocutaneous radial forearm free flap to reconstruct the defect. The vascular pedicle for this flap is situated in the septum between which of the following muscles?

Choices:

1. Brachioradialis and flexor carpi radialis
2. Pronator teres and the quadratus muscle
3. Brachioradialis and the extensor carpi radialis
4. Flexor digitorum and flexor carpi radialis

Answer: 1 - Brachioradialis and flexor carpi radialis

Explanations:

- This patient has a squamous cell carcinoma of the maxilla that ideally should be treated with a maxillectomy. It is being reconstructed with an osteocutaneous radial forearm because his CT angiogram of the lower extremities shows single and two-vessel run-off in his right and left lower leg, respectively. He has sufficient vasculopathy that a fibular free flap reconstruction may possibly endanger both the free flap itself and the foot that it is being harvested from.
- The vascular supply for radial forearm flaps – both fasciocutaneous and osteofasciocutaneous – is the radial artery and its accompanying vena comitantes. Blood flow to the hand is supplied by both the radial and ulnar arteries.
- The work-up for a radial forearm free flap harvest requires that the hand be viable on arterial flow from the ulnar artery alone. This can be done with an Allen test or upper extremity Doppler compression of the radial artery. The Allen test is performed by having the patient elevate their hand and clench their fist for 30 seconds. The ulnar and radial arteries are compressed, and the hand should appear blanched. Ulnar pressure is released, and the palm of the hand is evaluated for rubor. If the return of color is brisk, the Allen test suggests that the hand can be supplied by the ulnar artery alone. If the return of color is slow or incomplete, it may suggest that there is either an incomplete arch of collaterals or that the hand is dependent on the radial artery. The test can be similarly performed with a Doppler. The palm of the hand can be checked for an arterial signal with the Doppler. If there is the persistence of the Doppler signal with compression of the radial artery, this suggests that the ulnar artery can supply the entire hand with blood, and the radial forearm free flap can be harvested.
- The pedicle for the radial forearm free flap is in the intermuscular septum between the flexor carpi radialis and the brachioradialis.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Osteocutaneous Radial Forearm Flap



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Question 254: A 48-year-old man is undergoing LeFort I osteotomy. During separation of the pterygomaxillary junction, brisk pulsatile bleeding is encountered. Which of the following is the most likely cause of this complication?

Choices:

1. Placement of the osteotome at the maxillary tuberosity
2. Perforation of the osteotome through the soft palate
3. Transection of the descending palatine artery
4. The osteotome was placed too superiorly

Answer: 4 - The osteotome was placed too superiorly

Explanations:

- Acute hemorrhage during LeFort I osteotomy can occur directly through osteotome damage to branches of the maxillary artery or indirectly through comminution/shattering of the pterygoid plates with damage to the pterygoid venous plexus or shearing injuries to the descending palatine arteries.
- Care should be taken to direct osteotomes anteriorly, inferiorly, and medially at the pterygomaxillary junction to avoid high pterygoid plate fracture or fracture propagation into the cranial base as both of these unfavorable fracture patterns can result in acute hemorrhage.
- The average distance from the most inferior portion of the pterygomaxillary junction to the pterygopalatine fossa, which contains the internal maxillary artery, is approximately 25 mm. Assuming an average osteotome width of 15 mm, the margin of error for instrument placement is roughly 10 mm.
- A significant amount of force should not be applied during the down fracture of the maxilla. Excessive force can result in unfavorable fracture patterns or vessel damage via traction injury. Osteotomies should be rechecked and re-capitulated as indicated. If still encountering difficulty: consideration may be given to repositioning the posterior osteotomy to the maxillary tuberosity rather than further attempts to separate at the pterygomaxillary junction, which risks vascular injury.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Le Fort Osteotomy





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Question 255: A 40-year-old male patient follows up for two months of isolated inflamed fissuring at the left angle of his mouth. The patient has failed topical nystatin, topical mupirocin, and emollient barriers. Cultures are negative. He has no dentures, no braces, and no oral thrush. His past medical history includes diet-controlled diabetes (last HbA1c 6.6%) and hypertension. He contracts annual upper respiratory infections, which are usually followed by an outbreak of cold sores on left labial commissure, although the patient has not had an outbreak this year. He admits to smokeless tobacco use for 20 years, but he denies alcohol or recreational drugs. He is in a monogamous relationship with his wife. His routine blood work, including CBC, basic metabolic panel, and liver function tests are unremarkable. What is the most appropriate investigation to establish the diagnosis?

Choices:

1. HIV testing
2. Ferritin level, iron profile, folic acid level, vitamin B12 level
3. Biopsy
4. Patch testing

Answer: 3 - Biopsy

Explanations:

- HIV status is associated with angular cheilitis (AC) via the risk of oral candidiasis (thrush). Failure to treat thrush can lead to recurrences of AC but should respond initially. AC as a labial manifestation of thrush is usually bilateral.
- Angular cheilitis caused by nutritional deficiency is usually bilateral. It is, also, an uncommon cause in the industrialized world. Risk factors for malnutrition include untreated psychiatric conditions, advanced age, dementia, decreased functional status, socioeconomic barriers, dysphagia, malabsorptive conditions, chronic diseases, and poor dentition. A screening CBC should reveal some anemia, microcytosis, or macrocytosis if iron, folate, or vitamin B12 deficiencies are present.
- Unilateral angular cheilitis failing conservative management, in the absence of obvious risk factors for ongoing saliva exposure causing local maceration, should raise suspicion for malignancy. This is especially heightened in an individual with risk factors for oral cancer, such as Herpes simplex virus and tobacco use.
- Patch testing is used to distinguish between allergic or irritant contact angular cheilitis. These forms are not commonly unilateral and should respond to emollient barrier therapy that would insulate the skin from the irritating substrate.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Angular Chelitis





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Question 256: A 42-year-old man presents to the emergency department for facial pain. Further history reveals the pain to be right-sided and worsens with meals. The patient reports these symptoms have been slowly worsening over the past 2 weeks. Physical exam reveals mild swelling over the right parotid gland. Point of care ultrasound demonstrates a 5 mm hyperechoic, shadowing focus within the right parotid duct. What is the best initial step in the management of this patient?

Choices:

1. Conservative treatment with sialogogues and NSAIDs
2. Referral to an otolaryngologist
3. Sialendoscopy with retrieval
4. Parotid sialoadenectomy

Answer: 1 - Conservative treatment with sialogogues and NSAIDs

Explanations:

- Initial management for all salivary stones should be conservative with massage of the salivary gland, nonsteroidal anti-inflammatory drugs (NSAIDs), and sialogogues.
- The most appropriate second-line therapy if conservative measures fail is ESWL with sialoendoscopy for fragment removal.
- For sialoliths resistant to ESWL, multi-modal surgical approaches using endoscopy and transcutaneous incisions is often curative.
- Sialoadenectomy is rarely indicated using modern surgical and endoscopic approaches.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Sialolithiasis



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Question 257: A 50-year-old man is undergoing superficial parotidectomy for pleomorphic adenoma. After raising the anterior flap, the next step is to identify the facial nerve. Which of the following landmarks is most consistent to identify the main trunk of the facial nerve during this surgery?

Choices:

1. Tragal pointer
2. Erb's point
3. Tympanomastoid suture
4. Posterior belly of the digastric

Answer: 3 - Tympanomastoid suture

Explanations:

- The facial nerve passes through the parotid gland. It is at risk of injury during parotid surgery. One of the major steps of parotid surgery is the identification of facial nerve after raising subcutaneous flaps.
- Landmarks for the facial nerve during parotid surgery include the tragal pointer (of Conley), tympanomastoid suture line, Erb's point, and the posterior belly of the digastric. The tympanomastoid suture line is located between the tympanic segments of the temporal bone and the mastoid. It is located about 6 to 8 mm lateral to the stylomastoid foramen and is the most consistent landmark to identify the main trunk of the facial nerve.
- The main part of the facial nerve can be found halfway between the posterior belly of the digastric and the cartilaginous tragal pointer of the external auditory canal.
- The styloid process is deep to the facial nerve's main trunk and is not useful for the identification of facial nerve during parotid surgery.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Parotid Cancer



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Question 258: A 67-year-old woman presents with a four-month history of pain in the corners of the mouth. Her past medical history includes hypertension, well-controlled on medication. The patient has a 35 pack-year smoking history. On examination, there are gray-white lesions bordered by reddened mucosa with fissures at the angles of the mouth. She says she has been wearing removable complete prosthesis for both maxillas for the past 20 years. Which of the following is the most appropriate treatment for this patient's condition?

Choices:

1. Cevimeline hydrochloride
2. Nystatin topical cream
3. Dental prosthesis hygiene with hydrogen peroxide
4. Refit dental prosthesis and mupirocin topical ointment

Answer: 4 - Refit dental prosthesis and mupirocin topical ointment

Explanations:

- The patient in the clinical scenario presents with angular cheilitis (AC), which is an inflammatory skin process of varied etiology occurring at the labial commissure.
- Empirical treatment includes a focus on infection as the most common etiology. Since the most common risk factors involve saliva-induced eczema and the resultant maceration, an effort to protect the labial commissures topical barrier application (petrolatum jelly, emollients, or lip balm) is important and often sufficient for idiopathic cases of AC.
- A dentist should refit dentures to restore facial contour. As the functional reservoir of candida, treat dentures with an antifungal and cleaned frequently.
- Bacterial infections require topical antiseptics or antibiotics. Application of the same preparation to the anterior nares (usually 4 to 5 times daily) can prevent recurrent infection when colonization is present. Mupirocin 2% ointment is used four times per day.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Angular Chelitis



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Question 259: A patient-reported a dental clinic with complaints of pain in a tooth in response to thermal changes. The dentist examined the tooth and found that tooth to be carious. The patient gave a history of pain to cold beverages, and pain used to disappear on the removal of the stimulus. What should the dentist do to treat and control the spread of infection?

Choices:

1. Extirpation of pulp
2. Apicoectomy
3. Complete removal of carious lesion with restoration
4. Extraction of offending tooth

Answer: 3 - Complete removal of carious lesion with restoration

Explanations:

- The patient in the present scenario has focal reversible pulpitis.
- In this condition, the sensitivity exists until the stimulus is present. The tooth shows greater sensitivity than that of the adjacent normal teeth.
- Usually, this condition exists teeth with large metallic restoration or restorations with defective margins.
- In irreversible pulpitis, on the removal of stimulus, pain persists, the tooth may become sensitive to both hot and cold, pulpal pain is poorly localized, and as greater proportions of pulp get involved pain may become more severe and throbbing type, then root canal treatment is indicated (i.e., extirpation of pulp and filling of root canals with some inert materials).

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Dental Infection Control



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Question 260: A 51-year-old woman presents for advice regarding dental prosthesis. She reports speaking and eating difficulties due to the instability of the prosthesis in her mandibula. On examination, she has an edentulous mandibular ridge, and a partially edentulous maxillary ridge, for which she is currently using a partial removable prosthesis and a total removable prosthesis, respectively. On examination of the lower alveolar ridge, the mucosa is healthy, thick, and resilient. Bone height and density, and ridge width are not appropriate for the implementation of a standard implant. An overdenture supported by four 1.8 to 2.4 mm one-piece titanium implants are considered as a treatment option. Which of the following is correct regarding the post-operative maneuvers of this treatment?

Choices:

1. Retention rings should be periodically adjusted
2. Retention rings should be periodically changed
3. It needs to be periodically relined
4. It does not need periodical modifications since it is permanent and fixed

Answer: 2 - Retention rings should be periodically changed

Explanations:

- Mini dental implants are made of one piece; without the abutment; instead, they have a round head for denture stabilization or a square prosthetic head for fixed application. They can be considered for patients who express dissatisfaction with conventional dentures and are not candidates for the placement of standard implants.
- Retention rings of the mini implant-supported overdenture should be periodically changed.
- The mini implant-supported overdentures are more often used in the mandibula, preferably in the interforaminal area.
- The mini implant-supported removable complete prosthesis should be periodically relined, and occlusal adjustments must be made.

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Research Concepts:

Dental Mini-Implants



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Question 261: A 2-year-old girl is brought in by her parents due to poor weight gain, failure to thrive, and feeding difficulties. The mother also reports that her daughter breathes noisily while resting. She has no past medical history and was born at term after an uncomplicated pregnancy. On examination, an enlarged tongue, and protruded and misaligned teeth are seen. Furthermore, the patient is not able to close her mouth completely, and there is noticeable respiratory distress when she is placed in the supine position. Which of the following is the most likely complication of this patient's condition if it remains untreated?

Choices:

1. Recurrent upper respiratory tract infections
2. Loss of taste in the anterior two-thirds of the tongue
3. Gastroesophageal reflux disease
4. Scoliosis

Answer: 1 - Recurrent upper respiratory tract infections

Explanations:

- The patient in the clinical scenario presents with macroglossia, which is a painless enlargement of the tongue.
- This is an uncommon anatomical abnormality, rarely seen alone, and it tends to be a sign of an underlying condition.
- One of the complications described in patients who suffer from macroglossia is recurrent upper respiratory tract infections.
- These infections are believed to be caused by mucosal drying.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Macroglossia



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Question 262: A 30-year-old woman presents to the emergency department after an altercation. The physical exam is significant for an apparent depression over the zygomatic arch. CT scan reveals a displaced, isolated zygomatic arch fracture. The decision is made to proceed to the operating room for the reduction of the fracture via a temporal incision (Gillies approach). Postoperatively, the patient wakes up and is unable to wrinkle her forehead on the same side as the surgery. In which tissue layer does the injured nerve lie superior to the level of the zygomatic arch?

Choices:

1. Subcutaneous tissue
2. Temporoparietal fascia
3. Deep temporal fascia
4. Temporalis muscle

Answer: 2 - Temporoparietal fascia

Explanations:

- The facial nerve is at risk with both a Gillies approach and a coronal incision.
- When reducing a zygomatic arch fracture via the Gillies approach, a 2 cm incision is made 2.5 cm anterior and superior to the helix down through temporalis fascia to the temporalis muscle. The elevator is inserted deep to the temporalis fascia to reduce the fracture, thereby avoiding the more superficial frontal branch of the facial nerve.
- It is essential to understand the anatomy of the frontal branch of the facial nerve in the area of the zygomatic arch. The frontal branch facial nerve emerges from the parotid gland within the parotid-masseteric fascia and crosses the zygomatic arch in the innominate fascia deep to the superficial musculoaponeurotic system. It then transitions to the undersurface of the temporoparietal fascia.
- The function of the nerve should be documented prior to surgery, and the patient should be counseled about the potential for nerve damage.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Zygomatic Arch Fracture



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Question 263: A 3150 grams baby boy is born to a 38-year-old G3P2A0 woman at 39 weeks gestation. The pregnancy was uneventful, and the patient received adequate prenatal care. Upon routine physical examination, the baby is found to have a left-sided incomplete cleft lip. The palate and the uvula are normal. No other abnormalities are noted. The parents are counseled regarding the need for surgery at a later date. Which of the following is the primary goal of performing cleft lip repair in this patient?

Choices:

1. Establish a competent orbicularis oris muscle
2. Uvulopalatopharyngoplasty
3. Gingivoperiosteoplasty
4. Fracturing the pterygoid hamulus

Answer: 1 - Establish a competent orbicularis oris muscle

Explanations:

- Children with cleft lip have an abnormal orbicularis oris, which is inserted into the cleft margin and alar wing.
- Common goals in cleft lip repair are to re-establish a competent orbicularis oris muscle, lengthen the philtrum and lip, and minimize visible scarring.
- Gingivoperiosteoplasty, involving the elevation of the mucoperiosteal flaps along an alveolar segment with wide-undermining to promote bone growth along the periosteum, is performed by some surgeons, but this is not a universal practice.
- Fracture of pterygoid hamulus and uvulopalatopharyngoplasty are considered to be essential in cleft palate repair rather than cleft lip repair.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Cleft Lip



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Question 264: A 65-year-old male patient presented to the clinician with the complaint of a swelling on the right side of the face. The patient noted the swelling while shaving the other day. On examination, the swelling was mobile, non-tender, and firm. Salivation was normal, and the parotid duct was patent in the patient. Fine needle aspiration biopsy revealed characteristic cystic spaces lined by a bilayer of oncocytic cells and abundant lymphocytes in the subepithelial stroma. What is the best treatment modality in this case?

Choices:

1. Surgical excision
2. Radiation
3. Chemotherapy
4. No intervention is needed

Answer: 1 - Surgical excision

Explanations:

- Treatment of Warthin tumor generally includes surgery to remove the tumor. Because Warthin tumor is almost always benign, additional treatment (i.e., radiation therapy and/or chemotherapy) is rarely needed.
- Warthin tumor occasionally occurs in young patients. In women, the peak incidence is in the 6th decade, whereas it is in the 7th decade in men. There is an apparent male predilection for the occurrence of Warthin tumor, although, with the recent reports, the difference in the sex ratio is declining. The presentation of a patient with a Warthin tumor is variable. The majority of men will complain of a mass on the cheeks while shaving. The tumor has slow growth and is painless. It is most often located at the angle of the mandible, just below the ear lobe.
- The appearance of this tumor under the microscope is unique. There are cystic spaces surrounded by two uniform rows of epithelial cells with centrally placed pyknotic nuclei. The cystic spaces have epithelium referred to as papillary infoldings that protrude into them. Additionally, the epithelium has lymphoid stroma with germinal center formation. The differential diagnosis includes sebaceous lymphadenoma and oncocytoma.
- Etiologic factors of Warthin tumor have been said to encompass Epstein Barr virus infection, tobacco, autoimmune disease, ionizing radiation, and chronic inflammation. Warthin tumor is the only benign neoplasm of salivary glands associated with smoking.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Malignant Salivary Gland Tumors





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Question 265: A 4-year-old female patient was presented to the clinician for the regular dental workup. On inquiry, it was revealed by the parents that the baby was bottle-fed on baby-formula since birth and not breastfed. Her mother reported that the girl brushed her teeth thrice daily. She was rewarded with candy every time she brushed her teeth. On examination, her maxillary incisors showed bands of demineralization around their gingival margins. The mandibular incisors were unremarkable. Which of the following is responsible for the appearance of these symptoms in this patient?

Choices:

1. Excessive exposure to sugars
2. Excessive tooth-brushing
3. Excessive use of chewing gum
4. Excessive use of teethers

Answer: 1 - Excessive exposure to sugars

Explanations:

- Acid-producing bacteria ferment sugar molecules by salivary amylase producing lactic acid, causing demineralization of teeth and caries. The duration of action of the acid on tooth enamel determines the extent of the damage caused, which is proportional to the amount of sugar deposited on the tooth enamel. This includes chocolates, sweets, ice-creams, and other sticky food residues that linger on dental surfaces and crevices for prolonged periods.
- Children with juvenile diabetes due to high blood sugars, or children with special needs who may have to cope with reduced oral hygiene are more susceptible to dental caries.
- It is the ready availability of fermentable carbohydrates (sugars like fructose, sucrose, glucose, and lactose) on which microbes such as *Streptococcus mutans* act, releasing an acid which brings about the systematic destruction of the host tissue (enamel and dentin of the tooth) with subsequent cavitation and caries.
- The maxillary incisors are the first sets of teeth to erupt and thus are most prone to early caries attack. Moreover, the mandibular incisors are protected by the tongue and erupt later than the maxillary incisors.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Diet and Nutrition To Prevent Dental Problems



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Question 266: A 45-year-old female presents to the outpatient clinic with complaints of pain in her lower molars, neck swelling, and difficulty swallowing. Her past medical history is significant for insulin-controlled diabetes mellitus. She denies any trauma but has gone to the dentist last week for a filling of her cavity. On physical examination, the patient looks ill, and her neck is markedly swollen. The tongue is elevated, and there is submandibular swelling with bilateral induration and tenderness. Inspiratory stridor can be heard on auscultation of the upper airways. Vitals show a temperature of 38.5 C, HR of 95/min, RR of 20/min, and BP of 110/70 mmHg. Which of the following is the best next step in the management of this patient?

Choices:

1. Endotracheal intubation
2. Broad-spectrum IV antibiotics
3. X-ray neck
4. CT neck

Answer: 1 - Endotracheal intubation

Explanations:

- Ludwig's angina is life-threatening cellulitis of the soft tissue involving the floor of the mouth and neck. It involves two compartments on the floor of the mouth, namely sublingual and submaxillary space.
- The most common cause is dental disease in the lower molars, mainly second and third, which accounts for over 90% of cases. Any recent infection or injury to the area may predispose the patient to develop Ludwig's angina. Some common etiologies include injury or laceration to the floor of the mouth, mandible fracture, tongue injury, oral piercing, osteomyelitis, traumatic intubation, peritonsillar abscess, submandibular sialadenitis, and infected thyroglossal cysts. Predisposing factors include diabetes, oral malignancy, dental caries, alcoholism, malnutrition, and immunocompromised status. The infection is usually polymicrobial, involving oral flora.
- The most common presenting symptoms include fever and chills with neck swelling, neck pain, odynophagia, and dysphagia. People often describe the appearance as a "bull neck." Less common symptoms include mouth pain, hoarse voice, drooling, tongue swelling, stiff neck, and sore throat. Stridor may indicate impending airway obstruction. Patients will not have trismus unless the infection has spread into the parapharyngeal space. On physical exam, patients will have a fever with bilateral induration due to submandibular swelling and tenderness, swelling to the floor of the mouth, tenderness to the involved teeth, stiff neck, edema in the upper part of the neck, and crepitus. The patient will not typically have lymphadenopathy.
- Early airway management is critical to the treatment of Ludwig's angina as the most common cause of death is sudden asphyxiation from airway obstruction. Stridor indicates impending airway obstruction and requires urgent intubation. Early broad-spectrum IV antibiotics have been shown to be helpful. A clinical diagnosis should be made based on the presentation. Laboratory testing, although common in clinical practice, may be of little value as this is a clinical diagnosis. Blood cultures should be obtained to determine if there is a hematogenous spread of the

infection. CT scan of the soft tissue neck with intravenous (IV) contrast is used to evaluate the severity of the infection and airway obstruction.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Ludwig Angina



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Question 267: A 22-year-old healthy female patient presents to the clinic for evaluation of dental pain. She is noted to have extensive dental caries. The rest of the physical examination is unremarkable except for the mid-systolic click. An echocardiogram is performed, which shows the thickening of the leaflets. A dental procedure is planned, which will require gingival tissue manipulation. What should be done before proceeding with the procedure?

Choices:

1. Cardiac clearance
2. Antibiotic prophylaxis
3. Proceed to surgery without any intervention
4. Electrocardiogram

Answer: 3 - Proceed to surgery without any intervention

Explanations:

- A mid-systolic click is consistent with mitral valve prolapse (MVP) which is confirmed by echocardiography. MVP does not require any endocarditis prophylaxis in most cases.
- The majority of patients with MVP have a normal life expectancy. About 3% to 10% of patients will have a progression of the condition to severe mitral regurgitation. In general, patients over the age of 50 at diagnosis and normal left ventricular function have an excellent outcome, even if they do develop MR. Death is rare from MVP today. Even for those who undergo repair or replacement of the valve, the outcomes are good to excellent.
- Individuals with MVP are at high risk for bacterial endocarditis. Until 2007, the American Heart Association (AHA) recommended prescribing antibiotics before invasive procedures, including dental surgery. After that, AHA recommends that prophylaxis for dental procedures only should be advised for patients who have other cardiac conditions that put them at a high risk of adverse outcomes from infective endocarditis.
- Clinicians should educate patients that they should adopt a healthy lifestyle, not smoke, exercise regularly, and abstain from alcohol and caffeinated beverages. For those who develop palpitations, a trial of beta-blockers may prove to be useful. These patients also need to be educated that in most cases, antibiotic prophylaxis is not required prior to a dental procedure. The cardiac nurse should obtain an ECG if the patient complains of palpitations, as one of the reasons may be atrial arrhythmias.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Mitral Valve Prolapse

StatPearls Knowledge Base



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Question 268: An 18-year-old previously healthy man presents to the clinic with an abscess to the skin over the angle of the mandible. A point of care ultrasound shows that it is fluctuant and requires drainage. The decision is made to perform a regional nerve block. Which of the following items is most likely to be used in this procedure?

Choices:

1. An ultrasound using the curvilinear probe
2. A 3.5-inch long spinal needle
3. 5 to 10 ccs of the local anesthetic
4. Non-sterile ultrasound gel

Answer: 3 - 5 to 10 ccs of the local anesthetic

Explanations:

- Using less than 5 ccs requires exact placement of the anesthetic and hence may not result in sufficient anesthesia. More than 10 ccs may result in the anesthetic agent infiltrating deeper than desired, resulting in a deep cervical block or brachial plexus block.
- Nerve blocks are best performed with a high-frequency probe for better visualization of the anatomy and the needle.
- The superficial cervical plexus is very superficially located, and the needle should never go deeper than 3 cm. In this case, the internal jugular vein and carotid artery lie deeper than the superficial cervical plexus, and the use of the spinal needle increases the risk that they may be inadvertently punctured.
- Nerve blocks are a semi-sterile procedure. To prevent infection, it is recommended that the area is prepped with chlorhexidine, sterile gel from individual packets are used, and the probe is has a sterile cover (such as the cuffed end of a sterile glove).

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Cervical Plexus Block



We update eBooks quarterly and Apps daily based on user feedback. Please tap flag to report any questions that need improvement.

Question 269: A 65-year-old woman presents with dysphagia, dysarthria, and swelling below the tongue. On examination, she has poor dental hygiene, and a hard mass is palpated on the mouth floor. A CT scan reveals radio-opaque structures in the gland that lies inferolateral to the tongue, below the floor of the mouth mucosa, and above the mylohyoid muscle. Which of the following statements most accurately describes the gland involved?

Choices:

1. It is entirely serous in its secretion
2. It is a mixed gland with a single main excretory duct
3. It is mostly serous with a distinct connective tissue capsule
4. It is a mixed gland with several main excretory ducts

Answer: 4 - It is a mixed gland with several main excretory ducts

Explanations:

- The sublingual gland is a mixed gland, mostly mucus, with several main excretory ducts that open onto the floor of the mouth.
- Mucous acini with serous demilunes primarily make up the sublingual gland. Sublingual tissue mainly produces a thick mucinous fluid.
- The mucous secretions lubricate the oral cavity, which allows swallowing, starting digestion, buffering pH, and dental hygiene.
- Salivary stones (calculi) obstructing an excretory duct is a common salivary gland disease. The pathophysiology of salivary calculi is related to salivary stasis and overall inflammation of the excretory duct. Salivary calculi are manually palpable when lodged in a duct.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

[Anatomy, Head and Neck, Sublingual Gland](#)



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Question 270: A 23-year-old man presents to the clinic for excessive gum show on smiling. After detail clinical and radiological evaluation, orthognathic surgical procedure for maxilla is performed. On the 5th postoperative day, the patient complains of a lack of tearing in the left eye. On ophthalmic examination, no visual or motor dysfunction is observed. The patient is advised that tearing will recover over a few months, and he is asked to use artificial tears in the meantime. What is the most likely cause of the patient's symptoms?

Choices:

1. Damage to the lacrimal gland
2. Fracture of the pterygoid plate of the affected side during osteotomy
3. Conjunctivitis of the affected eye
4. Soft tissue injury of the eye

Answer: 2 - Fracture of the pterygoid plate of the affected side during osteotomy

Explanations:

- The lacrimal glands are serous type exocrine glands that secrete lacrimal fluid onto the surfaces of the conjunctiva and cornea of the eye. The sensory innervation to the lacrimal gland is via the lacrimal nerve. This is a branch of the ophthalmic nerve (in turn derived from the trigeminal nerve).
- The lacrimal gland also receives preganglionic parasympathetic autonomic nerve fibers, which are carried in the greater petrosal nerve (branch of the facial nerve) and then the nerve of the pterygoid canal, before synapsing at the pterygopalatine ganglion. Postganglionic fibers travel with the maxillary nerve, and finally, the zygomatic nerve, which stimulates fluid secretion from the lacrimal gland.
- A possible cause of the damage was a fracture of the pterygoid plate on the affected side, which subsequently damaged the parasympathetic fibers to the lacrimal gland.
- The pterygopalatine ganglion and postganglionic parasympathetic fibers get damaged due to the bad split of pterygoid plates.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Le Fort Osteotomy



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Question 271: A 59-year-old male patient presented to the clinician with the complaint of a swelling on the right side of the face. The patient noted the swelling while shaving the other day. The patient has been smoking 1 pack of cigarettes for the past 15 years. On examination, the swelling was non-mobile, tender, and firm. Lymph nodes were enlarged. Salivation was normal, and the parotid duct was patent in the patient. Fine needle aspiration revealed that the lesion was not malignant. Which of the following salivary gland tumor is likely to be seen in this patient?

Choices:

1. Pleomorphic adenoma
2. Cystic adenoid
3. Warthin tumor
4. Lymphoma

Answer: 3 - Warthin tumor

Explanations:

- Smoking appears to be a risk factor for the development of Warthin tumor.
- The Warthin lesion is bilateral in about 10-20 % of cases. It is only found in the major salivary glands.
- Warthin is a benign lesion, and transformation into cancer is very rarely possible. The majority of patients have a normal survival rate after excision, but there is a recurrence rate of about 5%.
- The Warthin lesion is a soft, smooth, and well-encapsulated mass. It may contain multiple cysts.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Malignant Salivary Gland Tumors



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Question 272: A 56-year-old man presents to the healthcare provider with a mass in the hard palate. It is non-tender on the physical exam and has a red-bluish hue. Fine needle aspiration showed extensive solid nests of epidermoid cells with occasional mucin-containing cystic components. CT scan shows left-sided lymphadenopathy. What is the most appropriate management of this condition?

Choices:

1. Wide local excision
2. Wide local excision with adjuvant chemotherapy
3. Wide local excision with adjuvant radiation therapy
4. Chemotherapy

Answer: 3 - Wide local excision with adjuvant radiation therapy

Explanations:

- High-grade mucoepidermoid carcinoma has poorly-defined margins and is predominantly composed of a solid nest of epidermoid cells. Cystic components are occasionally present, and there is significant pleomorphism, prominent nucleoli, and abundant mitotic figures.
- Mucoepidermoid carcinoma present as a slow-growing, painless, and red-bluish mass. It has varying degrees of fluctuance on palpation due to the accumulation of mucinous component within the tumor.
- Radiation therapy for mucoepidermoid carcinoma is recommended for patients with cervical lymph node metastasis, bony involvement, recurrent disease, positive margins on surgical resection, perineural invasion, lymphovascular invasion, and anaplasia.
- High-grade mucoepidermoid carcinoma has a tendency for metastasis and recurs locoregionally. Patients with high-grade mucoepidermoid carcinoma should undergo adjuvant radiation.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Malignant Tumors of the Palate



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Question 273: A 45-year-old female with vitiligo presents to her health provider's office with a chief complaint of oral ulcers. The ulcers first started about a week ago as scattered blisters on her tongue, gingiva, and oral mucosa. Tzanck smear showed acantholysis. Subsequent enzyme-linked immunosorbent assay (ELISA) testing showed IgG anti-desmoglein 1 and anti-desmoglein 3. Which of the following exam findings is seen with this disease?

Choices:

1. Lloyd sign
2. Murphy sign
3. Nikolsky sign
4. Raccoon eyes

Answer: 3 - Nikolsky sign

Explanations:

- Pemphigus vulgaris, an autoimmune disease, results in blisters on cutaneous and mucosal surfaces.
- Nikolsky sign is described as a blister formation with minor pressure or trauma and is seen in pemphigus vulgaris. Acantholysis is seen due to the autoantibodies destroying the intracellular connections leading to bullae that can easily rupture.
- The average onset of pemphigus vulgaris is usually seen between the ages of 40 to 60 years.
- Lloyd's sign is associated with renal calculus or pyelonephritis, Murphy's sign is associated with cholecystitis, and raccoon eyes is associated with a skull fracture.

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Research Concepts:

Pemphigus Vulgaris



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Question 274: A 75-year-old man with a 50 pack-year history of smoking presents to the clinic with a slowly enlarging right 2 cm ulcerated oral tongue mass. Palpation reveals tenderness and induration within and deep to the ulcer. CT scan reveals no suspicious adenopathy, and biopsy shows nests of epithelial cells invading past the basement membrane. After treatment alternatives are discussed, the patient opts for surgical management. What is the most appropriate surgical management for this patient?

Choices:

1. Simple excision
2. Wide local excision
3. Wide local excision and neck dissection
4. Wide local excision and reconstruction

Answer: 3 - Wide local excision and neck dissection

Explanations:

- The patient has invasive squamous cell carcinoma of the oral tongue. Wide local excision of the primary tumor with negative tumor margins, if possible, is necessary.
- His primary tumor is a deep ulcer. Clinically apparent significant depth of invasion puts him at risk of harboring occult regional lymph node metastatic disease.
- Despite a computed tomography scan negative for neck lymphadenopathy, ipsilateral concurrent elective neck dissection should be discussed with the patient and offered if apt for surgery.
- A simple excisional biopsy of the lesion is not adequate for an optimal oncologic result. While wide local excision of the primary lesion is adequate, this patient has a deep ulcerative tumor of the tongue. A significant depth of invasion puts him at risk of harboring occult regional neck metastasis. Although wide local excision and reconstruction is a possibility for malignant tongue squamous cell carcinoma, the possibility of occult regional metastatic disease should be recognized in this patient based on the clinical exam. This should be discussed with the patient and elective neck dissection should be offered.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Tongue Cancer



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Question 275: A 32-year-old man presents to the emergency department (ED) with dull pain in his jaw for the last month, and it has been progressively getting worse. He now feels pain while speaking and swallowing. The patient started using 600mg Ibuprofen three times a day two weeks ago with no improvement in his current symptoms. His vital signs in the ED are stable, but he continues to complain of jaw pain. Physical exam findings include tenderness on palpation of jaw muscles and restricted jaw movements. An X-ray of the temporomandibular joint (TMJ) revealed joint arthritis and degenerative changes. What is the next best step in the management of this patient's current symptoms?

Choices:

1. Change ibuprofen 600mg three times a day to naproxen 500mg two times a day
2. Add cyclobenzaprine 10 mg every night
3. Add amitriptyline 25 mg every night
4. Consider intra-articular corticosteroid injection

Answer: 4 - Consider intra-articular corticosteroid injection

Explanations:

- In patients with osteoarthritis (degenerative joint disease), the majority can be treated with noninvasive techniques. However, in the acute phase, patients may require an intraarticular injection of long-acting corticosteroids.
- This patient has already failed a two-week course of ibuprofen, adding a muscle relaxant will not provide any extra relief of his current symptoms.
- If NSAIDs and/or muscle relaxants are ineffective after two to three weeks, then adding a tricyclic antidepressant for pain control is beneficial, when the temporomandibular joint disease (TMD) is part of generalized chronic muscular pain.
- Long-acting corticosteroids are not recommended for long-term use because they can lead to the destruction of the articular cartilage of the TMJ.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Temporomandibular Joint Syndrome



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Question 276: A 75-year-old male presents to the clinic for follow up. He was recently diagnosed with an oral lesion that required surgical excision. Histologic evaluation revealed CD117 overexpression. Which of the following is consistent with the diagnosis?

Choices:

1. TMN staging does not apply to this disease
2. The most common locations are mandibular gingiva and the tongue
3. The presence of ulceration is an independent prognostic factor
4. After complete surgical excision, relapse rates are 1% to 2%

Answer: 3 - The presence of ulceration is an independent prognostic factor

Explanations:

- Melanoma in the head and neck account for upwards of 25% of all melanomas. Mucosal melanomas account for less than 1% of all melanomas. However, mucosal melanoma accounts for roughly 10% of melanoma of the head and neck.
- Oral melanomas are often silent with minimal symptoms until the advanced stage. On physical examination, the lesions can appear as pigmented dark brown to blue-black lesions, or apigmented mucosa-colored or white lesions. Erythema may be present if inflammation is present. The majority of the cases involve the palate and maxillary gingiva.
- Metastatic melanoma usually arises from the buccal mucosa, tongue, or the mandible. If an elevated lesion with a variation of color within the lesion is present, with surrounding satellite lesions and ulceration, a high grade advanced disease can be expected. Regional metastasis is rare.
- Overall, the prognosis of malignant melanoma is poor with 5-year survival at most 30% often due to late diagnosis. Independent prognostic factors that have been suggested include thickness greater than 5 mm, ulceration, and more than 10 mitotic figures per high power field. After complete surgical excision, relapse rates have been reported to be 10% to 20%. Recurrence has been noted even up to 11 years following surgery.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Oral Melanoma





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Question 277: A 26-year-old male comes to the office presenting with five days of fever and severe odynophagia. Three weeks prior to the presentation, he had a sore throat associated with upper respiratory symptoms, which resolved without interventions. On exam, the patient is breathing comfortably and handling his oral secretions. There are no voice changes or stridor. On examination, the patient's temperature is 101 F (38.3 C), with an erythematous posterior pharynx, and deviation of the lateral wall of the oropharynx towards the midline but no appreciable uvular deviation. His complete blood count shows leukocytosis with a neutrophilic predominance and a C-reactive protein of 4.6 mg/dL and an erythrocyte sedimentation rate of 26 mm/hr. What is the most appropriate next step in management?

Choices:

1. Oral amoxicillin-clavulanate for 10 days
2. IV ampicillin-sulbactam and IV dexamethasone
3. Computed tomography with IV contrast of the neck
4. Drainage of a peritonsillar abscess

Answer: 3 - Computed tomography with IV contrast of the neck

Explanations:

- A parapharyngeal abscess consists of a collection of pus in the lateral pharyngeal space. Deviation of the lateral wall of the oropharynx towards the midline is a classic physical exam finding.
- Peritonsillar abscesses are more common, but this will often yield a deviation of the uvula away from the affected side.
- If an abscess has formed and is symptomatic, drainage is often required for successful management.
- Parapharyngeal abscesses usually coalesce in 5-7 days, and it is important to determine if a pus collection is present. As this patient has no immediate airway symptoms, a CT scan is warranted to determine abscess versus phlegmon before proceeding to surgery.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Deep Neck Infections



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Question 278: A 32-year-old woman with a BMI of 36 kg/m² and a history of obstructive sleep apnea (OSA) returns for follow-up. She has moderate OSA and has not tolerated CPAP in the past. She recently underwent bilateral maxillomandibular advancement 2 weeks ago. She has been recovering well but complains about decreased sensation of her lower lip. What is the most likely cause for this decrease in sensation?

Choices:

1. Postoperative edema
2. Injury to the chorda tympani nerve
3. Injury to the inferior alveolar nerve
4. Injury to the hypoglossal nerve

Answer: 3 - Injury to the inferior alveolar nerve

Explanations:

- Craniofacial surgery including maxillomandibular advancement is often performed for maxillomandibular insufficiency with improvement in obstructive sleep apnea for moderate to severe disease.
- It carries the risk of damage to nearby structures, including the inferior alveolar/mental nerve provides sensation to the chin and lower lip, and the marginal mandibular nerve provides motor innervation to the lateral oral aperture.
- The patient underwent bilateral maxillomandibular advancement during which the mandibular osteotomies during which the inferior alveolar nerve, which provides sensation via the mental nerve to the lower lip and chin, is at risk.
- One would not expect hypesthesia of the lower lip from edema alone, especially two weeks out from surgery. The chorda tympani nerve supplies taste from the anterior tongue. The hypoglossal nerve provides motor innervation to the tongue.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Sleep Apnea Syndrome



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Question 279: A 38-year-old woman undergoes excision of her left submandibular gland for a pleomorphic adenoma that was previously diagnosed via fine-needle aspiration. On postoperative day 1, the patient's tongue deviates to the right upon protrusion, and she is having some difficulty with articulation. Which of the following intraoperative interventions is most likely to have prevented this outcome?

Choices:

1. Ligating the submandibular duct
2. Beginning submandibular gland dissection at the superior aspect of the gland
3. Avoiding raising a sub-platysmal skin flap superiorly
4. Keeping the mylohyoid in view during dissection

Answer: 4 - Keeping the mylohyoid in view during dissection

Explanations:

- The hypoglossal and lingual nerves travel within the submandibular space deep to the mylohyoid muscle.
- The hypoglossal nerve innervates the extrinsic and intrinsic muscles of the tongue except for the palatoglossus muscle.
- During submandibular gland surgery, it is important to keep the mylohyoid muscle in view in order to avoid injury to the hypoglossal nerve, which would result in weakness of the tongue musculature on the ipsilateral side.
- Option 1 is incorrect because ligation of the submandibular duct would not prevent injury to the hypoglossal nerve. Option 2 is incorrect because starting dissection at the superior aspect of the gland puts the marginal mandibular nerve at risk for injury and would not prevent injury to the hypoglossal nerve, which lies deep to the underlying mylohyoid and digastric muscles. Option 3 is incorrect because although avoiding raising a sub-platysmal flap superiorly helps protect the marginal mandibular nerve would not prevent injury to the hypoglossal nerve, which lies deep to the underlying mylohyoid and digastric muscles.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Submandibular Excision



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Question 280: A 20-year-old male with a pre-operative diagnosis of maxillary hypoplasia presents to the office for a follow-up 10 days after undergoing a LeFort I osteotomy. The patient complains of pain and mobility around the left maxillary side of his face when he eats. An x-ray is conducted showing no significant findings. However, a bone scan of the area reveals bright spots on the imaging plate. What is the most likely cause of this pain?

Choices:

1. Nonunion of the osteotomy site
2. Avascular necrosis of the maxilla supplied by the ascending palatine artery
3. Dentoalveolar Injury during a surgical procedure
4. Hyperesthesia of the trigeminal nerve

Answer: 2 - Avascular necrosis of the maxilla supplied by the ascending palatine artery

Explanations:

- The ascending palatine artery is one of the main blood supplies to the Le Fort segment, making it possible to be damaged during osteotomies causing nonunion. However, nonunion of bone can only be assessed after 03 weeks of surgery.
- Damage to the ascending palatine artery during this procedure increases the chance for complications such as ischemia leading to avascular necrosis.
- In 10% of patients, the ascending palatine artery is absent in the area, and this would lead to an increased risk for hypoperfusion and avascular necrosis.
- For evaluation of avascular necrosis of maxilla, radioactive material is injected. This tracer travel to the part of the bone that is injured and show up as bright spots on the imaging plate.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Le Fort Osteotomy



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Section 9

Question 281: A 60-year-old man with a 40 pack-year history of smoking presents to the clinic for a tongue mass. Physical exam shows a 2 cm exophytic mass on the right lateral tongue. Biopsy shows nests of epithelial cells, keratin deposits beyond the basement membrane, stromal fibrosis, an inflammatory infiltrate, and regions of patchy necrosis. Which of the following is the next best step in the management of this patient?

Choices:

1. Clindamycin
2. Surgical excision
3. Neck computed tomography scan with contrast
4. Follow up in four weeks

Answer: 3 - Neck computed tomography scan with contrast

Explanations:

- The patient has invasive squamous cell carcinoma of the tongue. An inflammatory infiltrate and regions of necrosis frequently coexist with malignant squamous cell carcinoma.
- Tongue squamous cell carcinoma frequently metastasizes via lymphatics to regional lymph nodes in the neck.
- CT scan with intravenous contrast will help clinically stage the disease and reveal any lymph nodes with worrisome characteristics.
- Malignant tongue lesions are frequently mistreated as infections with antibiotics, which would be inappropriate in this case given the pathologic diagnosis of carcinoma. Although surgery may be offered as a treatment alternative, neck imaging (as well as a thorough neck examination) is the best next step in the management of this patient, as this may impact both staging/prognosis and the type of surgery that will be offered. Observation for malignant tongue cancer in this patient is inappropriate. Given the pathologic diagnosis, the patient should be offered therapy.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Tongue Cancer



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Question 282: A 62-year-old man with a past medical history of hyperlipidemia, hypertension, and tobacco use with a 45 pack-year smoking history has a right lateral oral tongue squamous cell carcinoma. The TNM staging is cT3N1M0. He undergoes right hemiglossectomy and modified radical neck dissection. The anterior two-thirds of his right tongue is reconstructed with a radial forearm free flap. He complains of postoperative taste disturbance. This patient's taste disturbance is best explained by which of the following?

Choices:

1. Iatrogenic damage to the glossopharyngeal nerve
2. The reconstructive surgeon did not reconstruct the lingual nerve
3. Lack of afferent input to cranial nerve VII
4. Lack of efferent input to cranial nerve V

Answer: 3 - Lack of afferent input to cranial nerve VII

Explanations:

- Taste is a special sensory function unique to the tongue. Taste innervation is distinct from tongue sensation.
- Taste in the anterior two-thirds of the tongue comes from the chorda tympani, which prior to associating with the lingual nerve (which is a branch of the trigeminal nerve), travels with the facial nerve (cranial nerve VII). Sensation to the anterior two-thirds of the tongue is from the lingual nerve, cranial nerve V.
- Both taste and sensation afferents of the posterior one-third of the tongue are from the glossopharyngeal nerve.
- Glossopharyngeal nerve damage and taste disturbance is a known complication in tonsillectomy, so it is entirely possible that this patient sustained a glossopharyngeal nerve branch palsy when making the posterior tongue cuts. The taste sensation via the chorda tympani is the better answer given the described extirpation and reconstruction.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Glossectomy



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Question 283: A 13-years-old male child reported with a complaint of nasal obstruction along with occasional headache on the left side for the past one year. Examination revealed a collapsed lower lateral cartilage of the left side, and a hard white bony mass not surrounded by a nasal mucosa extending from the anterior aspect of inferior turbinate and touching the nasal septum. Intraoral examination revealed no abnormality. There was no history of trauma, surgery, or a nasal foreign body. Plain anteroposterior view of the skull revealed a dense radiopaque mass filling the left nasal cavity with the same attenuation as that of the oral teeth. Which among the following best describes this radio-opaque mass?

Choices:

1. Odontoma
2. Nasal teeth
3. Non-odontogenic tumor
4. Rhinolith

Answer: 2 - Nasal teeth

Explanations:

- Nasal teeth are the ectopic teeth that appear in the nasal cavity.
- Nasal teeth may be asymptomatic or may lead to facial pain, obstruction of the nasal cavity, headache, epistaxis (acute hemorrhage from the nostril), foul-smelling rhinorrhea, external nasal deformities, and obstruction of the nasolacrimal duct.
- Clinically, nasal teeth may present as hard white masses not surrounded by a nasal mucosa.
- Sometimes, the teeth may be embedded in the nasal mucosa and are surrounded by debris, granulation tissue, and ulcerative materials.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Anatomy, Head and Neck, Tooth Eruption



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Question 284: A 55-year-old male presents to the emergency department complaining of an inability to open his mouth. He claims that he woke up this morning and could not open his mouth and has difficulty chewing food. He has never experienced similar complaints. He has a history of diabetes, hypertension, and ischemic heart disease. He was recently started on metoclopramide for his diabetic gastropathy. His current medications include metformin, glimepiride, amlodipine, losartan, aspirin, bisoprolol, and atorvastatin. He also claims that he recently sprained his back and was started on oral diclofenac and tizanidine for his lower back spasm. Examination reveals restricted mouth opening and deviation of the head to the left. The maximal inter incisor opening distance is 10 mm. Which of the following agent is responsible for this patient's presentation?

Choices:

1. Tizanidine
2. Metoclopramide
3. Bisoprolol
4. Metformin

Answer: 2 - Metoclopramide

Explanations:

- This patient has multiple comorbid conditions and is currently on multiple medications. He has presented with restricted mouth opening and reduced maximal inter incisor opening, indicating the development of trismus. The deviation of head and a short history of onset suggests the possibility of a drug-related adverse effect.
- Metoclopramide is associated with the development of acute dystonic reactions and can present with torticollis and acute trismus. Though commonly seen in younger adults, it can occur in older patients.
- Trismus due to metoclopramide may be associated with other features of acute dystonia such as torticollis, oculogyric crisis, opisthotonos. Discontinuation of medication leads to resolution of symptoms.
- Other agents such as succinylcholine and phenothiazine containing drugs may also cause trismus. Tizanidine, bisoprolol, and metformin usually do not cause trismus.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Trismus



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Question 285: A 2-year-old male patient was brought to the clinician with the complaints of nasal speech, difficulty eating, difficulty swallowing with liquids and foods often coming out of the nose, and chronic ear infections. On examination, there was a split in the roof of the mouth that did not affect the appearance of the face. What is the ideal age for surgical intervention in this case?

Choices:

1. 4 months
2. 11 to 12 months
3. 2 years
4. 5 years

Answer: 2 - 11 to 12 months

Explanations:

- A cleft palate can be corrected by surgery, usually performed between 6 and 12 months of age.
- Cleft palate repair before the beginning of the speech is a priority. Even with repair, the possibility of a speech impairment exists. Postoperative care in these patients requires measures to protect the surgical site from trauma.
- Avoid the use of straws and suction devices in the oral cavity, if at all possible. A soft or blended diet is an important way to safeguard against trauma to the incision site. There should be no hard foods until the site is healed.
- One of the innovations of cleft lip and cleft palate repair is the Latham appliance. The Latham is surgically inserted by the use of pins during the child's 4th or 5th month. After it is in place, the doctor or parents turn a screw daily to bring the cleft together to assist with future lip or palate repair.

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Research Concepts:

Cleft Palate



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Question 286: A 7-year-old boy is brought in by his mother for a dental check-up. He has no past medical history. On examination, there are incipient caries in the front upper teeth. On examination of the occlusion, the buccal cusps of the lower molars and premolars surpass buccally the upper teeth during occlusion bilaterally. The patient has the habit of nailbiting. Given this patient's likely diagnosis, which of the following devices is used for rapid maxillary expansion?

Choices:

1. Quad helix
2. Chin cup appliance
3. Lower inclined plane
4. Hyrax screw

Answer: 4 - Hyrax screw

Explanations:

- This patient has bilateral posterior crossbites. A crossbite should be treated as soon as it is found, early recognition and treatment increase the orthopedic effects and improve the long-term stability of the results.
- Different devices can be used for the treatment of these discrepancies. The rapid maxillary expansion involves a hyrax screw type of appliance capable of splitting the mid-palatine suture and bring about skeletal changes in a short interval.
- The etiology of a cross-bite includes hereditary influence, inadequate dental arch length, supernumerary teeth, habits like digit sucking, a skeletal-anteroposterior discrepancy of arches, and cleft lip and palate.
- Quad helix is a fixed appliance that can induce slow expansion. Chin cup appliance can be used to redirect the growth of a prognathic mandible.

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Research Concepts:

Posterior Crossbite



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Question 287: A 67-year-old man is undergoing a tracheostomy prior to a radical neck dissection for known cancer of the larynx. As the surgeon enters the trachea, he notices a new, rapid bleed into the trachea. The vessel involved in this condition arises from which of the following arteries?

Choices:

1. The ascending aorta
2. The aortic arch
3. The descending aorta
4. The common carotid artery

Answer: 2 - The aortic arch

Explanations:

- A new bleed during a tracheostomy likely represents a tracheo-innominate fistula.
- A tracheo-innominate fistula represents a surgical emergency.
- The innominate artery is also known as the brachiocephalic artery.
- The brachiocephalic artery arises from the arch of the aorta.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Anatomy, Thorax, Mediastinum Superior and Great Vessels



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Question 288: A 17-year-old girl presents with a one-month history of pain and swelling in the left lower gums. Oral cavity examination reveals erythematous and swollen gingiva in the area of the left mandibular second premolar and first molar. An amalgam restoration is seen in the left mandibular first molar. There was bleeding on probing, and pain on palpation of the affected area. An intraoral periapical radiograph is taken, which shows an overhanging margin on the medial side of the amalgam restoration, but there is no bone loss and no periapical pathology in the mandibular molar and premolar. Which of the following methods is most likely to relieve the patient's symptoms?

Choices:

1. Scaling
2. Scaling and root planing
3. Correction of the overhanging restoration
4. Flossing

Answer: 3 - Correction of the overhanging restoration

Explanations:

- Infectious gingivitis is a form of gingivitis that occurs due to the presence of any other infection in the oral cavity.
- Any low-grade local injury to the gingiva, such as those caused by fractured teeth, overhanging restorations, overextended flanges of the denture, and faulty fixed dental prosthesis could also lead to infectious gingivitis.
- Treatment includes removal of the causative factor such as correction of the overhanging restoration in this patient.
- Scaling and root planing are beneficial in gingivitis if plaque or calculus are the causative factors.

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Research Concepts:

Gingivitis



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Question 289: Conservative therapy can be used for mandible fractures in certain situations. In which of the following scenarios would a nonoperative treatment be recommended?

Choices:

1. In a 6-year-old boy with a right body and left parasymphiseal fractures with no displacement seen on radiograph studies
2. In a 67-year-old man with alcohol use disorder with a right body and left parasymphiseal fractures and an oral mucosal laceration near the right fracture site
3. In a 17-year-old male with a right subcondylar and left unfavorable parasymphiseal fracture
4. In a 27-year-old woman with bilateral parasymphiseal fractures and some mild upper airway obstruction

Answer: 1 - In a 6-year-old boy with a right body and left parasymphyseal fractures with no displacement seen on radiograph studies

Explanations:

- Children often have greenstick fractures, which can be treated conservatively.
- In addition, radiographically, the child's fracture is nondisplaced.
- This is a good situation in which a Barton-type bandage support and soft diet may be considered.
- All the other patients mentioned require more treatment.

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Research Concepts:

Mandible Fracture



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Question 290: A 13-year-old male is brought to the dental clinic for his annual evaluation. His mother states that he brushes regularly but is fond of sweets. He has otherwise been well and has no significant past medical history. His oral examination reveals the eruption of 28 permanent teeth. Examination of his mandibular molars reveals the presence of deep invaginations and burrows on the occlusal surface. There are no active carious lesions. The doctor performs a non-invasive intervention involving the use of resin material to preserve tooth structure and prevent dental decay. The affected tooth is isolated, washed, and dried. The tooth is coated with pumice and is later washed off. The application of orthophosphoric acid follows this. This is washed, and lastly, the resin material is applied to the occlusal surface. What is the purpose of using orthophosphoric acid during this procedure?

Choices:

1. Roughens dental surface
2. Restores dental gleam
3. Mechanically seal the invagination
4. Disperse salivary fluid

Answer: 1 - Roughens dental surface

Explanations:

- This patient has presented for an annual dental checkup. His dental examination reveals the presence of deep invaginations of the occlusal surface of his permanent mandibular molars. These pits and fissures predispose to the development of dental caries. The technique described involves the application of a sealant to close the pits and fissures.
- There are several steps involved in the application of resin sealant to the teeth. Orthophosphoric acid acts as an etchant and helps to roughen the enamel surface prior to applying the sealant. This helps in adhesion and promotes sealant retention.
- 37 % orthophosphoric acid is a commonly used acid etchant. It serves to create microscopic spaces in enamel into which the sealant can flow and adhere. This creates a strong micromechanical bond between the sealant and the enamel.
- Etchant use is a technique dependent process and appropriate precautions should be followed. The application of pumice helps to create a shiny smooth surface. Traditional sealants are hydrophobic and repel water and therefore must be applied to a thoroughly dried surface. However, newer sealants that are moisture tolerant are available in the market. The sealant covers the pits and fissures and prevents the development of dental decay.

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Research Concepts:

Pit and Fissure Sealants





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Question 291: A 14-year-old boy with a history of neurofibromatosis type 1 is brought to the clinic with a rapidly enlarging mass in the mouth, causing severe respiratory difficulty, dysphagia, mandibular, and temporomandibular pain. He first noticed the presence of a nodular mass 6 weeks back with local numbness, but the mass rapidly enlarged during a period of 6 weeks. Slit-lamp examination shows bilateral Lisch nodules. Which of the following is the investigation of choice to confirm the diagnosis in this patient?

Choices:

1. CT
2. MRI
3. Ultrasound
4. Biopsy

Answer: 4 - Biopsy

Explanations:

- Patients with neurofibromatosis type 1 are at high risk of developing both benign and malignant tumors. The malignant peripheral nerve sheath tumors (MPNSTs) occur in about 2% to 5% of neurofibromatosis patients.
- They are high-grade sarcomas and originate from tissues of mesenchymal origin. A rapid change in the size of a preexisting neurofibroma, unremitting pain, intralesional hemorrhage, and infiltration of the adjacent structures indicate a possible malignant transformation to MPNST.
- The malignant transformation of a neurofibroma has an extremely poor prognosis with recurrences and distant metastasis. CT and MRI imaging may define the location, and extension of the disease, but incisional or excisional biopsy confirms the diagnosis. Studies have shown the average 5-year survival rate for these patients ranges from 16% to 52%.
- Hence, patients with neurofibromatosis should be closely monitored for a possible malignancy as this sarcomatous change in a neurofibroma has an extremely poor prognosis.

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Research Concepts:

Lisch Nodules



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Question 292: A 55-year-old male presents with a right parotid mass. Physical exam shows a painless, soft, and compressible mass at the tail of the parotid. Fine needle aspiration shows a benign tumor consistent with the Warthin tumor. He elects to undergo gland preserving surgery. What is the main advantage of this surgical approach?

Choices:

1. Lower rate of facial nerve complication
2. Lower rate of recurrence
3. Lower rate of metastasis
4. Lower rate of malignant transformation

Answer: 1 - Lower rate of facial nerve complication

Explanations:

- In studies comparing gland preserving surgery with superficial parotidectomy for benign tumors, the recurrence rate after gland preserving surgery was of 1.6% to 3.3% and 1.4% to 2.2% with superficial parotidectomy, with superficial parotidectomy showing a higher rate of facial nerve complications.
- Gland-preserving surgery is recommended only for benign tumors with a reduction in surgical complications and improvement in patient quality of life.
- A comparison between gland preservation surgery and superficial parotidectomy found better cosmesis, sensory, and salivary functions along with less facial nerve weakness and no difference in recurrence rate for partial superficial parotidectomy.
- Extracapsular dissection (ECD) is the most conservative gland-preservation approach and involves removing the tumor with only the immediate pseudocapsule without identifying nor dissecting the facial nerve branches. Studies showed that complications such as facial nerve damage, sialocele, and Frey syndrome were rare during ECD.

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Research Concepts:

Benign Salivary Gland Tumors



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Question 293: A 74-year-old man presents to the clinic for replacement of missing teeth with dental implants. The patient's first and 2nd maxillary molars are missing, and the bone density in the region concerned is D4 type. Which of the following is the most appropriate dental implant selection for this patient?

Choices:

1. Long length and narrow diameter implant
2. Short length and narrow diameter implant
3. Narrow diameter implants and increased number of implants
4. Wider diameter implants and long length implant

Answer: 4 - Wider diameter implants and long length implant

Explanations:

- D4 density bone is present in the maxillary posterior region, and it is very soft in nature.
- In the posterior maxillary area, the masticatory forces are maximum. So implant selection in terms of dimensions and number plays an important role.
- When the density is D3 or D4, the implant diameter or number becomes more important to decrease the biomechanical overload to the bone. As a general rule, 5 mm diameter implants are sufficient in most posterior molar regions. When the diameter of molar implants do not provide sufficient surface area, the number of implants should be increased. The softer the bone, the longer the implant requirement. The greater the bite force, the longer the implant dimension.
- Implant lengths vary in different areas of the oral cavity. Anterior mandibular region implant length is shorter than the anterior maxillary region implant length, which is shorter than the posterior mandibular region implant length, and maxillary posterior region implant length is the longest.

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Research Concepts:

Dental Implants



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Question 294: A 74-year-old patient presents 25 months after completing primary chemotherapy and radiation therapy for stage 3 oropharyngeal squamous cell carcinoma. She continues to smoke. She began having pain when chewing one month ago, which has become progressively worse, and she has noticed that her teeth "do not fit together normally" anymore. She denies hemoptysis, weight loss, trismus, or neck mass. On examination, there is a palpable pseudoarthrosis in the body of her left mandible, but no exposed bone. Her remaining teeth are in good repair. After a biopsy excludes recurrent cancer, which of the following would be a component of her next step in treatment?

Choices:

1. 30 hyperbaric oxygen treatments
2. 10 hyperbaric oxygen treatments
3. Surgical removal of necrotic bone
4. Empiric antibiotics

Answer: 1 - 30 hyperbaric oxygen treatments

Explanations:

- This patient most likely has osteoradionecrosis. Patients see the most improvement of healing and symptom relief when 30 preoperative hyperbaric oxygen (HBO) treatments are delivered.
- Surgical intervention should take place after 30 HBO treatments have been done for improved healing of the bone and improvement of symptoms.
- All cases of osteoradionecrosis of the mandible require surgical intervention with mild bony debridement as a minimum requirement. To prevent osteoradionecrosis (ORN), HBO treatments are always indicated before the surgical intervention or dental extraction in a previously irradiated area of bone.
- ORN of the mandible is primarily an aseptic disease of the bone and only requires antibiotics if an apparent secondary bacterial infection is present.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Mandible Osteoradionecrosis



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Question 295: A 12-year-old male presented in the emergency department with the complaint of generalized seizures for the past 2 days. The patient has a short stature and is not able to read and write properly. He has a history of recurrent chest infections. On physical examination, the patient has a cleft palate, a prominent forehead, an enlarged nose tip, and hypertelorism. Initial biochemical analysis reveals a total calcium level of 3.5 mg/dl. Which of the following test would best confirm your suspicion of the patient's syndrome?

Choices:

1. Western blot
2. Polymerase chain reaction (PCR)
3. Fluorescence in situ hybridization (FISH)
4. Single nucleotide polymorphism (SNP) array

Answer: 4 - Single nucleotide polymorphism (SNP) array

Explanations:

- The patient most likely has the velocardiofacial syndrome. Velocardiofacial syndrome (otherwise known as Di George syndrome or Chromosome 22q11.2 syndrome) is the most common microdeletion syndrome in humans.
- Velocardiofacial syndrome has a wide range of findings due to both differences in the amount of genetic material lost and environmental factors. The most common results are developmental delays, cardiac anomalies, palatal anomalies, and immune deficiency.
- Multiplex ligation-dependent probe amplification (MLPA) and single nucleotide polymorphism (SNP) arrays are the preferred methods to detect microdeletions of chromosome 22q11. SNP is currently preferred as it has greater sensitivity.
- Though Fluorescence in situ hybridization (FISH) was initially used to detect the microdeletions of chromosome 22, it was not sensitive enough to pick up all patients.

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Research Concepts:

Velocardiofacial Syndrome



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Question 296: A 40-year-old male visited a dental clinic with pain on the right side of the face. The patient gave the history of previous infective endocarditis (IE) 2 years back. On examination, it was found that the right mandibular 3rd molar was grossly carious. After clinical and radiological evaluation, it was found that the tooth could not be saved. It was also found that the tooth was impacted and needed surgical extraction. How should the dental surgeon go ahead with the treatment in this present condition?

Choices:

1. Extraction of tooth and prescription of antibiotics
2. Preprocedural prophylactic antibiotics followed by extraction and routine antibiotic course
3. No antibiotics are required
4. Preprocedural anti-inflammatory drugs and extraction and then antibiotics

Answer: 2 - Preprocedural prophylactic antibiotics followed by extraction and routine antibiotic course

Explanations:

- Infective endocarditis (IE) is a rare but serious disease having nonspecific clinical features. It may or may not have a high-grade fever, loss of weight, shortness of breath, heart murmurs, etc. It may have severe complications like sepsis, stroke, and heart failure.
- VGS (viridans group streptococci), staphylococci, and enterococci are the most common causative microorganisms associated with IE.
- Prophylaxis for IE is mandatory before dental procedures that involve gingival tissue or periapical area manipulation or piercing the oral mucosa for patients with prosthetic cardiac valves, cardiac transplants due to structurally abnormal valve, previous infective endocarditis, completely repaired congenital heart disease with a prosthetic material, etc.
- According to AHA recommendations, preprocedural antibiotic prophylaxis is no longer recommended for patients with mitral valve prolapse, rheumatic heart disease, congenital heart disease (e.g., with atrial septal defects), etc.

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Research Concepts:

Dental Infection Control



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Question 297: A 3-week-old baby is brought in by his parents due to irritability while breastfeeding since birth. The mother says the baby begins to cry and looks upset when breastfeeding. He cannot latch properly, causing extreme pain in her nipples. She has seen a lactation nurse that explained to her the appropriate feeding techniques, but the situation did not improve. On examination, the baby lost 350 gr since the last appointment one week ago. On intraoral examination, the lingual frenulum extends from the alveolar ridge to the tongue, preventing the tip of the tongue from lifting to the mid-mouth when crying. Other causes for feeding difficulty have been ruled out. Which of the following is the most appropriate treatment option?

Choices:

1. Frenotomy
2. Refer again to a lactation nurse
3. Reassurance
4. Refer to speech and language therapy

Answer: 1 - Frenotomy

Explanations:

- This baby presents with significant ankyloglossia, also known as tongue-tie, that is affecting his capacity to breastfeed. Poor weight gain, failure to latch, prolonged feeding, nipple pain, and trauma have been reported in association with this disorder.
- The treatment of a short lingual attachment is usually delayed unless there are obvious speech or nursing difficulties. If other causes of difficulty feeding have been ruled out, then a frenotomy can be offered as a treatment option. Treatment options such as observation, speech therapy, frenotomy without anesthesia, and frenectomy under general anesthesia have all been suggested.
- Frenotomy is the most commonly used procedure for the treatment of ankyloglossia. This procedure is quick and can be done in an outpatient setting. It involves holding the tongue up to make the frenulum tight, then cutting through the fascia-like tissue along a line parallel and close to the tongue.
- The cut is made in a single motion, as is done in less than a second. Some clinicians choose to give sucrose before the procedure to minimize and help with the pain. The use of topical anesthetic gel for pain control highly is recommend.

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Research Concepts:

Ankyloglossia



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Question 298: A 67-year-old female with advanced-stage tongue cancer with bulky cervical metastasis elects to undergo surgical removal of the disease, including modified radical neck dissection. During surgery, the spinal accessory nerve and the sternocleidomastoid muscle were preserved, but the internal jugular vein was sacrificed. The spinal accessory nerve was skeletonized from the posterior digastric to the sternocleidomastoid muscle (SCM) due to significant disease in level II. Six months postoperatively, the patient returns after completion of all adjuvant therapy (radiation) for review of a post-treatment PET scan demonstrating no residual disease. However, the patient complains of significant ipsilateral shoulder pain unrelieved by physical therapy. Her SCM shows no sign of atrophy and normal function. What is the likely cause of her symptoms?

Choices:

1. Stretch injury to the spinal accessory nerve during dissection
2. Injury to the trapezius branch of the spinal accessory nerve
3. Postoperative contracture after removal of lymphatic contents
4. Radiation-induced spinal accessory nerve damage

Answer: 2 - Injury to the trapezius branch of the spinal accessory nerve

Explanations:

- The spinal accessory nerve innervates the trapezius and SCM muscles. A stretch injury to the nerve would cause loss of function of both muscles, which is not seen in this patient.
- The spinal accessory nerve has a variable branching pattern and often has the trapezius branch leaving the main trunk of the nerve prior to entering the SCM. Damage to this nerve can occur during the skeletonization of the nerve, especially in the setting of surrounding nodal disease. These patients will frequently complain of significant shoulder discomfort due to the unopposed forces of other shoulder musculature. The SCM will remain functional, as its innervation remains intact.
- While postoperative scarring may result in some loss of neck flexibility, shoulder pain is not a common symptom of neck dissections in general. Chronic shoulder pain indicates damage to the spinal accessory nerve, particularly the trapezius branch.
- Radiation does not commonly cause loss of function of the spinal nerve and would be unlikely to cause an isolated weakness in only one muscle innervated by the nerve.

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Research Concepts:

Radical Neck Dissection



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Question 299: A 29-year-old woman presents because she does not like her smile. The patient says she is not comfortable with the position of her upper lip and this gives her a funny appearance when smiling. She has no past medical history and takes no medications. On examination, there is a short upper lip, and when the patient is instructed to smile, 2 mm of gum exposure is seen. What is the most appropriate treatment option for this patient's condition?

Choices:

1. No treatment should be advised since the gum exposure is not enough to be considered pathological
2. Gingivectomy
3. Intrusive root movement of incisors
4. Injection of botulinum toxin

Answer: 4 - Injection of botulinum toxin

Explanations:

- An excessive gum exposure, more than 2 mm, when smiling is considered as a gummy smile.
- Injection of botulinum toxin may be a safe and cosmetically effective therapy for a gummy smile caused by a short upper lip when carried on by well-experienced practitioners.
- This toxin is a powerful paralyzing agent that acts at the level of the neuromuscular junction by inhibiting the release of acetylcholine, causing a chemo-denervation leading to the reduction of muscle activity.
- If there are no aesthetic and functional complaints, it is preferable to abstain from treatment. A slight gingival exposure when smiling outside of any malocclusion is aesthetically accepted, which can direct the practitioner toward abstention to avoid possible therapeutic failures.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Orthodontics Gummy Smile



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Question 300: A 30-year-old woman presents with enlarged jaw muscles. The patient says she often wakes up in the middle of the night with pain in the jaw and mild headaches, and she believes this has been happening intermittently for the last three years since she divorced. On examination, there is stiffness in the muscles of mastication. A pop is heard in the temporomandibular joint (TMJ) when opening the mouth. Along with relaxation techniques before sleeping, which of the following is the most appropriate treatment option for this patient's condition?

Choices:

1. Equilibration therapy
2. Restorative treatment
3. Physical therapy
4. Occlusal adjustments

Answer: 3 - Physical therapy

Explanations:

- Bruxism is defined as a diurnal or nocturnal parafunctional activity, including clenching, bracing, gnashing, and grinding of the teeth.
- Physical therapy is recommended if bruxism is associated with muscle pain and stiffness.
- Bruxism may often be related to stress and anxiety. Psychotherapeutic approaches should be done to foster calmness.
- TMJ pain and pops, pain in the periauricular area, and eve otalgia have been reported in more severe cases.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Bruxism Management



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Question 301: A 19-year-old male presents complaining of dental pain in the left jaw. The patient states that he has had this type of pain many times before today. The patient says that his pain started 1 week ago. It is made worse with cold foods and mastication. The pain is non-radiating, and nothing makes the pain better. He denies fever, shortness of breath, and difficulty swallowing. The patient reports that in the past, he was given antibiotics and instructed to follow up with a dentist. Patient states that he never follows up with the dentist because he states that “nothing bad can happen from a dental abscess.” The clinician attempts to educate this patient on proper oral hygiene and the complications associated with dental abscesses. Which of the following unrelated to the his condition?

Choices:

1. Mediastinitis
2. Bacteremia
3. Ascending infection into sinuses
4. Epiglottitis

Answer: 4 - Epiglottitis

Explanations:

- Mediastinitis is a possibly serious complication of untreated, severe dental abscess. This occurs a dental infection on the lower jaw, tracks down the lateral pharyngeal space (parapharyngeal space) into the mediastinum.
- Bacteremia is a complication of untreated dental abscess. The hematogenous spread of bacteria through the dental route is well documented. Patients with mechanical heart valves, in particular, are at risk for the hematogenous spread of bacteria through the seeding of cardiac valves.
- Ascending infection into sinuses is a complication of severe, untreated dental abscess. Upper jaw dental abscess has been documented infecting sinuses. Infected sinuses increase the risk of bacteria spreading to the brain.
- Epiglottitis is not a complication of an untreated dental abscess though airway compromise can occur in neck space infections secondary to a dental abscess. The mechanism of airway compromise is swelling of parapharyngeal tissues and lymphatic congestion, not inflammation of the epiglottis.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Dental Abscess



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Question 302: A 10-month-old boy undergoes cleft palate repair for a cleft palate involving the soft and bilateral hard palates. Successful reconstruction of the palate is achieved, and the soft palate is lengthened. Which of the following maneuvers is most appropriate to help keep a patent airway for this patient during the early postoperative period?

Choices:

1. Nasal cannula
2. Laying on the side
3. Nasopharyngeal airway
4. Prolonged intubation

Answer: 3 - Nasopharyngeal airway

Explanations:

- Placing a nasopharyngeal airway (also known as “trumpet”) may be indicated in patients who undergo cleft palate repair. It will provide a patent airway throughout the early postoperative period, and as the repaired soft palate decreases its swelling. Another alternative is to place a suture to the tongue (“tongue-tie”) to be able to mobilize the tongue anteriorly and increase the space in the oropharynx in case the patient has difficulty breathing.
- While neonates and infants are obligate nasal breathers, some patients with a repaired cleft palate may demonstrate increased soft palate swelling impacting the oropharynx. Therefore, requiring one of the previously mentioned maneuvers.
- Laying the patient on a side will have no impact on the soft palate or the oropharynx.
- Keeping the patient intubated is only considered in postoperative patients who demonstrate extreme tongue swelling or when their hemodynamic or ventilatory unstable status precludes extubation.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Cleft Palate Repair



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Question 303: A 56-year-old man presents to the clinic complaining of jaw pain and exceedingly bad breath. A quick oral examination shows ulceration and drainage of the jaw into the oral cavity. There is irradiated tissue around the lesion and exposed bone. Which of the following conditions is most likely to be associated with the patient's condition?

Choices:

1. Multiple cavity fillings
2. Smoking history
3. Lymphoma of the neck
4. Primary basal cell carcinoma of the face

Answer: 3 - Lymphoma of the neck

Explanations:

- Osteoradionecrosis often results in ulceration and necrosis of the mucosa around the jaw with exposed bone, inevitably leading to infection and necrotic bone.
- Osteoradionecrosis is a known complication of radiation therapy for the management of head and neck cancers.
- Osteoradionecrosis leads to infection and tissue death.
- Osteoradionecrosis is a result of radiation therapy to the head/neck. It may be mistaken for oral cancer, for which smoking is a cause, and would typically result in a squamous cell carcinoma of the oral cavity.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Osteoradionecrosis



We update eBooks quarterly and Apps daily based on user feedback. Please tap flag to report any questions that need improvement.

Question 304: A 12-year-old female presents to the clinic with her parents for a dental checkup. Intraoral examination reveals good oral hygiene and no soft tissue pathology. All the permanent teeth have erupted except the maxillary right second premolar and the wisdom teeth. An orthopantomography revealed the presence of maxillary right second deciduous molar with the displacement of its permanent successor. The roots of deciduous molar were completely resorbed and only the shell of the crown remained. It was clinically not visible due to the severe tipping of the adjacent permanent teeth. The delayed eruption of a maxillary right second premolar is most likely to which of the following factor?

Choices:

1. Impacted teeth
2. Submerged Teeth
3. Displacement of premolar
4. Embedded teeth

Answer: 2 - Submerged Teeth

Explanations:

- Submerged teeth are the teeth which after eruption have lost their ability to maintain the continuous eruptive potential as the jaw grows.
- 'Infraocclusion' is a term used to describe the clinical appearance of a tooth whose occlusal surface is at least 1 mm below the occlusal plane.
- The clinical picture is often associated with the tipping of adjacent teeth and the overeruption of opposing teeth.
- Impacted teeth are teeth that cannot erupt due to a physical barrier preventing their eruption whereas embedded teeth are teeth with no physical obstruction in their path but remain unerupted due to lack of eruptive force.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Anatomy, Head and Neck, Tooth Eruption



We update eBooks quarterly and Apps daily based on user feedback. Please tap flag to report any questions that need improvement.

Question 305: A 3-year-old boy is brought to the clinic for evaluation of a deep red, elevated lesion on the ventral surface of his tongue. His mother reports that this lesion has been present since infancy, and her son has never complained about it. The patient's speech is clear and appropriate for his age group. His mother denies difficulty with eating and drinking. Which of the following is the next best step in the management of this patient?

Choices:

1. Frequent monitoring at monthly intervals
2. Routine follow-up
3. Surgical resection
4. Propranolol

Answer: 2 - Routine follow-up

Explanations:

- Oral hemangiomas (OHs) are relatively rare benign tumors that develop due to endothelial cell proliferation. These lesions most frequently involve the lips, tongue, buccal mucosa, and palate.
- Most OHs will not require treatment due to their benign presentation and high rate of involution over time. Unless the patient is presenting with impairments in speech, swallowing, or the airway or the lesion has persisted into adolescence, monitoring at routine health maintenance appointments is an appropriate management option.
- Propranolol is first-line medical therapy for OHs and would be initiated in the setting of functional impairment or presence of OH into adolescence. However, beta-blocker therapy would not be appropriate for this patient due to his age and lack of symptoms. Throughout the duration of beta-blocker therapy, patients should be monitored for side effects, including bradycardia, hypotension, hypoglycemia, and bronchospasm.
- Surgical resection offers definitive treatment for OH and may be preferred for smaller lesions located on the lips and buccal mucosa. Resection would not be preferred for lesions on the tongue as significant removal of tissue can result in chronic impairment of speech and swallowing.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Oral Hemangiomas





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Question 306: A 3-year-old boy is seen for follow up in the clinic for a non-tender 2 cm unilateral facial mass. The mass was first discovered two months ago at a routine health check-up. It has failed to self-resolve and has not responded to a full course of clindamycin therapy. The mass now appears to have formed a sinus tract and is draining a thick purulent material. The patient has never had any laboratory abnormalities other than a minimally elevated WBC count with a slight neutrophil predominance. The patient is afebrile with normal vital signs for his age. The patient is referred to surgery and prescribed a prolonged course of azithromycin and rifampin. What is the most common surgical complication during the treatment of this infection?

Choices:

1. Optic nerve paralysis
2. Retropharyngeal abscess formation
3. Horner syndrome
4. Facial nerve paralysis

Answer: 4 - Facial nerve paralysis

Explanations:

- The treatment of Lymphadenitis caused by Mycobacterium Avium is approximately 95% with antibiotic therapy and surgical intervention. Antibiotics typically used are a macrolide (azithromycin or clarithromycin) combined with rifampin.
- The most common cause of atypical mycobacterial lymphadenitis in children are the Mycobacterium Avium complex bacteria.
- Mycobacterial lymphadenitis can result in fistula formation and repeated need for surgical intervention. One of the most common surgical complications is damage to the facial nerve as it courses through the parotid gland.
- Children with atypical mycobacterial lymphadenitis typically do not present with fever and are usually relatively well-appearing.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Atypical Mycobacterial Disease



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Question 307: A 68-year-old man presents to the clinic with a painless swelling on the left side of the face. The swelling is firm and fixed to the underlying structures and the overlying skin on palpation. There are no palpable lymph nodes in the neck. The patient reports a history of smoking for 30 years and, recently, a three weeks history of inability to close the left eye even while asleep. Findings on fine-needle aspirations show the presence of epidermoid cells with very few mucous cells and minimal cystic changes, suggestive of mucoepidermoid carcinoma. Which of the following is the most appropriate surgical approach for this patient?

Choices:

1. Superficial parotidectomy
2. Radical parotidectomy
3. Extracapsular dissection
4. Radiochemotherapy

Answer: 2 - Radical parotidectomy

Explanations:

- Radical parotidectomy is a surgical procedure that includes the removal of the entire parotid gland, along with resection of the facial nerve.
- Radical parotidectomy is indicated in facial nerve involvement by the tumor. Facial nerve involvement by the tumor manifests with limited ability to wrinkle the forehead, eye closure, whistling, and blowing.
- Superficial parotidectomy and extracapsular dissection are carried out for benign parotid tumors.
- Radiochemotherapy is recommended in cases of cervical lymph nodes involvement by the tumor.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Parotidectomy



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Question 308: A 17-year-old girl presents with having a painless swelling inside the mouth for 4 months. The swelling started to develop after having dental extraction and was initially small in size, later progressing and interfering with speech and swallowing. On examination, there is a 5x4 cm non-tender swelling on the floor of the mouth, having a bluish tinge. It is soft to firm in consistency and fluctuant and does not cross the midline. Complete surgical excision of the lesion along with the associated gland, has been planned. Which of the following interventions prior to surgery would assist in surgical intervention?

Choices:

1. Imaging studies
2. IV antibiotics
3. Aspiration of the contents of the swelling
4. Intralesional injection with steroids

Answer: 1 - Imaging studies

Explanations:

- Imaging studies are necessary and mandatory prior to surgery as they aid surgery by determining the extent of the swelling.
- Complete surgical excision, along with the offending gland, is the best treatment of choice for ranulas.
- Complete surgical excision, along with the associated gland, has the least recurrence rate among all the other treatment options available for ranulas.
- IV antibiotics, aspiration, and intralesional steroid injection have no significance in terms of facilitating the surgery.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Mucocele And Ranula



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Question 309: A 16-year-old boy with no past medical history is brought to the hospital by his coach after he was struck in the cheek by a hockey puck. The patient has swelling and tenderness over the entire left midface and cannot close his mouth fully. Some crepitus is also present over the left maxilla. He can speak normally and his voice has not changed. The patient does not have any urgent operative indications and is scheduled to be discharged to see a specialist in the clinic in several days. Which of the following is the preferred next step management?

Choices:

1. Oral amoxicillin syrup
2. Oral ibuprofen tablets
3. Oral hydrocodone/acetaminophen syrup
4. Temporomandibular joint (TMJ) range of motion exercises

Answer: 3 - Oral hydrocodone/acetaminophen syrup

Explanations:

- Narcotics for pain control are a reasonable approach in patients with facial fractures, even children and adolescents if parents are notified, and all risks and benefits are discussed.
- Patients with potential maxillary or mandible fractures should be placed on a soft diet and provided prescriptions for liquid medications.
- When given combination medications, the patient should be counseled on avoiding accidental acetaminophen overdose.
- While not necessary, antibiotics may be the preferred approach of a consulting specialist. Antibiotics for potential sinus or intraoral open fracture should target intra-oral pathogens. Clindamycin or amoxicillin-clavulanate would be a reasonable option(amoxicillin alone is insufficient).

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Pediatric Facial Fractures



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Question 310: A 23-year-old man presents for elective periodontal surgery. He has no past medical history. His past dental history includes aggressive periodontitis that was incidentally detected on an orthopantomography. Periodontal surgery to refill the severe bone loss in the patient's first molars with the most commonly used alloplastic graft is accomplished in this appointment. Which of the following is correct regarding the fabrication process of this material from natural sources?

Choices:

1. It has an stoichiometric structure
2. It has a trace of ions that are beneficial to promote rapid bone regeneration
3. It has a trace of ions that decrease rapid bone regeneration
4. It is commonly fabricated from fish cartilage and bone

Answer: 3 - It has a trace of ions that decrease rapid bone regeneration

Explanations:

- Hydroxyapatite (HA) from the natural source is commonly fabricated from fishbone, coral, bovine bone, eggshell, and seashells through a calcination process.
- HA produced from natural sources has trace ions found in natural sources.
- This trace of ions consists of cations, such as Na^+ , K^+ , Mg^{2+} , Sr^{2+} , Zn^{2+} , and Al^{3+} , or anions like F^- , Cl^- , SO_4^{2-} , and CO_3^{2-} , are beneficial to promote rapid bone regeneration.
- HA produced from natural sources is non-stoichiometric.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Hydroxyapatite Dental Material



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Question 311: A 65-year-old man presents to the office complaining of difficulty swallowing and tasting, which has been ongoing for the past year. He states "I feel like I constantly have a saltine cracker in my mouth." Last year, he was diagnosed with oropharyngeal cancer for which he successfully received and completed radiation therapy. On examination of the oral cavity, there are no dental caries with fair dentition but a foul odor and dry mucous membranes are noted. What is the primary objective of the most appropriate medication indicated to increase salivation in this patient?

Choices:

1. Smooth muscle dilation of the salivary gland
2. Smooth muscle contraction of the parotid gland
3. Smooth muscle contraction of the salivary gland
4. Smooth muscle dilation of the parotid gland

Answer: 3 - Smooth muscle contraction of the salivary gland

Explanations:

- Pilocarpine causes downstream effects that mediate the release of calcium. This release of calcium causes smooth muscle contraction in areas of the body that have M1-5 receptors, especially M3 receptors.
- Pilocarpine helps to stimulate the salivary gland to produce more saliva in those with xerostomia.
- It is important to review patient medications, as pilocarpine should not be used in those with drug-induced xerostomia.
- Its key to remember that radiation therapy to the head and neck can damage the salivary gland and a common symptom in these patients is xerostomia. This can be treated by using artificial saliva and using medications that help the saliva make and secrete saliva.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Pilocarpine



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Question 312: A 26-year-old man presents with unilateral jaw pain. He reports that the symptoms have been present for several months. He also experiences intraoral and facial pain on the same side. He has no past medical history and takes no regular medications. On examination, there is no facial swelling, motor weakness, or intraoral lesions. He undergoes CT imaging of the head and is noted to have an elongated styloid process. Which of the following clinical examination findings would most likely confirm the presumed diagnosis?

Choices:

1. Sharp neuralgic pain along one side of the face
2. Pain reproduced by palpation of the tonsillar fossa
3. Dysphagia
4. Tinnitus accompanied by vertigo

Answer: 2 - Pain reproduced by palpation of the tonsillar fossa

Explanations:

- Constant dull pain reproduced by palpation of the tonsillar fossa is the typical presentation of the Eagle syndrome, although it may cause sharp neuralgic pain in some cases.
- Dysphagia and tinnitus are less common symptoms in Eagle syndrome.
- Eagle syndrome is a rare condition where the patients complain of dull and persistent pharyngeal pain in the jaw, temporomandibular joint, back of the throat, and base of the tongue.
- It is triggered by moving the jaw, swallowing, or turning the neck.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Eagle Syndrome



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Question 313: A young 25-year-old woman presents to an outpatient department with a complaint of bad breath, for the past one month. There are no other associated symptoms. She brushes her teeth twice daily and flosses occasionally. Her vitals read a blood pressure of 120/80 mm Hg, a pulse of 78 beats per minute, and a temperature of 98.5 F. On further inquiry, it is revealed that she has been taking anti-histamines for the past two months due to a recent allergy. Among the direct methods of periodontal screening, which method can detect non-sulfur containing odoriferous molecules?

Choices:

1. Gas chromatography
2. Portable sulfide monitor
3. Organoleptic method
4. Ammonia monitoring

Answer: 3 - Organoleptic method

Explanations:

- Halitosis is defined as an unpleasant odor from the mouth. It may be genuine halitosis (physiological or pathological, with intraoral or extraoral causes), or delusional halitosis.
- Some of the commonest contributing factors are poor dental hygiene, smoking, gingival and periodontal diseases, deep carious lesions, tongue biofilm, intraoral neoplastic lesions, and other mucosal pathologies. Certain drugs like antihistaminics can also cause halitosis.
- Periodontal screening methods may be direct or indirect. The commonest direct method used is the organoleptic screening method, in which the clinician detects the odor from the other end of a plastic tube and grades it.
- Gas chromatography and portable sulfide monitoring are direct methods of screening, but both cannot detect non-sulfur containing molecules. Ammonia monitoring is one of the indirect methods of screening.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Halitosis



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Question 314: A 62-year-old man is undergoing alginate impression of the dentition to fabricate a removable partial denture. The clinician later finds that the bulk of impression material between tissues and tray was inadequate and decides to repeat the impression. Which of the following is the most likely cause of the impression failing?

Choices:

1. Tearing of impression
2. Distortion of the prosthesis
3. Rough stone model
4. Irregularly shaped voids

Answer: 1 - Tearing of impression

Explanations:

- There should be a minimum of 3 mm thick alginate between tissues and the impression tray. Less than 3 mm thickness does not provide enough body to the set alginate and hence it tends to tear during retrieval from the mouth.
- Moisture contamination of the alginate may be the reason for the tearing of impression.
- Premature removal before the material has reached sufficient strength and elasticity may cause tearing as well. Prolonged mixing of alginate also lead to tearing during removal from the mouth.
- Impression if not poured immediately, movement of the tray during gelation in mouth, premature and improper removal can lead to distortion and may have to repeat the impression. Inadequate cleaning of the impression, model left in impression for too long may lead to a rough stone model.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Dental Alginate Impressions



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Question 315: A 10-year-old girl presents with her mother for a dental check-up. She has no past medical or dental history. On examination, there are no caries or gum disease. On examination of the occlusion, the lateral upper incisors occlude behind the lingual aspect of the lower teeth. The profile is straight in centric occlusion and centric relation. There is a class I molar and canine relation. On further inquiry, the mother says that the girl bites her nails constantly. What are the subtypes of this patient's condition?

Choices:

1. Dental and functional
2. Skeletal, genetic and dental
3. Skeletal and functional
4. Dental, skeletal and functional

Answer: 4 - Dental, skeletal and functional

Explanations:

- A crossbite is a discrepancy in the buccolingual relationship of the upper and lower teeth. Anterior crossbite is present when one or more of the upper front teeth are in a linguo-occlusal relation with the lower.
- The etiology of a cross-bite includes over-retained deciduous teeth, hereditary influence, inadequate dental arch length, supernumerary teeth, habits like digit sucking, a skeletal-anteroposterior discrepancy of arches, and cleft lip and palate.
- Crossbite malocclusion can have a skeletal or dental component or a combination of both. It can also be functional which is also known as pseudo-class III.
- Functional anterior crossbite can be caused by mandibular hyper propulsion, which provokes a lower tongue position and a premature canine contact that entraps the upper maxilla.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Posterior Crossbite



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Section 10

Question 316: A 24-year-old man presents to the clinic with complaints of sensitivity to hot and spicy foods. On physical exam, the tongue is noted to be erythematous with atrophic changes of the filiform papillae with a serpiginous white hyperkeratotic border. Which of the following is most likely to play a protective role in the pathogenesis of the most likely cause of the patient's condition?

Choices:

1. Tobacco use
2. Atopic dermatitis
3. Hay fever
4. Allergic rhinitis

Answer: 1 - Tobacco use

Explanations:

- Tobacco use has been shown to play a protective role in the pathogenesis of geographic tongue.
- The incidence of geographic seems to be less in smokers than compared to nonsmokers.
- Tobacco use has been shown to play a protective role in the pathogenesis of geographic tongue possibly due to the increased keratinization and decreased TNF-alpha, IL-1 and IL-6 by macrophages via activation of nicotinic receptors.
- Atopic dermatitis, hay fever, and allergic rhinitis have not been shown to play a protective role in the pathogenesis of geographic tongue.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Geographic Tongue



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Question 317: A 65-year-old man with amyotrophic lateral sclerosis complains of persistent nocturnal cough. Plain films show segmental infiltrates and peribronchial thickening. He undergoes further evaluation. Barium swallow demonstrates increased penetration and, ultimately, passage into the trachea. There is no response noted when this occurs. What nerve function is responsible for the airway protection that has failed in this instance?

Choices:

1. Phrenic nerve
2. Superior laryngeal nerve
3. Thoracic nerves
4. Recurrent laryngeal nerve

Answer: 4 - Recurrent laryngeal nerve

Explanations:

- Neuromuscular disorders such as amyotrophic lateral sclerosis can put patients at significant risk of dysphagia and chronic aspiration by causing weakness of the muscles required for proper swallowing, speaking, and respiratory protection. If the vocal cords do not approximate fully, or if the ability to force expiration is diminished, there is a propensity for foreign material aspiration into the trachea. This can be observed on a barium swallow study.
- On videofluoroscopic swallowing study (VFSS) or barium swallow, penetration, aspiration, and response to aspiration can be observed. If the material penetrates the subglottic region, it is considered abnormal. If the material is not immediately expelled, it is considered a failure of the cough reflex, mediated by the recurrent laryngeal nerve.
- Sensory stimulation in the subglottic region elicits a normal cough reflex, stimulating laryngeal adduction and a forceful cough, ideally propelling the particulate out of the vocal cords and thereby preventing further harm from the aspiration.
- The recurrent laryngeal nerve is a branch of the vagus nerve and controls all muscular functioning of the glottic and subglottic region other than the cricothyroid muscle. This nerve is responsible for an adequate cough reflex, an important protective mechanism against chronic aspiration secondary to dysphagia.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Chronic Aspiration





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Question 318: A 12-year-old girl presents with her mother for a dental check-up. She has no past medical history. On examination, there are no caries or gum disease. On examination of the occlusion, the lateral upper incisors occlude behind the lingual aspect of the lower teeth. The profile is straight in centric occlusion and centric relation. There is a class I molar and canine relation. Which of the following is the most likely etiology of this patient's condition?

Choices:

1. Over retained deciduous teeth
2. Dental caries in primary teeth
3. Early loss of primary incisors
4. Eruption cyst

Answer: 2 - Dental caries in primary teeth

Explanations:

- A crossbite is a discrepancy in the buccolingual relationship of the upper and lower teeth. Anterior crossbite is present when one or more of the upper front teeth are in a linguo-occlusal relation with the lower.
- In the transverse dimension, normal occlusion is when in the anteroposterior plane, the upper incisors occlude on the labial aspects of lower incisors.
- The etiology of a cross-bite includes over-retained deciduous teeth, hereditary influence, inadequate dental arch length, supernumerary teeth, habits like digit sucking, a skeletal-anteroposterior discrepancy of arches, and cleft lip and palate.
- Crossbite malocclusion can have a skeletal or dental component or combination of both. It can be posterior or anterior.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Posterior Crossbite



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Question 319: A 65-year-old female who has recently undergone hematopoietic stem cell transplantation complains of 1 week of worsening pain in the mouth. She does not feel like eating much but does not endorse any unintentional weight loss. On physical exam, she appears thin, her heart sounds are regular with normal rate and rhythm, lungs are clear to auscultation, and the abdomen is soft and non-tender. The head and neck exam show erythematous ulcerations on the mucosal lining of the mouth without any exudates. Recent labs reveal a white blood cell count of 1,500 cells/microliter with an absolute neutrophil count of 450 cells/microliter. What is the initial step in management?

Choices:

1. Debridement with a toothbrush and oxycodone for 7 days
2. Antibacterial rinse as well as pain management with 2% viscous lidocaine and systemic analgesics
3. Referral to pain and palliative care specialist
4. Antimicrobial prophylaxis

Answer: 2 - Antibacterial rinse as well as pain management with 2% viscous lidocaine and systemic analgesics

Explanations:

- Systemic analgesics may be used to alleviate pain from oral mucositis in severe cases if topical therapies are not effective. A toothbrush can provide debridement; however, in patients with neutropenia, debridement can result in bleeding and subsequent translocation of bacteria into the bloodstream.
- Antibacterial rinse, as well as pain management with 2% viscous lidocaine and systemic analgesics to control pain, are the initial step in alleviating symptoms of oral mucositis.
- Referral to pain and palliative care specialist will be helpful for patients with uncontrolled pain from oral mucositis despite using the rinses and pain medication.
- Antimicrobial prophylaxis does not prevent mucositis. Antiviral prophylaxis prevents reactivation of herpes simplex virus, and fluconazole prevents the development of candida infection.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Oral Mucositis



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Question 320: A 65-year-old man with a 40 pack-year smoking history presents to the clinic with white lines on the jugal mucosa with a reticular configuration. Some erosions in the same area are observed as well. What is the best initial step in the management of this patient?

Choices:

1. Topical hydrocortisone
2. Surgical excision
3. Oral clindamycin
4. Oral cyclosporin

Answer: 1 - Topical hydrocortisone

Explanations:

- The patient most likely has oral lichen planus.
- Erosions are frequent in mucosal lichen planus (including the oral form).
- Topical superpotent corticosteroids have been proved useful for erosive oral lichen planus and are usually the mainstay of treatment.
- Surgery is not required unless malignant transformation is demonstrated. Cyclosporin can be used in severe cases of lichen planus, but not as a first-line treatment.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Lichen Planus Erosive Form



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Question 321: A 30-year old graduate student presents with a history of oral pain, bleeding gums, and “yellowish layer” over her gums which she started noticing a few weeks ago. Additionally, she has been feeling tired and feverish with sore lymph nodes for the past couple of months but hasn’t had time to see her clinician. What is the preferred next management?

Choices:

1. Check anti-nuclear antibody and anti-double-stranded DNA antibody
2. Check T3, T4, and Thyroid-stimulating hormone
3. Check HbsAg and Hbs antibody
4. Check HIV antibody via enzyme immunoassay

Answer: 4 - Check HIV antibody via enzyme immunoassay

Explanations:

- Cases of necrotizing ulcerative periodontitis (NUP) are almost always found in a patient who has an immunosuppressed condition.
- The most notable immunosuppressed condition found in these patients is HIV.
- Other noted immunosuppressed conditions include diabetes mellitus, leukemia, and neutropenia.
- Fatigue, fever, and swollen lymph nodes are other symptoms of acute HIV infection.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Necrotizing Periodontitis



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Question 322: A 36-year-old female presents with a 2- day history of moderate right cheek swelling with associated lymphadenopathy. Intra-orally, her upper right 6 is grade 2 mobile and tender to lateral percussion, with a massive, fluctuant gingival swelling. The tooth is vital, and radiographic findings include furcation involvement and bone loss around the distal root. She takes methotrexate for her psoriasis and has no known allergies. What would the appropriate management be?

Choices:

1. Urgent referral to the emergency department
2. Incise and drain intra-oral swelling and course of amoxicillin
3. A course of amoxicillin and review
4. Incise and drain intra-oral swelling

Answer: 2 - Incise and drain intra-oral swelling and course of amoxicillin

Explanations:

- A vital tooth, periodontally involved tooth with signs of infection, would indicate a periodontal abscess. Tenderness to lateral percussion suggests that the infection is surrounding the periodontium as opposed to periapical.
- The first line of management is to provide a source of drainage for the abscess. An incision should be made over the area of greatest fluctuance, and this should be irrigated with saline to help with drainage. Extraction of hopeless teeth can also provide a path of drainage, although it may be harder to anesthetize the tooth with the abscess present.
- Methotrexate is an immunosuppressant used to treat autoimmune conditions, including psoriasis. By reducing the immune response of the patient, it can make them more susceptible to severe infections, which could be considered an indication for antibiotic usage.
- The patient shows signs of systemic involvement with lymphadenopathy. Other signs include pyrexia, rapid breathing, tachycardia, and nausea. Urgent referral to the emergency department is indicated if there is a suspected airway risk or signs of sepsis.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Periodontal Abscess



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Question 323: A 10-year-old boy is brought to the clinic with a complaint of fractured tooth and sensitivity in the upper front teeth. The patient reports trauma to the tooth one month ago while playing. On clinical examination, dentinal fracture without any pulpal involvement is observed. Vital response is observed after electric pulp testing in the fractured tooth. What is the most appropriate treatment for this patient?

Choices:

1. Root canal treatment
2. Pulpotomy
3. Apexification
4. Composite restoration

Answer: 4 - Composite restoration

Explanations:

- Composite restoration is the treatment of the choice in vital teeth with no pulpal exposure observed.
- Composite restorations aid in the aesthetic and functional rehabilitation of the fractured anterior teeth.
- Composite restorations aid in the successful outcome, if proper beveling technique and bonding agent are used.
- Fiber-reinforced composite restorations are advised in the recent literature for the management of tooth fractures involving the dentine.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Tooth Fracture



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Question 324: A 21-year-old woman presents with sensitivity in her teeth. She has a past medical history of gastroesophageal reflux disease (GERD). On inquiry, the patient says she drinks about five to six cups of coffee and tea per day. On intraoral examination, there is a loss of enamel surface in all teeth, most severe in the posterior aspect of the front teeth. There are amalgam fillings in the lower first molars rising above the level of the adjacent tooth surface. The vertical dimension is mildly decreased. To which of the pathophysiological mechanisms did this patient's clinical history contribute?

Choices:

1. Attrition
2. Abrasion
3. Abfraction
4. Erosion

Answer: 4 - Erosion

Explanations:

- Erosion is known as the dissolution of hard tissue by acidic substances from noninfectious sources.
- The risk factors of developing erosion include conditions or drinking habits that decreased the salivary pH under the critic level 5.5.
- For example, GERD, bulimia nervosa, acidic beverages, and soft drinks consumption.
- Attrition is the wear of the teeth through the tooth to tooth contact. The flexing of the tooth can cause Abfraction during grinding. The weakest and the thinnest area of enamel is generally near the root surface, so this enamel is more susceptible to fractures off. Abrasion is the wear produced by the interaction between teeth and other materials, like tooth brushing.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Diet and Nutrition To Prevent Dental Problems



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Question 325: A 39-year-old African woman presents with a one-month history of a sudden onset of brown-black spots on the palate and gingiva. She denies any symptoms associated with the lesions. She has no past medical history and takes no medications. On inquiry, she reveals she has been using a hydrogen peroxide mouthwash that a friend recommended for bad breath for the last two months. On examination, there are three well-circumscribed flat brown-black lesions ranging from 5 to 8 mm in diameter on the hard palate, and one lesion located on the lingual gingiva of the upper first molar. An incisional biopsy shows stratified squamous epithelium with mild acanthosis and dendritic melanocytic proliferation throughout the epithelium. The lamina propria is unremarkable, and there is mild chronic inflammatory cell infiltration. Which of the following is correct regarding the comparison between these lesions and the solitary type?

Choices:

1. They have bigger diameters
2. They are usually raised
3. They are more often located on the buccal mucosa
4. They are darker

Answer: 4 - They are darker

Explanations:

- The patient in the clinical scenario presents with multifocal oral melanoacanthoma, a rare, benign macular brown-black lesion distinguished by a sudden appearance and rapid growth. It is found to be secondary to tissue trauma and self-limiting in nature. The traumatic agent can be a mechanical or chemical irritant, like a mouthwash.
- Multifocal lesions are usually more black with the mean diameter of each lesion smaller than the solitary ones.
- The number of these lesions ranges between two and five.
- The palate is more commonly affected by multifocal than by solitary lesions.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Oral Melanoacanthoma



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Question 326: A 2-year -old boy, presents with severe midface retrusion due to Apert syndrome. He is no longer able to fully close his eyes, though he has no obvious exposure keratopathy. He has Angle class II occlusion, and he can breathe well through his nose. However, his middle vault and nasofrontal junction are obviously significantly hypoplastic and retrodisplaced, and his eyes appear proptotic, and his eyelids do not fully cover them. In deciding which class of distraction and advancement surgery would be the most beneficial, which factor is of the highest priority?

Choices:

1. Malocclusion
2. Eye closure
3. Nasal airway
4. Profile midface retroposition

Answer: 2 - Eye closure

Explanations:

- In retrusive midface patients, there are anatomical abnormalities of components of multiple crucial structures, including the nasal airway, orbits, and oral apertures, in addition to the occlusal problems of the teeth.
- Of these, protection of the eyes and vision is most important. Avoidance of chronic exposure keratopathy is paramount.
- Repositioning of the inferior orbital rims to a more normal eyelid occlusal plane can significantly decrease the incidence of corneal abrasion or exposure-related problems.
- Midface distraction can alleviate many of this patient's problems. The orbital rims are advanced, as is the pyriform aperture to open the nasal airway. The globes assume a more normal relationship with the orbit and eyelids, allowing for a restoration of function of the lacrimal system.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Craniofacial Distraction Osteogenesis



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Question 327: A 49-year-old woman is undergoing LeFort I osteotomy. Immediately prior to down-fracturing the maxilla, the patient's mean arterial pressure is noted to be 59 mmHg. Maintenance of mean arterial pressure below 60 mmHg is most likely to have which of the following effects in this patient?

Choices:

1. Increased surgical time
2. Increased postoperative morbidity
3. Compromised blood flow to the osteotomized segment
4. Better visualization of the surgical field

Answer: 4 - Better visualization of the surgical field

Explanations:

- Hypotensive anesthesia is defined as maintaining a mean arterial pressure (MAP) of no higher than 60 mmHg for at least 10 consecutive minutes.
- Hypotensive anesthesia has been shown to reduce blood loss and provide better visualization of the surgical field but has not been shown to shorten the surgical duration (Level I). It has also been shown to decrease the length of hospital stay (Level II).
- In a quantitative analysis by McCabe et al. published in 2018: facial soft tissue perfusion was shown to decrease 41%-52% with an 18% decrease in MAP. These findings support the concept that less tissue perfusion leads to less blood flow and thus less bleeding in the surgical field.
- It is important to note that hypotensive anesthesia and the resulting hypoperfusion of tissues have the potential for deleterious effects on critical organs such as the brain, heart, and kidneys. Consideration should be given to patient selection, duration, and careful monitoring.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Le Fort Osteotomy



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Question 328: A 2-year-old boy is undergoing a cleft palate repair. The surgeon carefully dissects the palatal flaps in order to be mobilized from the lateral portion to the midline of the palate. Which of the following anatomical structures is most appropriate to be preserved at this point for the flaps to receive adequate blood supply?

Choices:

1. Descending palatine artery
2. Maxillary artery
3. Facial artery
4. Sphenopalatine artery

Answer: 1 - Descending palatine artery

Explanations:

- A key technical aspect when dissecting the palatal flaps is to preserve the descending palatine artery since it provides the blood supply to the hard and soft palates. It emerges from the greater palatine foramen.
- It is a branch of the maxillary artery.
- The maxillary and facial arteries are major vessels not located in the palate.
- The sphenopalatine artery is a branch of the maxillary artery. It emerges through the sphenopalatine foramen into the nasal cavity.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Cleft Palate Repair



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Question 329: A 45-year-old male presents with a solitary, painless nodule in his tongue. The pathology report revealed nests of cells with round to oval nuclei and distinctly granular eosinophilic cytoplasm. The cells were positive for S-100 and CD68. What is the most likely diagnosis for this lesion?

Choices:

1. Cellular neurothekeoma
2. Granular cell tumor
3. Reticulohistiocytoma
4. Fibrous papule, granular cell variant

Answer: 2 - Granular cell tumor

Explanations:

- Cellular neurothekeomas are epithelioid, nested, and negative for S-100. They have variable CD68 expression.
- Granular cell tumors are characterized by abundant eosinophilic granular cytoplasm and round to oval nuclei. The tongue is the most common site. They are strongly immunopositive for S-100 and CD68.
- Reticulohistiocytomas contain large histiocytes with eosinophilic ground glass cytoplasm, which may be foamy or vacuolated. Other inflammatory cells may be present. The histiocytes are CD68 positive and generally negative for S-100.
- Fibrous papules are characterized by ectatic vessels in collagenous stroma with scattered spindled to stellate fibroblasts. The granular variant has granular cells in the stroma.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Neurothekeoma



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Question 330: A 36-year-old otherwise healthy man undergoes submandibular gland excision for recurrent sialadenitis of the left submandibular gland. The procedure is completed, and the left submandibular gland is removed. On postoperative day 1, the patient is noted to have weakness in depression and lateral movement of the lower lip on the left side. Which of the following is the most likely cause for these findings?

Choices:

1. Intraoperative injury to the hypoglossal nerve resulting in reduced function of the genioglossus
2. Intraoperative injury to the marginal mandibular nerve resulting in reduced function of the depressor labii inferioris
3. Intraoperative injury to the marginal mandibular nerve resulting in reduced function of the buccinator
4. Intraoperative injury to the hypoglossal nerve resulting in reduced function of the depressor anguli oris

Answer: 2 - Intraoperative injury to the marginal mandibular nerve resulting in reduced function of the depressor labii inferioris

Explanations:

- The marginal mandibular nerve is a branch of cranial nerve VII that must be protected during submandibular gland surgery to avoid injury. The marginal mandibular nerve innervates the depressor labii inferioris, which pulls the lower lip down and laterally. Therefore, injury to the marginal mandibular nerve will result in the patient being unable to pull their lip down and laterally on the affected side.
- The marginal mandibular nerve may be injured during submandibular gland surgery.
- The marginal mandibular nerve innervates the depressor labii inferioris, which pulls the lower lip down and laterally.
- Option 1 is incorrect because although the hypoglossal nerve is often encountered during submandibular surgery, it innervates the musculature of the tongue (including the genioglossus), and injury to this nerve would not be expected to cause weakness of the lower lip. Option 3 is incorrect because the marginal mandibular nerve does not innervate the buccinator, which is innervated by the buccal branch of the facial nerve. Option 4 is incorrect because though the hypoglossal nerve is often encountered during submandibular surgery, it does not innervate the depressor anguli oris.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Submandibular Excision





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Question 331: A 74-year-old man with a history of hepatitis C presents to the clinic with a lesion on his tongue mucosa. He says it has been present for at least 10 years, but it has recently become tender. On physical examination, an irregular erosive patch, with an adjacent hyperkeratotic proliferation, surrounded by white lines in a lacy pattern is observed. What is the most appropriate management strategy for this patient?

Choices:

1. Incisional biopsy
2. Topical hydrocortisone
3. Topical tacrolimus
4. Reassurance

Answer: 1 - Incisional biopsy

Explanations:

- The question describes a patient with an erosive form of lichen planus.
- The hyperkeratotic proliferation should make us suspect the possibility of malignant transformation.
- Since malignant transformation is suspected, an incisional biopsy is warranted.
- Topical corticosteroids and calcineurin inhibitors, as well as oral corticosteroids, are all frequently used treatments in the management of oral lichen planus. However, malignant transformation should be ruled out first.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Lichen Planus Erosive Form



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Question 332: A 40-year-old man with a history of poorly controlled diabetes mellitus type 2 presents to the clinic with complaints of loss of sensation around the left ear that started right after his surgery for a left parotid lesion 1 month ago. This complication is most likely related to which of the following steps during the surgery?

Choices:

1. Identification of the tragal pointer
2. Dissection of the facial nerve
3. Suturing of the superficial musculoaponeurotic system back to the sternocleidomastoid muscle
4. Raising the anteriorly based skin flap

Answer: 4 - Raising the anteriorly based skin flap

Explanations:

- Loss of sensation around the ear is a common complaint after parotid surgery.
- Division of branches of the great auricular nerve is the reason for this sensory loss.
- Anterior branches of the great auricular nerve are inevitably divided while raising the anterior flap resulting in sensory loss.
- Preservation of the posterior branch of the great auricular nerve is possible and can decrease the significance of the disturbance.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Parotidectomy



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Question 333: A 30-year-old man presents referred by the speech and language therapist. The patient reports that he has problems with his tongue when kissing his girlfriend. He also mentions he is aware that he had breastfeeding difficulties when he was a baby. On examination, there is a tongue-free length of 11 mm. A diagnosis tool that evaluates the anatomy and function of the tongue is used. Which of the following parameters should be assessed in this classification system?

Choices:

1. Spread of anterior tongue
2. The appearance of the tongue in a resting position
3. The elasticity of the tongue
4. Pronunciation of the lingual letters

Answer: 1 - Spread of anterior tongue

Explanations:

- This patient presents with ankyloglossia, also known as tongue-tie. Common findings include a history of breastfeeding difficulty. The patients with ankyloglossia may present with problems with the articulation, but this does not always happen.
- When evaluating a patient with a suspected ankyloglossia, a detailed past medical history, clinical examination, and diagnosis tools should be utilized for classification and determination of the severity of the condition. One of these tools is the Hazelbaker assessment for lingual frenulum function. It uses a scoring system evaluating anatomy and function.
- The anatomical parameters included in this system are the appearance of the tongue when lifted, the elasticity of the frenulum, length of lingual frenulum when tongue lifted, attachment of lingual frenulum to the tongue, and attachment of lingual frenulum to the inferior alveolar ridge.
- The functional parameters include lateralization, lift of tongue, the extension of the tongue, spread, cupping of the tongue, peristalsis, and snap-back. The score consists of 10 points for frenulum appearance and 14 points for tongue function.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Ankyloglossia



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Question 334: A 33-year-old female presents to the clinic with firmly swollen lips for three months. She does not have a history of any hives or similar swelling in the past. She denies any gastrointestinal symptoms. An oral mucosal examination is unremarkable. Lip biopsy reveals non-caseating granulomas. Chest x-ray and HRCT scan are within normal limits. Which of the following is the best initial therapy for this patient?

Choices:

1. Injection with triamcinolone acetonide in the swollen lips every 3-4 weeks with oral clofazimine 100 mg per day for 3 months
2. Dimethyl fumarate 90-120 mg/day for 3 months
3. Intravenous infliximab 5 mg/kg given at 0, 2 and 6 weeks
4. Thalidomide 300 mg every night for 2-3 months

Answer: 1 - Injection with triamcinolone acetonide in the swollen lips every 3-4 weeks with oral clofazimine 100 mg per day for 3 months

Explanations:

- The patient qualifies for the diagnosis of cheilitis granulomatosa of Meischer [CGM] since, at present, there is no suggestion of MR syndrome or Crohn disease.
- The first line of therapy for CGM includes intralesional triamcinolone injections.
- Anti-inflammatory drugs, especially clofazimine, have a good level of evidence as adjuvant therapy.
- Dimethyl fumarate should be given only in recalcitrant cases. IV infliximab has been given for the treatment of refractory orofacial granulomatosis/CG associated with Crohn disease. This patient has a monosymptomatic form of the condition. In the absence of any symptoms of Crohn disease, the TNF-alpha inhibitor should be reserved as a later therapy. Oral thalidomide has been given with modest success in patients with MR syndrome. Although it can be tried in a patient with CGM as well, this patient is a woman of the reproductive age group. Therefore, thalidomide, a teratogenic drug, should preferably be avoided unless there are no other options.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Cheilitis Granulomatosa



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Question 335: A 15-year-old boy presents for a dental check-up. He has no past medical history. His past dental history includes nursing bottle caries in deciduous dentition and several fillings in the permanent dentition. The last time he visited a dentist was three years ago. On examination, his four first molars exhibit deep and narrow fissures and fossae on the occlusal surface. When placing plaque revealer on the teeth, there is long date plaque accumulation. The placement of a low viscosity material on this patient's molars to prevent the development of caries is recommended. What is the most likely time of acid etching?

Choices:

1. 15 seconds
2. 30 seconds
3. 40 seconds
4. 60 seconds

Answer: 1 - 15 seconds

Explanations:

- The etching time varies according to the concentration of orthophosphoric acid used and the type of dentition, and it remains the same when placing sealant or any class of composite restoration. The usual concentration of phosphoric acid used is 37%.
- Etching removes organic material and debris from the surface and produces micropores into which sealant can penetrate, creating mechanical adhesion in the form of resin tags.
- The etching time usually recommended is 15 seconds for permanent teeth and 30 to 60 seconds for primary teeth and teeth with dental fluorosis.
- The etched surface should appear dry and frosty white after drying with air due to the removal of the original surface enamel, up to 10 microns, which increases the surface area.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Pit and Fissure Sealants



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Question 336: A 15-year-old boy presents to the clinic with pain, sweating, and flushing over the left side of his face whenever he brings food to his mouth. He gives a history of fall from a height one month ago, which caused him to develop a fracture of the left mandible. His mandibular fracture was surgically corrected soon after that. The patient is afebrile with a blood pressure of 110/80mm Hg and a heart rate of 64/min. Which nerve carries the postganglionic parasympathetic fibers most likely responsible for this patient's symptoms?

Choices:

1. Lesser petrosal nerve
2. Auriculotemporal nerve
3. Medial pterygoid nerve
4. Lingual nerve

Answer: 2 - Auriculotemporal nerve

Explanations:

- The condition the patient is afflicted with is Frey syndrome, which is characterized by unilateral pain, sweating, and flushing following a gustatory stimulus. Fracture of the mandible can cause injury to the auriculotemporal nerve and, in turn, cause Frey syndrome. Minor starch-iodine test is used to confirm the diagnosis.
- The auriculotemporal nerve, which is connected to the otic ganglion through a communicating branch carries postganglionic parasympathetic and sympathetic fibers for the parotid gland.
- The lesser petrosal nerve after arising from the tympanic plexus in the middle ear cavity carries preganglionic parasympathetic fibers to the otic ganglion.
- The medial pterygoid nerve carries the motor fibers passing through the Otic ganglion to innervate the medial pterygoid muscle, tensor tympani muscle, and tensor veli palatini muscle. The lingual nerve carries the postganglionic parasympathetic fibers from the otic ganglion to the submandibular and sublingual gland.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Neuroanatomy, Otic Ganglion



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Question 337: Parents of an 18-month-old male child reported with a complaint of swelling, pain, and difficulty in eating for the past two weeks. History revealed the occurrence of swelling two weeks ago that gradually increased in size. There was an occasional reduction in volume, followed by an increase again. The child was unable to eat properly and was irritable. The child seemed to be well-nourished with normal motor coordination and slightly raised body temperature of the child. His behaviour was uncooperative. Intraoral examination revealed the presence of the maxillary and mandibular central and lateral incisors. Two swellings were present in the maxillary and mandibular right and left molar regions. The swellings were tender and fluctuant on palpation. Which among the following best describes the reason for the swelling?

Choices:

1. Traumatic injury
2. Gingival cysts
3. Eruption hematoma
4. Dental lamina cyst

Answer: 3 - Eruption hematoma

Explanations:

- An eruption hematoma presents as a bluish swelling over an erupting tooth.
- The color of the swelling is due to the filling of blood-tinged fluid in the follicle surrounding the erupting tooth.
- It is usually asymptomatic and ruptures spontaneously without any treatment.
- Sometimes, the size of the hematoma may cause pain and impair eating.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Anatomy, Head and Neck, Tooth Eruption



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Question 338: A 20-year-old male is undergoing a non-invasive dental procedure. He was found to have 'I' shaped clefts and invaginations on his right mandibular molar during an annual dental examination. During the procedure, the physician initially isolates the affected tooth. The tooth is cleansed, and pumice slurry is applied. This is followed by the application of 37 % orthophosphoric acid. An adhesive material is then used over the defects and is subjected to light exposure for 30 seconds. During the evaluation phase, however, surface voids were seen in the applied adhesive. Which of the following techniques could have prevented the development of this outcome?

Choices:

1. Avoiding pretreatment with acid
2. Applying copious amounts of adhesive
3. Use of chemically polymerizing adhesive
4. Vibrating the adhesive liquid

Answer: 4 - Vibrating the adhesive liquid

Explanations:

- This patient is undergoing a preventive application of sealant to dental pits and fissures. Applying sealants prevent slows down dental decay. The sealant forms a micromechanical barrier and prevents the development of caries. The procedure is technique intensive, and faulty technique can reduce sealant retention. The surface voids seen upon evaluation are micro-air bubbles.
- Air bubble formation can lead to undermining the effectiveness of sealants, especially if present at the margins. This can lead to the accumulation of dental plaque and the development of dental caries. The use of a dental probe to aid in the vibration of liquid resins can help in the expulsion of air bubbles.
- Care should be taken during placement to avoid the formation of air bubbles. If a bubble is visible after application, it can be gently teased out. Light-cured resins are free from time constraints and thus allow for a more thorough evaluation.
- Sealants, if adequately applied, can prevent the development of dental decay. Chemically activated polymerizing requires mixing and thus increase the risk of forming air bubbles. Etching with acid ensures strong adhesion.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Pit and Fissure Sealants



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Question 339: A 53-year-old female presents to a clinic with a bilateral burning sensation in her lips, tongue, and mouth for eight months. She mentions that the pain increases as the day progresses. She had her last menstrual period four years ago. She also suffers from mood changes and night sweats. The patient has a history of diabetes and hypertension for five years and has also been on anti-depressants for the past seven years. Exams by otolaryngologists and dentists have been normal. Laboratory investigations, including complete blood count, iron studies, urinalysis, thyroid tests, and autoantibodies, are within normal limits. Which among the following is the most suitable management option for this patient?

Choices:

1. Oral clonazepam and hormone replacement therapy
2. Non-steroidal anti-inflammatory drugs
3. ACE inhibitors
4. Levothyroxine

Answer: 1 - Oral clonazepam and hormone replacement therapy

Explanations:

- Burning mouth syndrome presents a painful burning sensation of the mouth, including tongue and mucosa. It is common in females and may be present for days, weeks, or months, often occurring for more than 6 months. A typical presentation is in peri-menopausal and menopausal women. Other risk factors include advancing age.
- There are 3 categories; in type 1, symptoms worsen throughout the day with variable nighttime symptoms. Type 2 is associated with chronic anxiety, usually with no nighttime symptoms. Type 3 has episodes of symptoms and symptom-free periods in between.
- There are associations with diabetes, chronic anxiety, major depression, dental materials, certain food allergies, ACE inhibitors, angiotensin receptor blockers, infections, and immunologic factors.
- Treatment is directed towards symptomatic control and managing associated conditions. Oral or topical clonazepam, viscous lidocaine, hormone replacement therapy, anti-depressants are considered. Other options include cognitive behavioral therapy and acupuncture. Burning mouth syndrome may be provoked with certain medications such as ace inhibitors, angiotensin blockers, and levothyroxine.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Burning Mouth Syndrome



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Question 340: A 27-year-old male sustained an anterior dislocation of his mandible following a seizure. The clinician reduced the dislocation but sustained a bite injury to her thumb during the procedure when the patient had another seizure. What mandible dislocation technique most likely resulted in this complication?

Choices:

1. Syringe technique
2. Wrist pivot technique
3. Bimanual technique
4. Extraoral technique

Answer: 3 - Bimanual technique

Explanations:

- When performing the bimanual or traditional technique for mandible dislocation, both thumbs are placed in the patient's mouth on the posterior-inferior molars.
- The clinician's thumbs or fingers are at risk when using an intraoral technique because they are placed in the patient's mouth. The clinician's thumbs are at risk when performing the bimanual and the recumbent/supine technique. The clinician's fingers are at risk when performing the wrist pivot technique as the thumbs are placed under the chin while the fingers are placed on the inferior molars.
- The clinician's thumbs can be protected using gloves and wrapping the thumbs in gauze or placing tongue depressors on the patient's molar surface.
- The syringe technique is performed by placing a 5-10 mL syringe horizontally in the posterior portion of the patient's mouth and directing the patient to roll the syringe back and forth. The extraoral technique is performed manually by external manipulation of the mandible one side at a time to reduce the jaw.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Mandible Dislocation



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Question 341: A 74-year-old man presents to the clinic for the replacement of missing teeth. A removable partial denture is being prepared for the patient with the help of alginate for impression making. The prosthesis is fabricated, and on the day of insertion, the dentist finds the denture to be deformed. Which of the following is the most likely cause of the complication?

Choices:

1. Use of perforated impression tray
2. The thickness of the alginate impression material between the tray and tissues was greater than 3 mm
3. Impression was removed from the mouth along a vertical path with a snap
4. Alginate impression was removed well within 3 minutes after gelation

Answer: 4 - Alginate impression was removed well within 3 minutes after gelation

Explanations:

- Alginate impressions should not be removed from the mouth for at least 3 minutes after gelation has occurred.
- Most alginate materials improve in elasticity over time; this minimizes distortion of material during impression removal.
- Moreover the compressive strength of alginate doubles during the first 4 minutes after gelation, thus helping in safe removal.
- Alginate is a viscoelastic material; its tear strength is increased when the impression is removed along a vertical path with a snap. It is always best to avoid torquing or twisting the impression in an effort to remove it quickly. The handle should be used minimally during the breaking of the air seal.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Dental Alginate Impressions



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Question 342: A 71-year-old African American woman presents with brown-black spots on the palate. The patient says she did not have these spots before and recently noticed them two weeks ago. She denies any pain or itchiness. She has a past medical history of hypertension and atrial fibrillation, well-controlled on medication. She denies smoking tobacco or drinking alcohol. There is no family history of malignancy. All her vital signs are within normal limits. On examination, there are six brown, well-circumscribed, macular lesions, ranging from 2 to 8 mm wide. A biopsy shows stratified squamous epithelium with mild acanthosis and dendritic melanocytic proliferation throughout the epithelium. The lamina propria is unremarkable, and there is mild chronic inflammatory cell infiltration. With which of the following is this lesion usually associated?

Choices:

1. Poor fitted removable prosthesis
2. Smoking
3. Recent dental restoration
4. Alcohol misuse disorder

Answer: 1 - Poor fitted removable prosthesis

Explanations:

- The patient in the clinical scenario presents with multifocal oral melanoacanthoma, which is a rare, benign, and asymptomatic pigmented lesion that in most cases presents as a singular lesion.
- The etiology of oral melanoacanthomas is not entirely clear, but there is strong evidence that is reactive in nature and related to a traumatic process. This traumatic agent may be mechanical or a chemical irritant.
- Bruxism, biting of the cheeks, inaccurate fitting removable prosthesis, implant surgery, and non-specific chronic trauma have been reported features anteceding the presentation of an oral melanoacanthoma.
- Oral melanoacanthomas tend to be self-limiting, and they spontaneously resolve or resolve after biopsy or elimination of the traumatic factor. To date, there have been no reported cases of malignant transformation, so the prognosis is good.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Oral Melanoacanthoma



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Question 343: A 60-year-old male presents to the otolaryngology clinic with complaints of reduced taste, sticky tongue, and dental caries. He has had the symptoms for the past several months and has tried multiple medications, but has had little relief. He had a history of squamous cell carcinoma of the oral cavity for which he underwent surgical resection and neck dissection 2 years ago. His surgery was followed by multiple sessions of radiotherapy. He states that his symptoms are particularly bothersome and have affected his quality of life. It was decided to start him on treatment with 100% oxygen administered at 2.4 atm. He was seen after his 20th session and reported good symptom control. Which of the following effects would likely be seen in this patient as a result of the new treatment?

Choices:

1. Decreased acini proliferation
2. Increased salivary microbiota
3. Decreased salivary pH
4. Increased salivary flow rate

Answer: 4 - Increased salivary flow rate

Explanations:

- This patient has presented with altered taste, oral stickiness, and dental caries likely as a result of decreased salivary secretion. His history of past head and neck radiation makes post-radiation mucositis the likely diagnosis. Radiation causes soft tissue injury and causes the destruction of salivary glands, leading to troublesome xerostomia.
- Hyperbaric therapy can be a useful modality in the treatment of soft tissue radionecrosis and has been shown to demonstrate an improvement in xerostomia. Increased tissue oxygenation reverses the hypoxia-mediated damage to salivary acini caused by radiation-induced obliterative endarteritis.
- Several important effects are observed after hyperbaric therapy is administered. An increase in salivary flow is usually observed due to the proliferation of salivary acini. Increased salivary flow improves taste perception and helps to prevent dental caries.
- Hyperbaric therapy also leads to a reduction of salivary colony density of microbes such as *Streptococcus mutans*, *Lactobacillus*, and *Candida albicans*. This further helps prevent dental caries.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Hyperbaric Soft Tissue Radionecrosis



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Question 344: A 21-year-old woman presents because she is not comfortable with her smile. The patient mentions that every time she smiles she shows her gums in excess comparing with other people and friends and that this affects her social interactions. She has no past medical history and takes no medications. On examination, the rest position of the lips is normal, and when the patient is instructed to smile, 4 mm of gum exposure is seen. Clinical crown lengths are decreased. Which of the following is the most appropriate next step to search for alveolar skeletal etiologies?

Choices:

1. Cone beam of upper and lower maxillas
2. Study models of both dental arches
3. Cephalometric analysis
4. Panoramic x-ray

Answer: 3 - Cephalometric analysis

Explanations:

- A gummy smile is characterized by an excessive gingival display when smiling. More than 2 mm of gum exposure is considered as a gummy smile.
- Necessary data for a proper diagnosis include medical and dental histories, extraoral and intraoral clinical examinations, study models, and photographs.
- The cephalometric analysis provides comprehensive information on craniofacial structures. However, the evaluation of a gummy smile is mainly clinical. Thus, this analysis serves to confirm the possible alveolar-skeletal etiologies.
- The causes for this anomaly include abnormal dental eruption proved by a short clinical crown of teeth, low-length or hyperactivity of the muscles of the upper lip or excessive vertical growth of the maxilla.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Orthodontics Gummy Smile



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Question 345: A 65-year-old male presents to the clinic with complaints of persistent sore throat, dysphagia, and ear pain for the last few weeks. The patient has a 50-pack-year smoking history. His occupational history includes 23 years of employment in an asbestos factory. Physical examination of the oral cavity reveals a 6.5 cm ulcer present on the left lateral pharyngeal wall. After assessment and evaluation, the lesion is found to be nonresectable. Which of the following is the best step in the management of this patient?

Choices:

1. Endoscopic laryngopharyngeal surgery
2. Daunorubicin-based chemotherapy along with radiotherapy
3. Cisplatin-based chemotherapy along with radiotherapy
4. Transoral laser microsurgery along with radiotherapy

Answer: 3 - Cisplatin-based chemotherapy along with radiotherapy

Explanations:

- The signs and symptoms, along with the history of tobacco use in addition to employment in an asbestos factory, are highly indicative of oropharyngeal squamous cell carcinoma. Oropharyngeal squamous cell carcinoma is a type of head and neck cancer and occurs in the middle part of the pharynx (oropharynx) which extends vertically from the oral surface of the soft palate to the superior surface of the hyoid bone and includes the base and posterior one-third of the tongue, the tonsils, soft palate, and posterior and lateral pharyngeal walls.
- There are two types of oropharyngeal cancers, HPV associated oropharyngeal cancer, which is due to an oral human papillomavirus infection, and non HPV associated oropharyngeal cancer, which is mainly due to tobacco use and alcohol use. Other less common risk factors include a diet low in vegetables and fruits, betel quid chewing, poor nutrition, marijuana use, asbestos exposure, and certain genetic mutations such as P53 mutations and CDKN2A (p16) mutations.
- A biopsy of the suspicious area is done to make a definitive diagnosis. The type of biopsy depends upon the location of cancer.
- Surgery and radiotherapy are the two principle modalities used the treatment of patients suffering from oropharyngeal cancers. Surgery or radiotherapy can be used primarily if the tumor is small and has not advanced. However, if the disease has advanced or the tumor is large, then a combination of surgery and radiotherapy is used for the treatment. Chemotherapy, in addition to surgery and radiotherapy, has been linked to increased survival in patients with oropharyngeal cancers. Following surgery, an increase in survival has been seen in patients undergoing induction chemotherapy or concomitant chemoradiotherapy. In the case of unresectable tumors, concomitant cisplatin-based chemotherapy, along with radiotherapy, is considered the gold standard and has shown to be better in terms of improving survival as compared to radiotherapy alone. However, some studies have shown a parallel prognostic profile of concomitant use of carboplatin or paclitaxel in stage III and IV non-metastatic oropharyngeal carcinomas but with fewer side-effects.

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Research Concepts:

Oropharyngeal Squamous Cell Carcinoma



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Question 346: A 29-year-old male is brought to the emergency department after a bar fight. He was hit in the face with a bat by the bartender. He passed out immediately. His girlfriend was able to pick up the two avulsed incisors teeth and brought it to the emergency department along with him. What is the critical dry time in an avulsed tooth?

Choices:

1. 10 minutes
2. 2 hours
3. 30 minutes
4. 60 minutes

Answer: 4 - 60 minutes

Explanations:

- Most teeth can be replanted if the extraoral dry time is less than 60 minutes. After this period, the survival of the tooth is unlikely.
- Storage media can increase the viability time of the periodontal ligament allowing for over 60 minutes.
- If the extraoral dry time is over 60 minutes, soaking the tooth in agents such as fluoride may decrease resorption rates.
- Immature teeth where the root has not yet completely formed have a greater chance of revascularization with soaking in doxycycline, increasing the chances in these teeth.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Avulsed Tooth



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Question 347: A 4-year-old boy is brought to the hospital after a fall. He was riding his big wheel and fell to the ground. The patient is noted to have his right upper (maxillary) lateral incisor missing. The tooth could not be found on the ground. Which of the following conditions is most appropriate to be ruled out first?

Choices:

1. Gum injury
2. Swallowing of the tooth
3. Aspiration of the tooth
4. Anemia

Answer: 3 - Aspiration of the tooth

Explanations:

- The differential diagnosis of the 'missing tooth' is an intrusion of the tooth into the socket, actual external loss, aspiration of the tooth into the respiratory tract, or swallowing the tooth into the gastrointestinal tract.
- Aspiration of the tooth becomes the most immediate concern secondary to the immediate or delayed respiratory symptomatology. Respiratory distress, cough, stridor, or wheezing may signal aspiration. A pulmonary abscess is a dreaded complication.
- An intruded primary tooth may be hidden by contused gingival tissue. Gentle probing may identify the intruded crown. Imaging may be necessary. An intruded primary tooth jeopardizes the permanent tooth germ.
- A primary tooth should never be re-implanted because of the fear of damaging the succeeding permanent tooth.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Avulsed Tooth



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Question 348: A 49-year-old man who is a farmer presents with a three-month history of a persistent painless mottling on the lower lip. He has no past medical history but he is an active smoker with a 25 pack-year smoking history. On examination, there are erosive lesions co-existing with atrophic areas on the vermillion border of lower lip. The patient has fair skin, blue eyes and is red-haired. A biopsy is taken which reveals the diagnosis of a premalignant condition. Which of the following best explains why the vermillion border of the lip is more vulnerable to this lesion?

Choices:

1. It has a thick keratin layer
2. It has a thin epithelium
3. It has more melanocytes
4. It has more sebaceous glands

Answer: 2 - It has a thin epithelium

Explanations:

- The patient in the clinical scenario presents with actinic cheilitis, which is a premalignant condition that most often presents on the vermilion of the lower lip.
- The vermilion border represents a vulnerable location to sunlight-induced lesions, like actinic cheilitis, because its epithelium is thinner, also has a thin keratin layer, and less melanin content.
- Those with fair skin have less melanin content, therefore are less protected against UV rays.
- The physical features of the lips, like their shape and being a transition area from oral mucosa to the skin, also make them a suitable area for the development of this lesion.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Actinic Cheilitis



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Question 349: A 35-year-old G1P0 woman presents at 37 weeks of gestation to the maternity and delivery unit. She has a past medical history of obesity. The pregnancy was uncomplicated. She gives birth via vaginal delivery uneventfully to a baby boy weighing 2500 grams. On newborn examination, he has a left lip separation through the white roll and vermilion border and downward displacement of the ala but an intact nasal sill. The palate is unremarkable. Which of the following can be used as a preventative measure for this anomaly?

Choices:

1. Niacin
2. Pantothenic acid
3. Folate
4. Biotin

Answer: 3 - Folate

Explanations:

- The patient in the clinical scenario presents with unilateral incomplete cleft lip with no associated cleft palate.
- Cleft lip formation is most likely influenced by a patient's genetic make-up but is multi-factorial. The mother's malnourishment, as well as exposure to phenytoin and steroids, smoking, and consuming alcohol during pregnancy, increase the likelihood of the development of the pathology.
- Folate, however, has been found preventative for cleft lip formation, and a lack of folic acid during pregnancy increases the chances of cleft lip presentation.
- In males, cleft lips most commonly occur on the left side.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Cleft Lip



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Question 350: A 23-year-old woman presents with a three-day history of pain in the jaw and difficulty in opening her mouth. She also reports pain in the jaw when speaking and swallowing difficulty. She says that the symptoms started after she had her lower right wisdom tooth extracted. On examination, there is swelling in the right side of her face, and the mouth opening measures 15 mm. If an error in the local anesthesia technique caused the patient's current presentation, which of the following would be the most likely cause?

Choices:

1. Intravascular injection of the anesthesia
2. Cutting of the pterygoid venous plexus
3. Tearing of the mucosa during withdrawal of the needle
4. Advancement of the needle more toward the posterior border of the mandible

Answer: 3 - Tearing of the mucosa during withdrawal of the needle

Explanations:

- The patient in the clinical scenario presents with a restriction in opening the mouth, known as trismus. Usually, trismus is temporary and resolves in less than two weeks, but permanent trismus may also occur.
- Trismus may be due to the tearing of the mucosa during the progression of the needle and even during the withdrawal of the needle.
- Complications arising from inferior alveolar nerve block may vary from being common to rare.
- Very rare reported complications include ptosis, extraocular muscle paralysis, and necrosis of skin of chin, diplopia, and abducens nerve palsy.

Go to the next page if you knew the correct answer, or click the link image(s) below to further research the concepts in this question (if desired).

Research Concepts:

Inferior Alveolar Nerve Block



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- Optometry-Clinical Science
- Patient Care Technician
- Physical Therapy
- Radiology Technology
- Radiology Tech-Nuclear Medicine
- Respiratory Therapist
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- Physical Therapy-Sports
- Lab-Microbiology Specialist
- Lab-Hematology Specialist
- EMR-First Medical Responder
- EMS-Community Paramedic
- Lab-Clinical Laboratory Scientist (MT)
- Lab-Medical Lab Technician (CLT)
- Occupational Therapy Assistant
- Certified Surgical 1st Assistant
- Psychiatric Technician
- EMS-Wilderness Medicine
- Certified Hyperbaric Technologist (CHT)
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Clinical Nurse Specialties

- CNS-Adult Health
- CNS-Adult Psychiatric Health
- CNS-Child/Adolescent Psych
- CNS-Diabetes Management
- CNS-Adult-Gerontology
- CNS-Home Health
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- CNS-Public Community Health
- CNS-Oncology

Dental Doctor Specialties

Graduate Specialties

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Medical Doctor Specialties

- Adolescent Medicine
- Allergy and Immunology
- Ambulatory and Urgent Care
- Anesthesiology
- Anesthesiology-Cardiothoracic
- Nurse Anesthetist
- Anesthesiology-Pediatric
- Advanced Trauma-Support
- Cardiology
- Cardiology-Electrophysiology
- Cardiology-Failure/Transplant
- Cardiology-Interventional
- Critical Care
- Dermatology
- Emergency Medicine
- Endocrinology

- Family Medicine
- Gastroenterology
- Genetics
- Geriatrics
- Hematology
- Hospice/Palliative Medicine
- Infectious Disease
- Internal Medicine
- Nephrology
- Neurology
- Neurology-Headache
- Neurology-Neurodevelopmental
- Neurology-Neuromuscular
- Obesity Medicine
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- Oncology
- Pain Medicine
- Pathology-Anatomic
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- Pediatric-Cardiology
- Pediatric-Critical Care
- Pediatric-Developmental
- Pediatric-Emergency Medicine
- Pediatric-Endocrinology
- Pediatric-Gastroenterology
- Pediatric-Hematology/Oncology
- Pediatric-Infectious Diseases
- Pediatric-Neonatal/Perinatal
- Pediatric-Nephrology
- Pediatric-Neurology
- Pediatric-Pulmonology
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- Physical Medicine
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- Spinal Cord Injury
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- Surgery-Cardiac
- Surgery-Colon and Rectal
- Surgery-Complex Oncology
- Surgery-Craniofacial
- Surgery-General
- Surgery-Gynecologic Oncology
- Surgery-Hand
- Surgery-Maternal and Fetal
- Surgery-Neurosurgery
- Surgery-Obstetrics/Gynecology
- Surgery-Ophthalmology
- Surgery-Oral
- Surgery-Orthopaedic
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- Surgery-Urologic Pediatric
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- Toxicology
- Undersea and Hyperbaric
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- Radiology-Breast
- Radiology-Urinary
- Radiology-Thoracic
- Radiology-Ultrasound
- Emergency Ultrasound
- Emergency-Emergency Medicine EMS
- UK Professional-Assessment Part I
- Australian Medical-Adaptive
- Canada MCC-QE 1
- Compliance Physician
- Clinical-Tropical Medicine
- Dermatopathology
- Dermatology-Pediatric
- Dermatology-Procedural
- Pathology-Laboratory Medicine
- Pathology-Chemistry
- Pathology-Cytopathology
- Pathology-Forensics
- Pathology-Hematology
- Pathology-Microbiology
- Pathology-Molecular Genetic
- Pathology-Pediatric
- Neurology-Critical Care
- Pediatric-Hospital Medicine
- Neurology-Epilepsy
- Neurology-Neurophysiology
- Wound
- Surgery-Oculoplastics
- Brain Injury Medicine
- Neurology-Vascular
- Optometry-Basic Science

- Optometry-Advanced Medical Care
- Osteopathic Neuromusculoskeletal Medicine
- Environmental and Wilderness
- Nutrition Medicine
- Quality Assurance & Utilization
- Surgery-Facial Plastics

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- COMLEX Level 2
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- Clinical Neurology-Medical Student
- Family Medicine-Medical Student
- Internal Medicine-Med Student
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- Psychiatry-Medical Student
- Surgery-Medical Student
- Emergency Medicine-Med Student
- Medicine Advanced-Med Student
- Pediatrics Advanced-Med Student
- Surgery Advanced-Med Student
- India Medical Exam (AIPGMEE)
- Dermatology-Medical Student
- Clinical Diagnosis
- Anatomy-Medical Student
- Behavioral Sci-Medical Student
- Biochemistry-Medical Student
- Embryology-Medical Student
- Genetics-Medical Student
- Histology-Medical Student
- Microbiology-Medical Student

- Neuroanatomy-Medical Student
- Path Clin Lab-Medical Student
- Pathology-Medical Student
- Pharmacology-Medical Student
- Physiology-Medical Student
- Philippine Physician Exam (PLE)
- Law, Medicine, and Ethics
- Ophthalmology-Medical Student
- Indonesia CBT Final Examination

Nurse Practitioner Specialties

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- NP-Diabetes Management
- NP-Family
- NP-Psychiatric/Mental Health
- NP-Adult-Geriatric Primary Care
- NP-Midwife
- NP-Pediatric Primary Care
- NP-Emergency Medicine
- NP-Women's Health Care
- NP-Acute Care Pediatric
- NP-Neonatal
- NP-Dermatology
- NP-Addiction
- NP-Genetics
- NP-Nephrology
- NP-Oncology
- NP-Orthopedic
- NP-Advanced Health Assessment
- NP-Advanced Pharmacology
- NP-Advanced Pathophysiology
- NP-Advanced Physiology

Physician Assistant Specialties

- PA-PANCE

- PA-PANRE
- PA-Cardiovascular/Thoracic
- PA-Emergency Medicine
- PA-Hospital Medicine
- PA-Nephrology
- PA-Orthopedic
- PA-Pediatric
- PA-Psychiatry

Pharmacist Specialties

- Pharmacy-NAPLEX Review
- Pharmacy-Ambulatory Care
- Pharmacy-Nutrition Support
- Pharmacy-Oncology
- Pharmacy-Pediatric
- Pharmacy-Pharmacotherapy
- Pharmacy-Psychiatric
- Pharmacy-Infectious Disease
- Pharmacy-Geriatric
- Pharmacy-Cardiac
- Pharmacy-Applied Toxicology

Nursing Specialties

- Nurse-LPN/LVN NCLEX PN
- Nurse-NCLEX RN
- Nurse-Addiction (CARN)
- Nurse-Administrator NE/NEA
- Nurse-AIDS/HIV (ACRN/AACRN)
- Nurse-Ambulatory Care
- Nurse-Perianesthesia CAPA/CPAN
- Nurse-Anticoagulation
- Nurse-Bariatric (CBN)
- Nurse-Breast Care
- Nurse-Cardiovascular CVN/CVRN
- Nurse-Case Management
- Nurse-Corrections (CCN)

- Nurse-Critical Care (CCRN)
- Nurse-Dermatology (DNC)
- Nurse-Developmental Disability
- Nurse-Diabetes Educator (CDE)
- Nurse-Emergency Certification
- Nurse-Flight Registered (CFRN)
- Nurse-Foot/Nail Care (CFCN)
- Nurse-Gastroenterology (CGRN)
- Nurse-Genetics Clinical (GCN)
- Nurse-Gerontology (NCA)
- Nurse-Hemodialysis (CHN)
- Nurse-Hospice/Palliative CHPN
- Nurse-Hyperbaric (CHRN)
- Nurse-Infection Control (CIC)
- Nurse-Infusion (CRNI)
- Nurse-Lactation (CLA)
- Nurse-Low Risk Neonatal (LRN)
- Nurse-Maternal Newborn (MNN)
- Nurse-Medical/Surgical
- Nurse-Neonatal Intensive Care
- Nurse-Nephrology (CNN)
- Nurse-Neuroscience (CNRN)
- Nurse-Occupational (COHN)
- Nurse-Oncology (OCN)
- Nurse-Operating Room (CNOR)
- Nurse-Ophthalmology (CRNO)
- Nurse-Orthopedic (ONC)
- Nurse-Otolaryngology (CORLN)
- Nurse-Pain Management (PMCN)
- Nurse-Pediatric (CPN)
- Nurse-Pediatric Critical Care
- Nurse-Pediatric Emergency CPEN
- Nurse-Pediatric Hem Onc (CPHON)
- Nurse-Inpatient Obstetric RNC
- Nurse-Plastic Surgery (CPSN)
- Nurse-Professional Development
- Nurse-Healthcare Quality

- Nurse-Progressive Care (PCCN)
- Nurse-Psychiatric Health
- Nurse-Radiologic (CRN)
- Nurse-Rehabilitation Registered
- Nurse-Risk Management (CPHRM)
- Nurse-Transport (CTRN)
- Nurse-Trauma Certification
- Nurse-Urologic Registered
- Nurse-Wound Care
- Nurse-Eating Disorders (CEDRN)
- Nurse-Neonatal Transport C-NPT
- Nurse-Trauma (TCRN)
- Nurse-Emergency Pediatric Certification
- Nurse-Certified Educator
- Nurse-Prehospital (PA PHRN)
- Nurse-Stroke Certified (SC-RN)
- Nurse-Community Health
- Nurse-Adult Medical Surgical RN
- Nurse-Maternal Newborn PN
- Nurse-Child Health RN
- Nurse-Mental Health RN
- Nurse-Fundamentals
- Nurse-Mental Health PN
- Nurse-Pharmacology RN
- Nurse-Professional and Ethics
- Nurse-Calculations
- Nurse-Maternal Newborn RN
- Nurse-Pharmacology PN
- Nurse-Adult Medical Surgical PN
- Nurse-Child Health PN
- Nurse-Anatomy
- Nurse-Physiology
- Nurse-Microbiology
- Nurse-Wound Care and Ostomy
- Nurse-Wound, Ostomy, and Continence
- Nurse-Nutrition
- Nurse-Lab and Diagnostic Testing

- Nurse-Elder Adult Care
- Nurse-Critical Care/Rhythms
- Nurse-Pathophysiology
- Nurse-Health Assessment