National Board Dental Hygiene Examination (NBDHE) Dental Hygienist Practice Test (Sample)

Study Guide

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Questions

1. Which of the following is the most radioresistant?

A. Glands

B. Reproductive organs

C. Bone Marrow

D. Nerves

2. What type of x-ray is defined as extraoral, taken outside the mouth to evaluate a joint?

A. Intraoral

B. Extraoral

C. Interoral

D. Periapical

3. What structure is formed by the trifurcation of maxillary molars?

A. Two roots

B. Three canals

C. Three roots

D. Single canal

4. What oral condition is associated with the Epstein-Barr virus?

A. Hairy leukoplakia

B. Oral candidiasis

C. Angular cheilitis

D. Glossitis

5. The patient shows some moderate marginal inflammation and plaque accumulation. What type of toothbrush should be recommended?

A. Medium bristled

B. Hard bristled electric

C. Soft bristled manual

D. Any of the above

6. The trigeminal nerve is responsible for innervating which of the following structures?

A. Muscles of facial expression

B. Muscles of mastication

C. Taste buds on the anterior tongue

D. Salivary glands

7. What nerve supplies the intrinsic muscles of the tongue?

A. Trochlear

B. Trigeminal

C. Glossopharyngeal

D. Hypoglossal

8. Which condition is characterized by the incomplete fusion of the palatine processes?

A. Cleft lip

B. Cleft palate

C. Oral fissures

D. Maxillary hypoplasia

9. What is the normal probing depth for healthy gingiva?

A. 3mm or less

B. 4mm or less

C. 5mm or less

D. 6mm or less

10. Which type of x-ray is primarily used for visualizing the interproximal areas of teeth?

A. Bite-wing

B. Panoramic

C. Periapical

D. Occlusal

Answers

1. D
2. B
3. C
4. A
5. C
6. B
7. D
8. B
9. A
10. A

Explanations

1. Which of the following is the most radioresistant?

A. Glands

B. Reproductive organs

C. Bone Marrow

D. Nerves

The most radioresistant tissues in the human body are typically those that are less actively proliferating. Nerve tissues have a low rate of cell division, which confers a degree of radioresistance when compared to tissues that are highly mitotic. This is because radiation primarily affects actively dividing cells. Other tissues, such as bone marrow and reproductive organs, have higher rates of cell turnover and are therefore more susceptible to the damaging effects of radiation. Glandular tissues can vary in their radioresistance depending on their activity and type (such as salivary glands being somewhat radioresistant, but others may not be). Nerve cells, being largely post-mitotic and not undergoing division regularly, have mechanisms that allow them to better withstand the effects of radiation exposure, which includes the ability to repair DNA damage more effectively. This relative resistance to radiation damage makes nerve tissues the most radioresistant among the options presented.

2. What type of x-ray is defined as extraoral, taken outside the mouth to evaluate a joint?

A. Intraoral

B. Extraoral

C. Interoral

D. Periapical

The correct answer is extraoral. This type of X-ray refers to imaging that is taken outside of the mouth, making it useful for evaluating structures such as the jaw joints (temporomandibular joints), as well as for diagnosing issues related to bone structures and overall facial skeletal anatomy. For instance, panoramic radiographs are a common form of extraoral imaging, providing a broad view of the entire dental arch and surrounding structures. In contrast, intraoral X-rays are taken inside the mouth and primarily focus on capturing details of individual teeth or segments of the dental arch. Interoral is not a standard term used in dental radiography, and periapical images, while a type of intraoral X-ray, specifically aim at capturing the apex of the tooth roots and the surrounding bone, typically not providing information about the joint area like an extraoral X-ray would.

3. What structure is formed by the trifurcation of maxillary molars?

A. Two roots

B. Three canals

C. Three roots

D. Single canal

The structure formed by the trifurcation of maxillary molars is indeed three roots. Maxillary molars typically have three separate roots: the mesial buccal root, the distal buccal root, and the palatal root. This anatomical feature is essential for understanding the arrangement and classification of maxillary molars in dental practice. Each root can also contain multiple canals, but the primary characteristic that defines the trifurcation is the presence of these three distinct roots. The structure supports the maxillary molars' capacity to endure significant chewing forces, facilitating stability and anchorage within the dental arch. Additionally, the division into three roots allows for better blood supply and nerve innervation, which are crucial for the overall health and function of the teeth. This anatomical configuration is a key aspect for dental hygienists to understand, particularly when planning for procedures such as scaling, root planing, or endodontic treatments.

4. What oral condition is associated with the Epstein-Barr virus?

A. Hairy leukoplakia

B. Oral candidiasis

C. Angular cheilitis

D. Glossitis

Hairy leukoplakia is indeed associated with the Epstein-Barr virus (EBV), particularly in immunocompromised individuals, such as those with HIV/AIDS. This oral condition is characterized by white patches on the lateral borders of the tongue, which can resemble lesions but are actually thickened epithelial cells with a viral component. It is important to recognize that hairy leukoplakia serves as a clinical marker for HIV infection and indicates immune suppression, making its association with EBV particularly significant in dental hygiene practice. Other conditions listed, such as oral candidiasis, angular cheilitis, and glossitis, are not caused by the Epstein-Barr virus. Oral candidiasis results from a fungal infection, often linked to an imbalance in the microbial flora or immune deficiency. Angular cheilitis typically arises from irritation or fungal infection at the corners of the mouth, while glossitis, which involves inflammation of the tongue, can have various causes including nutritional deficiencies and allergic reactions.

5. The patient shows some moderate marginal inflammation and plaque accumulation. What type of toothbrush should be recommended?

A. Medium bristled

B. Hard bristled electric

C. Soft bristled manual

D. Any of the above

A soft-bristled manual toothbrush is the most appropriate recommendation for a patient with moderate marginal inflammation and plaque accumulation. Soft bristles are gentle on the gums and teeth, which is especially important in cases of inflammation, as harder bristles can exacerbate sensitivity or lead to further irritation of the gum tissues. Using a toothbrush with soft bristles allows for effective plaque removal without causing additional damage to already inflamed or sensitive gums. Research supports that soft-bristled toothbrushes are highly effective in maintaining oral health and are less likely to contribute to gum recession or abrasion of the tooth enamel. While medium or hard-bristled brushes may seem effective for plaque removal, they pose a higher risk for damaging the gums and enamel, particularly in individuals with existing inflammation. An electric toothbrush could be beneficial for some patients, but if it has hard bristles, it could lead to similar risks associated with manual hard-bristled brushes. Therefore, the recommendation of a soft-bristled manual toothbrush aligns with best practices for managing inflammation while promoting effective oral hygiene.

6. The trigeminal nerve is responsible for innervating which of the following structures?

A. Muscles of facial expression

B. Muscles of mastication

C. Taste buds on the anterior tongue

D. Salivary glands

The trigeminal nerve, specifically its motor branches, plays a crucial role in innervating the muscles of mastication. This nerve is the fifth cranial nerve and is primarily responsible for sensory functions related to the face, but it also has a significant motor component that innervates key muscles involved in chewing, such as the masseter, temporalis, and pterygoid muscles. Understanding this anatomy is fundamental for dental hygienists, as it helps in comprehending how the muscles and nerves interact during oral procedures and the implications in cases of nerve injury or dysfunction. While the other answer choices include important anatomical structures, they do not pertain to the trigeminal nerve's function in muscle innervation. The muscles of facial expression are innervated by the facial nerve, taste sensation on the anterior tongue is provided by the facial nerve's chorda tympani branch, and salivary glands receive autonomic innervation primarily from the facial nerve and glossopharyngeal nerve, rather than the trigeminal nerve. This differentiation reinforces the understanding of the origins and functions of cranial nerves relevant to dental hygiene practices.

7. What nerve supplies the intrinsic muscles of the tongue?

A. Trochlear

B. Trigeminal

C. Glossopharyngeal

D. Hypoglossal

The intrinsic muscles of the tongue are primarily responsible for altering the shape and size of the tongue, enabling functions such as speech and swallowing. The hypoglossal nerve is the cranial nerve that innervates these intrinsic muscles. The hypoglossal nerve, also known as cranial nerve XII, specifically controls all the intrinsic muscles of the tongue as well as most of the extrinsic muscles, facilitating various movements. This nerve emerges from the medulla oblongata and innervates the tongue with motor fibers, allowing for precise movements. In contrast, other nerves listed serve different functions: the trochlear nerve is involved in eye movement, the trigeminal nerve primarily provides sensation to the face and motor functions for mastication, and the glossopharyngeal nerve is mainly responsible for the sensory and some motor functions of the pharynx and posterior part of the tongue. Therefore, the hypoglossal nerve is uniquely suited to facilitate the motor control of the intrinsic tongue muscles, making it the correct choice for this question.

8. Which condition is characterized by the incomplete fusion of the palatine processes?

A. Cleft lip

B. Cleft palate

C. Oral fissures

D. Maxillary hypoplasia

The condition characterized by the incomplete fusion of the palatine processes is cleft palate. This occurs during fetal development when the two palatine processes, which form the hard palate, fail to merge properly. As a result, there is an opening in the roof of the mouth, which can lead to difficulties with feeding, speech, and increased risk of ear infections due to the connection between the oral and nasal cavities. In this context, cleft lip pertains to a separate developmental defect where the lip does not fully form, which can occur alone or in conjunction with cleft palate but is distinct in its cause and manifestation. Oral fissures and maxillary hypoplasia refer to different types of congenital anomalies. Oral fissures typically imply openings or splits in oral structures and maxillary hypoplasia involves underdevelopment of the upper jaw, neither of which are specifically linked to the fusion of the palatine processes. Therefore, cleft palate is the most accurate choice for the condition involving the incomplete fusion of these anatomical structures.

9. What is the normal probing depth for healthy gingiva?

A. 3mm or less

B. 4mm or less

C. 5mm or less

D. 6mm or less

The normal probing depth for healthy gingiva is 3mm or less. In a healthy periodontal environment, the gum tissue adheres tightly to the tooth structure, and the probing depths typically range from 1 to 3mm. This range indicates that there is no clinical attachment loss and the gingival tissue is healthy. When probing depths exceed 3mm, it may suggest the presence of gingival inflammation or periodontal disease, which could indicate abnormal conditions such as gingivitis or periodontitis. Therefore, the 3mm measurement serves as a critical benchmark in dental assessments for determining periodontal health.

10. Which type of x-ray is primarily used for visualizing the interproximal areas of teeth?

A. Bite-wing

B. Panoramic

C. Periapical

D. Occlusal

The bite-wing x-ray is specifically designed for visualizing the interproximal areas of the teeth, particularly in the posterior region of the mouth. This type of radiograph captures the crowns of the teeth and the bone levels between adjacent teeth, making it highly useful in detecting interproximal caries, periodontal disease, and assessing restorative work. The unique positioning of the film or digital sensor in a bite-wing x-ray, which is placed parallel to the biting surface of the teeth, allows clinicians to see the contacts and potential cavities between them clearly. This characteristic makes the bite-wing x-ray an essential tool in routine dental examinations and preventive care. In contrast, panoramic x-rays provide a broad view of the entire dental arch and surrounding structures but do not focus on the details of interproximal spaces. Periapical x-rays capture the full length of individual teeth, including the root, but may miss the finer details of contacts between adjacent teeth. Occlusal x-rays are typically employed to view the occlusal surfaces of teeth or to visualize the jawbone anatomy, which does not prioritize interproximal assessment. Thus, the bite-wing is clearly the most effective option for evaluating the interproximal areas of teeth.