

Diploma in Radiological Technology (DRT) Practice Exam (Sample)

Study Guide



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SAMPLE

Questions

SAMPLE

- 1. What condition is characterized by chest tightness and difficulty completing sentences?**
 - A. Pneumonia**
 - B. Asthma**
 - C. Emphysema**
 - D. Acute bronchitis**
- 2. What best describes Burtonian lines?**
 - A. Transverse, white lines across the nail beds**
 - B. Thin, blue-black lines on the margin of the gums**
 - C. Ridges found on the skin**
 - D. Swelling around the eyes**
- 3. What is considered an elevated ESR in a clinical setting?**
 - A. Greater than 20**
 - B. Greater than 25**
 - C. Greater than 30**
 - D. Greater than 35**
- 4. What organism is commonly associated with sinusitis and acute otitis media?**
 - A. Moraxella catarrhalis**
 - B. Haemophilus influenzae**
 - C. Streptococci**
 - D. Pneumococci**
- 5. Which treatment would be least appropriate for a patient experiencing difficulty in breathing and chest pain?**
 - A. 5 units of pack RBC**
 - B. Oxygen**
 - C. Intravenous fluids**
 - D. Analgesics**

- 6. When evaluating joint conditions, what signifies the importance of X-ray findings?**
- A. To identify fractures solely**
 - B. To confirm inflammation only**
 - C. To determine chronic conditions**
 - D. To visualize structural abnormalities**
- 7. What age range is typically advised for individuals to begin colonoscopies?**
- A. 40-70 years**
 - B. 45-75 years**
 - C. 50-80 years**
 - D. 55-85 years**
- 8. What would chest x-rays for pneumonia or TB typically show?**
- A. Minor infiltrates**
 - B. Low, elevated diaphragm**
 - C. Moderate hyperinflation**
 - D. Blunting of costophrenic angle**
- 9. What physical feature may be present in a patient with Klinefelter syndrome?**
- A. Short stature**
 - B. Gynaecomastia**
 - C. Webbed neck**
 - D. Low-set ears**
- 10. What bacteria is known to cause chancroid?**
- A. Streptococcus pneumoniae**
 - B. Chlamydia trachomatis**
 - C. Haemophilus ducreyi**
 - D. Neisseria gonorrhoeae**

Answers

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

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Explanations

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1. What condition is characterized by chest tightness and difficulty completing sentences?

- A. Pneumonia**
- B. Asthma**
- C. Emphysema**
- D. Acute bronchitis**

The condition characterized by chest tightness and difficulty completing sentences is asthma. This respiratory condition affects the airways, causing them to become inflamed and narrowed, leading to difficulty in breathing. When a person with asthma experiences an attack, they may feel tightness in their chest, and the airflow may be restricted, making it hard to take deep breaths. This difficulty directly impacts their ability to speak in complete sentences as the person struggles to get enough air during an episode. Asthma may also present with wheezing, coughing, and shortness of breath, especially during physical activity or exposure to allergens. Understanding the symptoms of asthma is crucial for prompt management and treatment, particularly as they can vary in intensity from mild to severe. Recognizing this condition is essential for the proper care of affected patients in a clinical setting.

2. What best describes Burtonian lines?

- A. Transverse, white lines across the nail beds**
- B. Thin, blue-black lines on the margin of the gums**
- C. Ridges found on the skin**
- D. Swelling around the eyes**

Burtonian lines, also known as "Burton's lines," are characterized by their appearance as thin, blue-black lines at the margins of the gums. These lines are often associated with chronic lead poisoning, where lead deposition leads to the discoloration of the gingival tissues. This condition reflects the systemic effects of lead in the body and can serve as an important clinical indicator when assessing exposure levels. In contrast, other options involve different conditions or structures entirely; transverse white lines across the nail beds relate more to other health issues, such as malnutrition or systemic sickness, rather than specifically indicating lead exposure. Ridges found on the skin could represent various dermatological conditions but do not pertain to Burtonian lines. Lastly, swelling around the eyes could indicate allergic reactions or other unrelated medical conditions, none of which relate to lead exposure or Burtonian lines.

3. What is considered an elevated ESR in a clinical setting?

- A. Greater than 20
- B. Greater than 25
- C. Greater than 30**
- D. Greater than 35

An elevated erythrocyte sedimentation rate (ESR) is clinically significant as it can indicate the presence of inflammation, infection, or other disease processes in the body. The normal range for ESR can vary based on age and sex but is generally considered to be around 0-20 mm/hr for men and 0-30 mm/hr for women. In a clinical context, an ESR greater than 30 mm/hr is viewed as elevated and often prompts further investigation into potential underlying conditions. It is important to note that while higher ESR levels, such as those above 30, might not pinpoint a specific diagnosis, they indicate that further evaluation is warranted to determine the underlying issue contributing to these elevated levels. Thus, identifying an ESR greater than 30 as elevated helps healthcare professionals prioritize investigations for possible inflammatory diseases, autoimmune conditions, or infections that may be affecting the patient.

4. What organism is commonly associated with sinusitis and acute otitis media?

- A. *Moraxella catarrhalis***
- B. *Haemophilus influenzae*
- C. Streptococci
- D. Pneumococci

Moraxella catarrhalis is commonly associated with sinusitis and acute otitis media, particularly in children. This organism is a ubiquitous inhabitant of the human upper respiratory tract and is known to be one of the key pathogens involved in these conditions. It can contribute to inflammation and infection of the sinuses and middle ear, often manifesting in clinical presentations of sinusitis and ear infections. The role of *Moraxella catarrhalis* is especially significant in otitis media, where it can act as a primary or secondary pathogen. In the context of infections of the upper respiratory system, understanding this organism's prevalence and characteristics helps healthcare professionals make informed decisions regarding diagnosis and treatment. While other organisms listed can also cause similar conditions, *Moraxella catarrhalis* is particularly noted for its frequent association with these specific ailments, particularly in pediatric populations. This specificity in association primarily distinguishes it within the context of common pathogens for sinusitis and otitis media.

5. Which treatment would be least appropriate for a patient experiencing difficulty in breathing and chest pain?

A. 5 units of pack RBC

B. Oxygen

C. Intravenous fluids

D. Analgesics

The treatment that would be least appropriate for a patient experiencing difficulty in breathing and chest pain is the administration of 5 units of packed red blood cells (RBC). In an acute setting where a patient presents with respiratory distress and chest pain, the immediate priorities are to ensure adequate oxygenation, relieve pain, and address possible underlying causes such as inflammation, infection, or cardiac issues. Packed red blood cells are typically used to treat anemia or significant blood loss where there is a need to increase the hemoglobin level and improve the oxygen-carrying capacity of the blood. However, in a situation where the patient is having difficulty breathing and chest pain, the focus should be on providing oxygen to address potential hypoxia and on pain management to alleviate discomfort, particularly if the pain is related to myocardial ischemia or other serious conditions. Oxygen therapy is crucial for patients with breathing difficulties to improve oxygen saturation levels, while intravenous fluids can be indicated if there's a concern about volume status or potential shock. Analgesics can help manage chest pain, especially if it's related to muscle strain or other non-cardiac causes. Therefore, the management of such patients necessitates immediate interventions that directly address the symptoms and potential underlying conditions rather than administering blood products, which are

6. When evaluating joint conditions, what signifies the importance of X-ray findings?

A. To identify fractures solely

B. To confirm inflammation only

C. To determine chronic conditions

D. To visualize structural abnormalities

The importance of X-ray findings in evaluating joint conditions is primarily to visualize structural abnormalities. X-rays are a critical tool in medical imaging because they provide clear images of the bone structure surrounding the joint. This allows healthcare professionals to assess for various issues such as bone erosion, joint alignment, and any structural changes that may indicate underlying pathologies like arthritis, degenerative joint disease, or tumors. By visualizing these abnormalities, clinicians can make informed decisions regarding diagnosis and treatment options. While identifying fractures, confirming inflammation, and determining chronic conditions are all significant aspects of joint evaluation, X-rays are most valuable for their ability to reveal the structural integrity and changes in bones and joints. This foundational understanding of the bone structure is essential before more advanced imaging techniques, such as MRI or CT scans, are utilized for further assessment.

7. What age range is typically advised for individuals to begin colonoscopies?

A. 40-70 years

B. 45-75 years

C. 50-80 years

D. 55-85 years

The recommended age range for individuals to begin colonoscopies has undergone updates, primarily due to research indicating earlier incidence rates of colorectal cancer. The current guidelines suggest that average-risk individuals should start screening for colorectal cancer at age 45. Therefore, the recommendation to begin colonoscopies at ages 45 to 75 aligns with these guidelines, making this range the most appropriate choice. Colonoscopies serve as a vital screening tool for detecting precancerous lesions and colorectal cancer early when treatment can be more effective. Since the risk of colorectal cancer increases with age and early detection is crucial, the specified age range takes into consideration both the emergence of risk factors and the likelihood of successful outcomes from screening interventions.

8. What would chest x-rays for pneumonia or TB typically show?

A. Minor infiltrates

B. Low, elevated diaphragm

C. Moderate hyperinflation

D. Blunting of costophrenic angle

Chest X-rays for pneumonia or tuberculosis typically show a variety of radiographic signs that indicate the presence and extent of infection in the lungs. In cases of pneumonia, you would often observe areas of consolidation or infiltrates in the affected lung fields, which result from the accumulation of fluid, pus, or other cellular debris in the alveoli. This infiltrative pattern is best described as more than minor, typically presenting as patchy or dense areas, depending on the severity of the infection. In the context of tuberculosis, a common finding is cavitory lesions and possibly Ghon complexes, which can also be identified on chest X-rays but may not be adequately described by "minor infiltrates." The perception of radiographic findings as "minor" might lead to an underestimation of the severity of the pathology. The presence of elevated or low diaphragms, hyperinflation, or blunting of the costophrenic angle is more specific to different conditions. An elevated diaphragm can occur due to pleural effusion, while hyperinflation could indicate obstructive pulmonary disease rather than infection. Blunting of the costophrenic angle is often associated with pleural effusions rather than direct indicators of pneumonia or TB. Thus, the identification of infiltrates

9. What physical feature may be present in a patient with Klinefelter syndrome?

- A. Short stature
- B. Gynaecomastia**
- C. Webbed neck
- D. Low-set ears

Klinefelter syndrome is a genetic condition that occurs in males who have an extra X chromosome, typically manifesting as XXY rather than the usual XY. One of the most notable physical features associated with Klinefelter syndrome is gynaecomastia, which refers to the development of breast tissue in males. This occurs due to hormonal imbalances, particularly with increased estrogen levels relative to testosterone, and can be an identifying characteristic of the syndrome. Gynaecomastia can vary in severity and may cause psychological distress or embarrassment for those affected. It is important for healthcare providers to recognize this condition, as it can have implications for managing not just the physical aspect but also the social and psychological impacts on the patient. The other features mentioned, such as short stature, webbed neck, and low-set ears, are not specifically characteristic of Klinefelter syndrome. Short stature can occur in various genetic or health conditions but is not definitive for Klinefelter. Webbed neck is more commonly associated with Turner syndrome, which affects females. Low-set ears can be a feature of multiple syndromes and are not unique to Klinefelter syndrome. Recognizing the hallmark features of Klinefelter syndrome, such as gynaecomastia

10. What bacteria is known to cause chancroid?

- A. *Streptococcus pneumoniae*
- B. *Chlamydia trachomatis*
- C. *Haemophilus ducreyi***
- D. *Neisseria gonorrhoeae*

Chancroid is a sexually transmitted infection characterized by painful sores or ulcers on the genitalia, and it is specifically caused by the bacterium *Haemophilus ducreyi*. This organism thrives in the warm, moist environments of the genital area and leads to the formation of soft chancres, which are distinguished from other genital ulcer diseases by their characteristics and painful nature. Understanding the causative agent is crucial for effective diagnosis and treatment. *Haemophilus ducreyi* requires specific culture conditions for detection, and recognizing it as the causative agent helps differentiate chancroid from other sexually transmitted infections that might present similar symptoms. The other bacteria listed, while they may be associated with sexually transmitted infections, are not responsible for the condition known as chancroid. For instance, *Streptococcus pneumoniae* is primarily known for causing pneumonia and other respiratory infections, *Chlamydia trachomatis* is the leading cause of bacterial STIs, known for chlamydia, and *Neisseria gonorrhoeae* is responsible for gonorrhea. Each of these organisms has distinct clinical presentations and treatment protocols. Thus, identifying *Haemophilus ducreyi* specifically as the cause of chancroid is essential for proper public health management and clinical response.