

Pathology Revision.

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Content:

5 MCQs.

2 Case History.

2 General Questions.



MCOs: (the answers are in the next page)

- 1- Which of the following statements is correct?
- A) Osteogenesis Imperfecta is caused by dietary insufficiency.
 - B) Osteoporosis rarely occurs in men.
 - C) Osteomalacia and Rickets are caused by lack of Vitamin K.
 - D) Bowing of the legs is a feature of Osteomalacia.
- 2- Which of the following statements is correct?
- A) Staphylococcus Aureus is responsible for the majority cases of pyogenic¹ osteomyelitis.
 - B) Osteomyelitis may complicate compound fractures.
 - C) Following it fracture, the scaphoid bone is particularly vulnerable (مُعَرَّض) to avascular necrosis².
 - D) Osteosarcomas are the most common bone tumors.
 - E) Bone tumors may form cartilage.
- 3- Which of the following statements is true about Osteoarthritis?
- A) Can be caused by bacterial infection of articular cartilage.
 - B) It is a multisystem disease.
 - C) It is characterized by Pannus formation.
 - D) Usually affect the weigh-bearing joint.
 - E) Associate by Heberden's nodes which represent osteophytes at the distal interphalanges joints.
- 4- Which of following statements is true?
- A) Rheumatoid Arthritis is a multisystem disease.
 - B) Rheumatoid factor is an autoantibody that is directed against articular cartilage.
 - C) In Rheumatoid Arthritis, joint deformities may develop in the hands.
 - D) The majority of patients with ankylosing spondylitis are HLA-B27 positive.
- 5- Which of the following statement is true?
- A) Bacterial infective arthritis may cause joint destruction.
 - B) Gout is due to deposition of calcium pyrophosphate crystals within the joint.
 - C) The joint most frequently affected by gout is knee joint.
 - D) Use of diuretics may predispose to the developmental of gout.
 - E) The crystals seen in joints affected by pseudogout are rhomboid in shape and exhibit positive birefringence of polarizing microscopy.

1) Pyogenic: Bacteria which are capable to produce purulent (exudate, pus)

2) Avascular Necrosis: also known as osteonecrosis or bone infarction, results in dead bone (infarcted bone) which makes it hard for the healing process.

Answers:

For the first question:

- A) False, because it is an inherited disease due to mutation or defection if collagen type I chains.
- B) False, it occurs frequently and slightly less than females.
- C) False, it caused by Vitamin D deficiency.
- D) False, it is a feature for Ricket's. (Although the pathogenesis is the same, but the difference between ostemalacia and ricket is incidence (Ricket's occurs in children)

For the second question:

- A) True.
- B) True.
- C) True.
- D) False, osteosarcomas are the most common **primary** bone tumors. Metastases are the most common bone tumors **in general**.
- E) True.

For the third question:

- A) False, it caused by wear and tear or aging.
- B) False.
- C) False. {Remember that pannus is an abnormal layer of fibrovascular tissue or granulation tissue}
- D) True.
- E) True. {Remember that Bouchard's nodes take a place in proximal metacarpophalangeal joint}

For the fourth question:

- A) True.
- B) False, Rheumatoid factor; is IgM directed to FC portion (or segment) of IgG. I.e. It is an autoantibody against antibodies not against articular cartilage.
- C) True.
- D) True. {Note that the rheumatoid arthritis patients are positive for **HLA-DR1**}

For the fifth question:

- A) True.
- B) False, gout is due to deposition of uric acid or urate crystals. Calcium pyrophosphate deposition causes chondrocalcinosis or pesudogout, especially in old people (above 50) and they (patients with chondrocalcinosis or pesudogout) do not present Hyperuricosuria (high uric acid in the urine)
- C) False, it is the Big toe, more specifically the metatarsophalangeal of the big toe.
- D) True.
- E) True.

Case History 1:

A 60-year-old woman attends the accident and emergency department complaining of pain in her left hip following a trivial (minor) fall. A history reveals that she has been getting backache for some time. She is otherwise well but has been on steroids for Crohn's disease for some time. An X-ray demonstrated a fractured femoral neck.

Q1) what underlying diagnoses would you consider?

Answer: Osteoporosis due to: 1- Gender, 2- Steroid, 3- Aging.

Q2) how would this patient be managed?

Answer: 1- Fixing or replacing her femoral neck. 2- Treatment for osteoporosis.

Case History 2:

A 71-year-old man, has 20 years history with Rheumatoid arthritis, usually he attend to rheumatology outpatients clinic for investigation and checking over his situation. He presently on NSAIDs and cyclophosphamide. At his last appointment in the clinic, he complained about increase shortness of breath in during simple or minor effort (e.g. claiming the stairs). Serum hematology shows a normocytic anemia.

Q1) what are the deformities you may expect to see in the hand of this patient?

Answer: Swan-neck deformity, boutonniere deformity, ulnar deviation for the finger, radial deviation for the wrist.

Q2) what is the cause for the shortness of breath?

Answer: Secondary interstitial lung disease due to rheumatoid arthritis.

Q3) what are the possible causes of anemia?

Answer: 1- Chronic disease. 2- She is taking NSAIDs which may cause bleeding for GIT.

General Questions:

1) What is the etiology of osteomalacia?

Answer: Vitamin D deficiency.

2) What is the pathogenesis of osteomyelitis?

Answer:

Spread of bacteria and inflammation within the shaft of bone and may percolate through haversian system to reach periosteum further ischemia and bone necrosis occurs .

Bacteria proliferate and induce acute inflammatory reaction and cause cells death ,

Dead pieces of bone known as the sequestrum

Chronic inflammation after first week inflammatory cells become numerous and release cytokines new bone deposited at the periphery known as involucrum .

In children the periosteum attached to cortex therefore sizable subperiosteal abscess formation occurs .

The main cause of osteomyelitis is S.aureus bacteria