Kaplan USMLE Step 2 prep: Man has history of hypercholesterolemic

If you’re preparing for the United States Medical Licensing Examination® (USMLE®) Step 2 exam, you might want to know which questions are most often missed by test-prep takers. Check out this example from Kaplan Medical, and read an expert explanation of the answer. Also check out all posts in this series.

This month’s stumper

A 61-year-old man with a two-month history of hypercholesterolemia comes for a follow-up visit. He denies abdominal pain, nausea, vomiting, diarrhea, or constipation. He reports mild, chronic bilateral ringing in his ears. His medical history is unremarkable. He has had one surgery to repair a femoral fracture 18 years ago. He exercises four times a week. Current medications include pravastatin. Examination shows bilateral mild hearing loss. Serum studies show:

- Aspartate aminotransferase (AST, GOT): 20 U/L.
- Alanine aminotransferase (ALT, GPT): 12 U/L.
- Alkaline phosphatase: 512 U/L.
- Bilirubin, total: 0.8 mg/dL.

Serum gamma-glutamyl transpeptidase level and calcium level are within normal limits.

Which of the following is the most likely diagnosis?

A. Osteitis deformans.

B. Osteitis fibrosa cystica.

C. Osteogenesis imperfecta.
The correct answer is A.

Kaplan Medical explains why

This patient has Paget disease of the bone, or osteitis deformans. Paget disease is a focal disorder of bone remodeling that results in increased bone turnover and abnormal bone architecture. Patients are often asymptomatic but may present with gross skeletal abnormalities (bowing, long-bone fractures, increased skull circumference), bone pain, deafness, nerve compression syndromes, or simply an abnormally elevated alkaline phosphatase level. Serum calcium and phosphorus levels are usually normal. Treatment is with antiresorptive agents, such as the bisphosphonates.

Why the other answers are wrong
Choice B: Osteitis fibrosa cystica, or Recklinghausen disease of the bone, is bone demineralization caused by primary hyperparathyroidism or other causes of rapid mobilization of mineral salts. There is nothing to suggest that this patient has such a condition.

Choice C: Osteogenesis imperfecta, or brittle bone disease, is a collagen synthesis disorder that results in extremely fragile bones. It usually presents in childhood and is not associated with the other findings in this patient, such as an elevated alkaline phosphatase level and tinnitus.

Choice D: Osteomalacia results from a vitamin D deficiency, which would not be expected in this patient. Furthermore, although osteomalacia may cause an elevated alkaline phosphatase level, calcium levels are usually low, whereas in Paget disease, calcium levels are usually normal or elevated.

Choice E: Osteopenia is a nonspecific term used to describe bone demineralization. This patient has increased bone resorption and remineralization.

Tips to remember

- Paget disease, or osteitis deformans, is characterized by increased bone turnover and abnormal bone architecture.
- Paget disease causes gross skeletal malformation, deafness, nerve compression syndromes, pathologic fracture, and/or an abnormally elevated alkaline phosphatase level.

For more prep questions on USMLE Steps 1, 2 and 3, view other posts in this series.

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