

Visual Vignette

Submitted by

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Case Presentation: A 55-year-old postmenopausal woman presented to the outpatient clinic with mechanical lower back-ache. She also had a history of tinnitus in conjunction with bilateral sensorineural hearing loss. Physical examination was noncontributory. Her pelvic radiograph and whole-body technetium bone scans are shown in Figures 1 and 2, respectively. Her serum alkaline phosphatase level was 610 U/L. Drug treatment was initiated. Seven months later, she presented with proximal muscle weakness. Her laboratory studies revealed a serum calcium concentration of 8.3 mg/dL, a serum phosphorus level of 2.8 mg/dL, and an alkaline phosphatase value of 198 U/L. **What was the initial diagnosis? Which drug was used for treatment? What should be considered as the possible diagnosis at her second visit?**

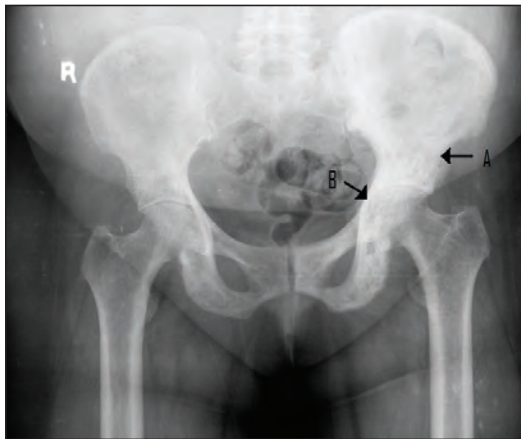


Fig. 1

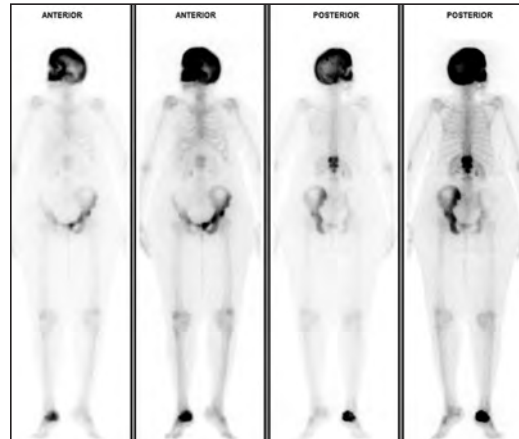


Fig. 2

Answer: The diagnosis considered at initial presentation of the patient was Paget disease of bone. The pelvic radiograph (Fig. 1) revealed sclerosis, prominently involving the left hemipelvis (arrow A) in association with reduction of the joint space at the hip (arrow B). The whole-body technetium bone scan of the patient (Fig. 2) clearly showed areas of increased uptake in the skull, thoracolumbar vertebrae, and left hemipelvis, consistent with a diagnosis of Paget disease. She was treated with alendronate in orally administered weekly doses. At 7-month follow-up, she presented with proximal muscle weakness. Her laboratory studies revealed borderline low serum calcium and phosphorus levels and an elevated alkaline phosphatase value. Her 25-hydroxyvitamin D₃ levels were less than 5 ng/mL. A diagnosis of vitamin D deficiency was made, and vitamin D supplementation was initiated. Her proximal muscle strength improved within 6 months, and laboratory findings returned to normal.

This case serves to demonstrate that bisphosphonate therapy may unmask occult vitamin D deficiency. Several case reports have described the development of symptomatic hypocalcemia during bisphosphonate treatment, in patients found to have vitamin D deficiency on further investigation (1,2). Available data suggest that relative vitamin D deficiency may be present in patients with Paget disease (3). Such patients may have evidence of osteomalacia on biopsy, even with normal serum vitamin D levels. This result may be due to the increased bone turnover that is characteristic of this disease. The foregoing data suggest that it would be prudent to screen all patients at risk of vitamin D deficiency before initiation of bisphosphonate therapy. Vitamin D deficiency must be considered in patients with Paget disease of bone who do not demonstrate an adequate response to therapy (3). It must be remembered that the presence of one metabolic bone disease does not preclude the presence of another.

REFERENCES

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3. de Deuchaisnes CN, Rombouts-Lindemans C, Huaux JP, Devogelaer JP, Withofs H, Meersseman F. Relative vitamin D deficiency in Paget's disease. *Lancet.* 1981;11:833-834.

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