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Brown tumor of the pelvis

A 39-year-old man presented with acute left hip pain and inability to bear weight following a minor trauma. The patient had a history of polycystic kidney disease and was on dialysis. Five years ago he had undergone bilateral nephrectomy and a renal transplantation that subsequently failed.

On examination, the active and passive range of motion of the left hip were limited due to pain. His serum laboratory values were:

- Parathyroid hormone 259.7 pmol/L (reference range 1.5–9.3)
- Calcium 2.32 mmol/L (1.15–1.32)
- Phosphate 3.26 mmol/L (0.8–1.45).

Computed tomography of the pelvis revealed an exophytic calcified lesion with multiple cystic spaces and fluid-fluid levels centered on the left pubis, extending medially into the right pubis and laterally into the left adductor muscle group. An acute pathologic fracture was documented in the left inferior pubic ramus (**Figure 1**). Other radiographic signs of long-standing hyperparathyroidism were present, including subperiosteal bone resorption at the radial side of the middle phalanges and the clavicle epiphysis.

The differential diagnosis of the pelvic lesion included giant cell tumor of bone with aneurysmal bone-cyst-like changes, osteitis fibrosa cystica, and, less likely, metastatic bone disease. Biopsy of the lesion showed clusters of osteoclast-type giant cells on a background of spindle cells and fibrous stroma that in this clinical context was consistent with the diagnosis of brown tumor (**Figure 2**).[1]

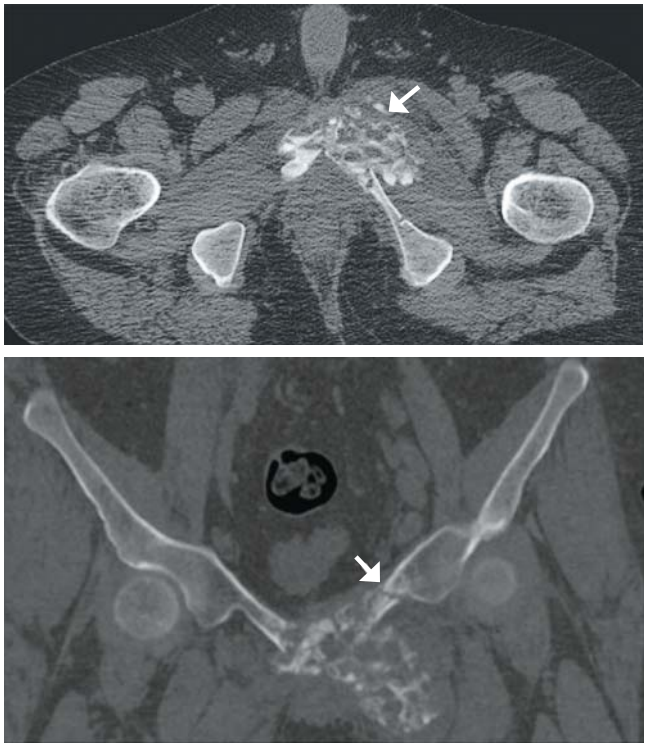

FIGURE 1. Axial computed tomography of the pelvis (**A**) showed an exophytic calcified lesion of the pubis (arrow) with multiple cystic spaces and fluid-fluid levels. A coronal view (**B**) showed the same lesion and fracture of the left inferior pubic ramus (arrow).

BROWN TUMOR

Brown tumor has been reported in fewer than 2% of patients with primary hyperparathyroidism and in 1.5% to 1.7% of those with secondary hyperparathyroidism (ie, from chronic renal failure, malabsorption, vitamin D deficiency, or hypocalcemia).[2–4] An excess of parathyroid hormone increases the number and activity of osteoclasts, which are responsible for the lytic lesions. Brown tumor is the localized form of osteitis fibrosa cystica and is the most characteristic of the many skeletal changes that accompany secondary hyperparathyroidism.

Brown tumor is named for its color, which results from hemorrhages with accumulation of hemosiderin within the vascularized fibrous tissue. The tumor most commonly affects the pelvis, ribs, long-bone shafts, clavicle, and mandible.[5] Clinical symptoms are nonspecific and depend on the size and location of the lesion.

Medical management of secondary hyperparathyroidism in dialysis patients involves some combination

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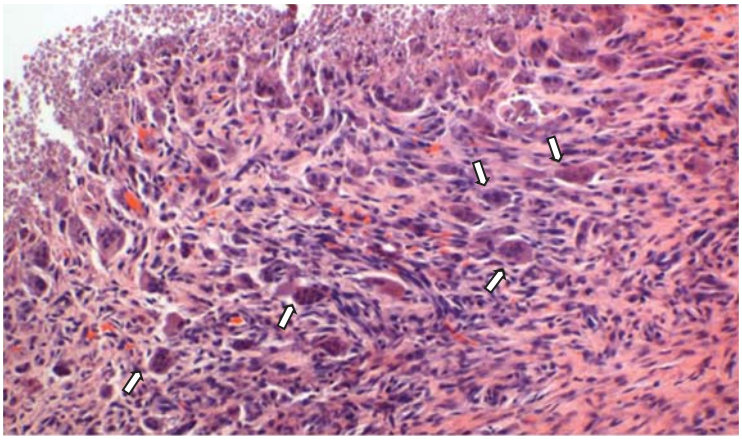

FIGURE 2. Histologic study showed clusters of osteoclast-type giant cells (arrows) on a background of spindle cells and fibrous stroma (hematoxylin and eosin, × 100).

of phosphate binders (either calcium-containing or non-calcium-containing binders), calcitriol or synthetic vitamin D analogs, and a calcimimetic. Parathyroidectomy is required if drug therapy is ineffective. Surgical excision of brown tumor should be considered in patients who have large bone defects with spontaneous fracture risk or increasing pain. Our patient declined surgical intervention.

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