Musculoskeletal images. Tuberculous osteomyelitis

A 38-year-old mother was seen for assessment of chronic left hip pain and leg fatigue, which had been present for almost 8 years. The pain had worsened during a recent pregnancy and had become progressively more severe over the last 1 1/2 months. It radiated from the greater trochanter down to the posterolateral leg and toes. The patient also noted a swelling or lump in the left hip region.

The patient was born and spent her childhood in Madagascar. She had schistosomiasis involving the urinary bladder at 12 years of age. At the time of her emigration to Canada, when she was 30 years old, she experienced an uncomfortable inoculation in the posterolateral aspect of her left hip, the same site as her current symptoms. There was no personal or family history of tuberculosis or other significant disease.

On physical examination she had a Trendelenburg gait, slight weakness of the left abductor muscle and some wasting of the left gluteus medius and maximus muscles. No focal signs, such as heat or redness, were present.

Normal findings of investigations were noted for the complete blood count, including leukocyte count and differential, the erythrocyte sedimentation rate and chest radiography. Plain radiography of the left hip showed a lytic lesion, 3.2 cm in dimension, in the greater trochanter, with an associated pathological fracture. Magnetic resonance imaging showed an aggressive lesion within the greater trochanter and an avulsion fracture in the superior aspect. Edema was present in the marrow cavity, extending into the femoral neck and shaft. The cortex was breached, and a periosteal reaction

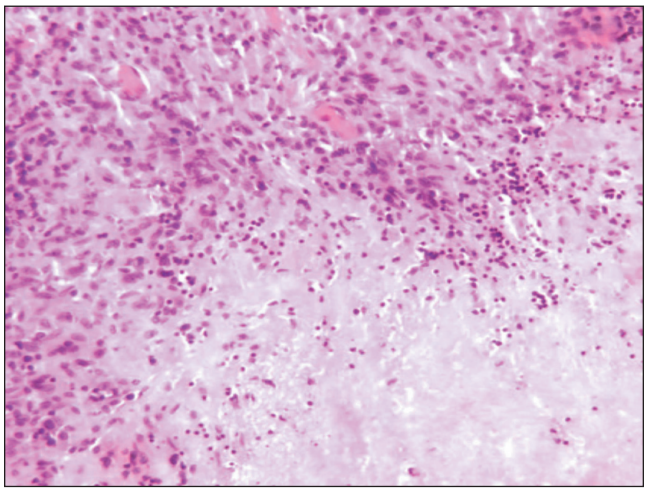

FIG. 1. Numerous necrotizing granulomas with scattered giant cells seen throughout the specimen (hematoxylin–eosin, original magnification ×20).

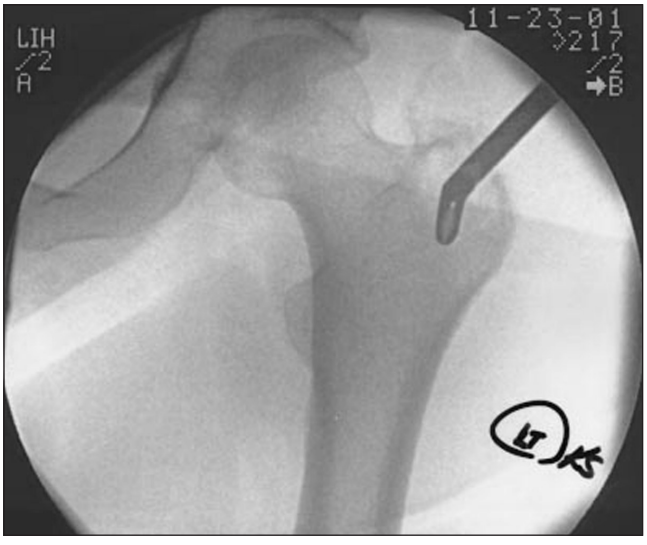

FIG. 2. Percutaneous excisional biopsy carried out under fluoroscopic control.

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was present. A small, soft-tissue mass with edema and presumed dystrophic calcification was described superolateral to the greater trochanter. There was also a small joint effusion. The radiologic appearance suggested a malignant tumour.

A core biopsy of the lesion was performed guided by computed tomography. The histologic appearance was that of a necrotizing, granulomatous, inflammatory process (Fig. 1). Scattered Langerhans-type giant cells were seen. Findings using special stains for acid-fast bacilli and fungi were negative. No tumour was present.

A percutaneous, fluoroscopically-guided excisional biopsy was carried out (Fig. 2), followed by packing with synthetic calcium phosphate tobramycin-impregnated pellets (Figs. 3 and 4). This procedure yielded large quantities of necrotic material. Microscopy again showed extensive necrotizing granulomatous inflammation. Epithelioid histiocytes and scattered Langerhans-type giant cells were found. Ziehl–Neelsen staining revealed a single acid-fast

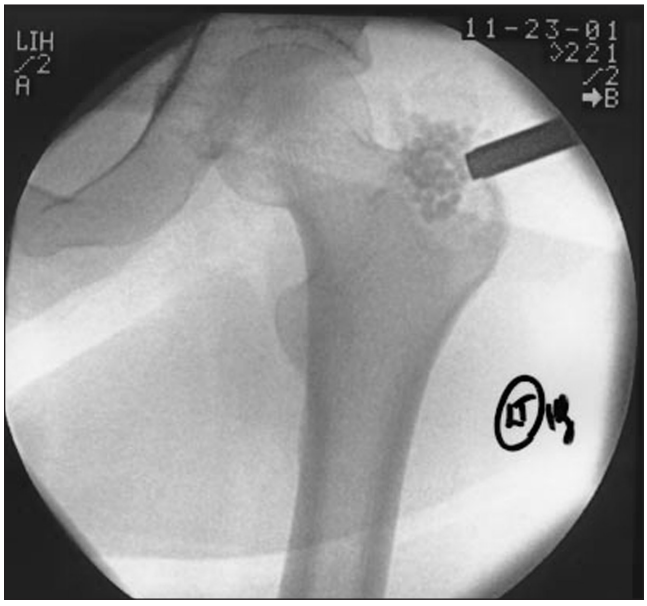

FIG. 3. Intraoperative insertion of calcium sufate antibiotic beads.

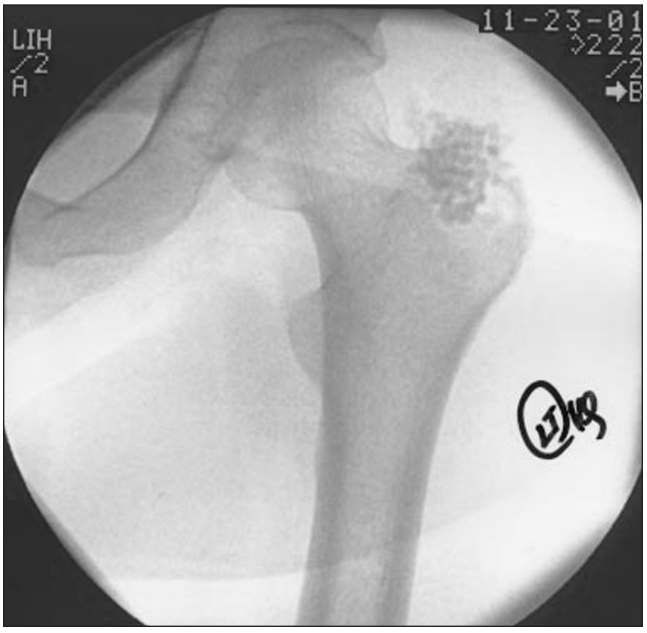

FIG. 4. Postoperative packing of the lesion.

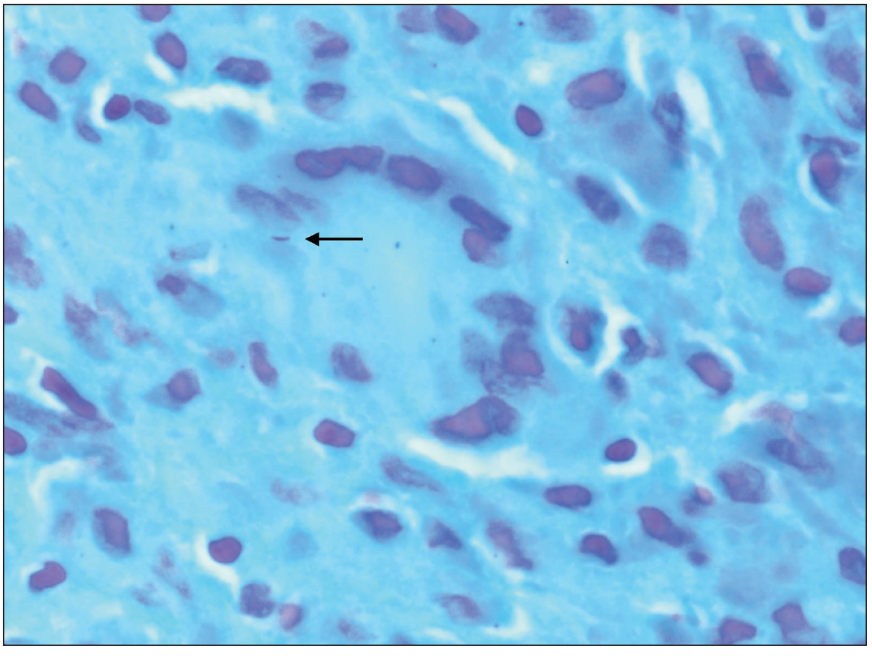

FIG. 5. One acid-fast bacillus was found within a giant cell (arrow) (Zeihl–Neilsen stain; original magnification ×100).

bacillus (Fig. 5). In addition, auramine–rhodanine staining showed focal fluorescent particles, supporting the diagnosis of a mycobacterial infection. *Mycobacterium tuberculosis* was subsequently grown from culture of the biopsy tissue, with sensitivity to ethambutol, isoniaziad, pyrazinamide, rifampin and streptomycin.

The patient was seen in the tuberculosis clinic postoperatively. She said she had more energy, was sleeping better and had less pain. There was no evidence of local inflammation or drainage, and her abductor strength had improved. Plain radiographs of the left hip 6 weeks postoperatively showed early evidence of new bone formation. The organisms were thought to be fully susceptible, so the ethambutol was discontinued.

Tuberculous osteomyelitis is thought to be an uncommon disease in developed countries but may be on the rise due to increasing numbers of immigrants and immunosuppressed people. The onset of symptoms may be insidious and can persist for years before being recognized. Symptoms include localized tenderness, pain with movement, low-grade fever and weight loss. The organisms usually originate from a focus of visceral disease, typically the lungs, and seed the bone by hematogenous spread. The most common sites of involvement are the spine, hips and knees.Complications of long-standing or untreated tuberculous osteomyelitis include septic arthritis, sinus tract formation, bony deformities and amyloidosis.■

SESAP Questions
Questions SESAP

Category 6, Items 45–48

(A) Abdominal exploration
(B) Focused abdominal sonography for trauma (FAST) examination
(C) Angiography
(D) Diagnostic laparoscopy
(E) Computed tomographic (CT) scan

45. Patient with gunshot wound to the abdomen

46. Hypotensive patient with pelvic fracture

47. Hypotensive patient with nontender abdomen after a motor vehicle crash

48. Normotensive 65-year-old man with abdominal pain after a motor vehicle crash

For each numbered phrase select the one lettered word or phrase that is most closely associated with it. The letters may be selected once, more than once or not at all.

For the answers and a critique of items 45 to 48 see page 212.