Case report 650

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Radiological (imaging) studies

Fig. 1. An AP view of the right hip shows patchy sclerosis of the femoral head and irregularity of its articular surface. Hypertrophic spurs are also seen

Fig. 2. MRI study: Coronal T1-weighted (TR 800 ms, TE 20 ms) MR image shows homogeneous decreased signal intensity of the proximal end of the right femur, to a point below the intertrochanteric region

Clinical information

This 55-year-old man presented with a 5-year history of pain in the right hip on ambulation. The patient underwent bipolar arthroplasty of the right hip with the preoperative diagnosis of stage IV avascular necrosis. His past medical history was significant for core decompression of his left femoral head for stage II avascular necrosis.

Preoperative physical examination revealed mild tenderness over the right greater trochanter. Range of motion was painful with right hip flexion of 90°, abduction of 30°, adduction of 30°, internal rotation of 5° and external rotation of 20°.

Roentgenograms of the right hip demonstrated sclerotic changes of the femoral head (Fig. 1), with irregularity of its articular surface and superimposed degenerative osteoarthritis of the hip. A magnetic resonance imaging (MRI) study of the hips was obtained. Coronal T1-weighted images demonstrated homogeneous decreased signal intensity of the proximal end of the right femur to a point below the level of the trochanters (Fig. 2).

The patient underwent right bipolar hemiarthroplasty, and the femoral head was submitted to the pathology department for evaluation.
**Diagnosis:** Grade II chondrosarcoma of the proximal end of the right femur

The preoperative diagnosis was stage IV avascular necrosis of the right femoral head. The roentgenographic features were suggestive of avascular necrosis. The MRI features were suggestive of an infiltrative process of the marrow.

**Pathological studies**

The pathological specimen consisted of a femoral head measuring $5.0 \times 5.0 \times 3.5$ cm. The articular surface was roughened and fissured. Cut section revealed a poorly demarcat-

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**Fig. 3.** Area of tumor necrosis mimicking ischemic necrosis (H & E, ×25)

**Fig. 4.** Tumor tissue in the femoral head shows hypercellularity and nuclear pleomorphism (H & E, ×250)

**Fig. 5.** Hypercellular myxoid area in the femoral head (H & E, ×250)

**Fig. 6.** Cellular detail of the tumor in the femoral head, showing a binucleate cell and nucleoli (H & E, ×400)

**Fig. 7.** Residual tumor found in the femoral shaft at amputation. Note high cellularity, nucleoli, and a binucleate cell (H & E, ×320)