Case report 686

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Clinical information

This 13-year-old, female presented with pain in the distal end of the left thigh of 1 month’s duration, which worsened with exercise. She had several falls bicycling; the most severe event occurred 1 month previously. Physical examination revealed minimal pain on palpation of the medial region of the thigh distally.

A plain film of the distal end of the femur revealed a small focus of cortical resorption with minimal adjacent fluffy periosteal thickening (Fig. 1 A, B); no evidence of a fracture line was seen even with tomography (Fig. 1 B). A bone scan after intravenous injection of technetium 99m (methylene diphosphonate (99mTc MDP)) showed increased activity in the distal end of the femur (Fig. 1 C). No soft-tissue mass was demonstrated by computed tomography (CT) and magnetic resonance imaging (MRI) (Fig. 2); both revealed bony changes.

Surgical biopsy under fluoroscopic guidance was performed in the area of the cortical erosion of the femur.

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Fig. 2. A An axial computed tomography (CT) scan at the level of the distal end of the femur on an extended window (WW 1700, WL 200) shows only the tiny notch (arrow) through the posteromedial aspect of the cortex. Slightly increased density of the medullary cavity is noted. No abnormality of the soft tissue is present. B A coronal T1-weighted (SE; TR 550 ms, TE 15 ms) image shows a suggestive fracture line (arrowheads) surrounded by an irregular low signal intensity area possibly representing edema. C Coronal gradient refocused echo sequence with T1 contrast (Flash; 0 70°, TR 300 ms, TE 10 ms) at the same level again suggests a fracture and the surrounding slightly decreased marrow signal intensity. Periosteal new bone (arrowheads) overlies the cortex. D An axial T2-weighted (SE; TR 3000 ms, TE 90 ms) image at the same level of the CT scan as A shows increased signal of the bone marrow and of the soft tissues surrounding the femoral lesion due to the edema (arrows).