Letter to the Editor

Intraosseous Lipoma. Is a biopsy necessary?

The Editor

Sir,

Intraosseous lipoma is a rare benign bone tumour which arises from mature lipocytes (1). It accounts for approximately 0.1% of bone tumours (1). Some authors have stated that intraosseous lipomas are more frequent because often there are no symptoms and the tumour remains latent. However, with increasing use of magnetic resonance imaging (MRI) and computerized tomography (CT), intraosseous lipomas will be more accurately diagnosed (1–3).

Reported herein is a case of a 52-year-old female who presented with a history of having twisted the right knee while running. The symptoms subsided but were exacerbated during a tennis camp. Physical examination of the knee revealed a mild effusion, mild lateral joint line tenderness, no ligamentous laxity, and severe pain on acute knee flexion. Plain radiographs of the right knee revealed no bony abnormalities. MRI revealed a large heterogeneous intramedullary mass involving the lower shaft and metaphysis of the right femur. The lower half of the mass was isointense to fat on both T1-weighted and T2-weighted images, and the bright signal is suppressed like that of fat on STIR sequence suggesting an intraosseous lipoma. The upper half of the mass was hypointense to subcutaneous fat on T1-weighted, isointense on T2-weighted and hyperintense on STIR sequence suggesting that the fat in this portion of the mass had undergone necrosis. There were few tiny areas of calcification represented by low signal on all sequences. There was no pathological fracture (Figs. 1 and 2). The patient discontinued activities for six weeks following which she became pain-free and returned to her previous level of physical activities. About half of the patients with an intraosseous lipoma present with no symptoms and the tumour is found incidentally (2). However, in symptomatic patients, signs associated with the tumour are not specific. Pain, swelling, and tenderness are the most frequent symptoms (4). Rarely, a pathologic fracture occurs.

Fig. 1: Coronal T1-weighted MR image shows high-signal-intensity in the distal femoral metaphysis. High-signal area is isointense to subcutaneous fat.

Fig. 2: Coronal MR image with low signal intensity in the lower half of the mass consistent with fat. In the upper half, the mass is hypointense to subcutaneous fat on T1-weighted, and hyperintense on STIR sequence suggesting fat necrosis.

The primary role of the MRI in identifying the intraosseous lipoma is to visualize fat within the lesion. Using Milgram's histopathologic and radiologic classification, intraosseous lipomas are divided into three categories on the basis of their imaging characteristics (2). MRI revealed viable fat in Stage I. The fat is isointense to subcutaneous fat on T1-weighted sequences and exhibit low signal intensity with fat suppression on T2-weighted images. A thin circumferential rim of low signal intensity on T1- and T2-weighted sequences is typically present demarcating the margin of the fatty lesion consistent with reactive sclerosis surrounding the lesion. In Stage II lesions, fat is again identified along with a circumferential rim of decreased signal on T1- and T2-weighted images. Low-signal-intensity areas within the central portion of the lesion on T1- and T2-weighted images are consistent with calcification. Stage III lesions show a thin peripheral rim of fat with central calcification and a thick rim of surrounding sclerosis which have low signal intensity on T1- and T2-weighted sequences. Areas of fat necrosis have a variable signal on T1-weighted and increased signal on T2-weighted images. According to Milgram's classification, this patient had a Stage II lesion.

A biopsy was not performed on this patient based on the MRI findings. Current literature supports the view that in asymptomatic cases with no impending fracture, a non-operative treatment with clinical and radiological follow-up is a wise approach (3–5). This patient will be evaluated at six monthly intervals.

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