Incidental lesion in the femoral metaphysis

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Diagnosis: desmoplastic fibroma of the bone

Desmoplastic fibroma of bone is a rare benign primary bone tumor that is thought to be the intraosseous counterpart of the soft tissue desmoid tumors. It may involve almost any bone in the skeletal system, most frequently affecting the metaphysis of long bones and the mandible. Though the tumor is benign, it has a propensity towards local infiltration [1]. Clinically, the commonest presentation is pain, palpable mass, and swelling; although it may be discovered as incidental finding on imaging. The lesion may also become evident after a pathological fracture [2]. The majority of cases are reported in patients younger than 30 years of age.

In the present case, the patient was a 46-year-old man who underwent imaging of his right knee for anterior patellar pain and was incidentally found to have a lytic-sclerotic lesion in the distal metaphysis of the femur. A radiologist must be vigilant in the recognition of this entity due to its characteristic imaging appearance, otherwise it may be

confused with other benign fibrous lesions or more importantly, sarcoma [1]. On radiographs, the matrix appears non-mineralized with coarse ridge-like internal trabeculations (Fig. 1 in the case presentation); it may breach the cortex in a few cases demonstrating a “soap bubble” appearance. The margins appear well defined and sclerotic in most cases. Similar features are seen on computed tomography (Fig. 2 in the case presentation) [3]. Tc99 M bone scan shows uptake in the sclerotic peripheral area of the lesion (Fig. 3 in the case presentation). Magnetic resonance imaging (MRI) is also distinctive in the diagnosis of this lesion. T1W sequence shows iso- to hypointense signal intensity to adjacent normal muscles. T2W sequence depicts foci of low or intermediate signal intensity due to presence of dense fibrous matrix and the relative acellularity of the tumor. The more cellular parts of the tumor with fibroblasts or necrotic areas are responsible for the higher signal intensity within the lesion. Heterogeneous contrast enhancement of the tumor is seen with peripheral areas of intense enhancement (Fig. 4 in the case presentation) [3, 4]. Histopathology shows wavy fibroblasts with uniform nuclei (black arrows) inlaying in an extensive collagenous stroma with partly dense collagen bundles (white arrows) (Fig. 5 in the case presentation).

The patient was treated with curettage and bone grafting with cementing; however, a high recurrence rate has been reported with this conservative treatment modality [5]. The treatment of choice, therefore, is wide tumor resection. Taconis et al. in their analysis of 18 cases of desmoplastic tumor, found no recurrence occurring after 9-year follow-up in patients treated with wide resection [2].

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