Osteolipoma of Knee: A Rare Case Report

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ABSTRACT

Lipomas are the most common benign soft tissue tumors and appear in any part of the body. They typically consist of mature adipose tissue. Osteolipoma is an extremely rare histologic variant of lipoma that contains mature lamellar bone within the tumor and osteolipoma independent of bone tissue are very rare. We report a case of histologically confirmed osteolipoma independent of bone located just above left knee. A 61 year old female presented with medial sided left knee pain of 6 month duration. X-ray demonstrated a partially calcified 3.5 cm diameter mass located in anterior to the distal medial femur. Histologic examination of an excisional biopsy showed the lesion to be an osteolipoma. Osteolipoma is a rare histologic variant of lipoma with osseous metaplasia, but should be considered in the differential of a fat-containing neoplasm with ossification.

Keywords: Osteolipoma; Ossifying lipoma; Knee joint.

Introduction

Lipoma is a common benign soft tissue neoplasm that sometimes may have mixed tissue components. Lipomas with mixed components are named according to the type of tissue. Ossification of a lipoma was first described in 1959, and it is rarely reported [1, 2]. Several names have been used to describe ossification of lipomas, including secondary calcification, ossified lipoma, ossifying lipoma, or osteolipoma, and some authors have used these terms interchangeably. As with classic lipomas, lipomas with ossifications may be found in any part of the body, but are usually found in the head, neck region. Only 6 cases of osteolipoma arising in connection with knee joint have been described [3]. Here, we present a case of an osteolipoma in the left knee region.

Case Report

A 61-year-old female presented with a proximal left knee mass. The patient reported pain along the medial aspect of the knee for the past 6 month, with recent notice of a palpable mass. The pain was described as a constant, moderate throbbing, exacerbated by activity. Conservative treatments, including physical therapy and various other pain medications had failed to provide symptomatic relief.

Radiographs revealed a calcified mass anterior to the distal left medial femur in the region of the suprapatellar fossa. The mass abutted the anteromedial femur and medial patellar facet without evidence of osseous involvement. (Fig.1A). Provided initial differential included parosteal osteosarcoma, chondrosarcoma, and myositis ossificans and excision biopsy was considered for management.

Following excision biopsy, the mass was sent to our department for histopathological examination. Grossly, the

resected specimen demonstrated a 3.5 cm diameter mass. The mass was tan-brown, firm, ovoid, and surrounded by fibro fatty soft tissue. (Fig.1B) Histologic examination revealed mature adipose tissue in which a large fragment of cortical-type bone was embedded. No atypia was seen either in adipose tissue or bony component (Fig.1C,D). The pattern was consistent with an osteolipoma.

Discussion

Lipomas are the most common benign soft-tissue tumors composed of only mature adipose cells without cellular atypia [4]. However, other mesenchymal elements such as smooth muscle, fibrous, chondral or osseous tissue may occasionally be found in addition to adipocytes. Variants of lipoma have been named according to the type of tissue present such as fibrolipoma, myelolipoma, leiomyolipoma, chondrolipoma, osteolipoma and angiolipoma [4]. A lipoma containing mature osseous elements is called osteolipoma. The terms ossifying lipoma, osseous lipoma and lipoma with osseous metaplasia have been used interchangeably with osteolipoma [5]. Osteolipoma is the rarest subtype of lipoma, with the first case being reported in 1959 [1]. An osteolipoma is defined as a lesion with mature adipose tissue and randomly distributed trabeculae of laminated bone [5]. They have been found at various sites, with the highest frequency in the head and neck regions [6, 7, 8]. Osteolipoma is very rare in distal femur and knee region and only 6 other such cases were reported previously. The age of these 6 patients ranged from 21 to 64 years (mean of 41.2 years), involving 4 men and 2 women. Symptoms were described in all 6 cases, with 4 reporting joint pain ranging from 3-36 months in duration, exacerbated by activity, and causing difficulty while performing simple tasks such as walking [3, 9]. Two of the 4 patients reported

Fig. 1A: Frontal radiograph of left knee demonstrate an area of ossification (arrow) anteromedial to the medial femoral condyle. No underlying osseous involvement is identified. **1B.** Grossly, the tumor consists largely of fat and calcified area. **1C.** H&E, x10, **1D.** H&E, x20, both photomicrographs show mature trabecular bone within mature adipose tissue. No atypia was seen in both adipose and bony component.

joint pain at rest [3, 10]. Our case was a 61 year old female with similar symptomatology.

The radiographic differential diagnosis for an ossified mass is dependent on many factors, including age and location. Considering the intra/juxta articular location of tumor, a broad radiographic differential diagnosis of a calcified and/or ossified mass including benign entities, such as a hemangioma, synovial chondromatosis, calcified synovitis, myositis ossificans, or a loose body or even, malignancies such as conventional or surface-based osteosarcoma, or soft tissue sarcomas such as a synovial sarcoma, liposarcoma may also enter the differential [11]. So considering the wide range of differential, a wide local excision biopsy becomes the preferred treatment. But Definitive diagnosis of osteolipoma can easily be done with histopathologic examination. A histopathologic appearance of diffuse, mature ossification within fatty tissue clinches the diagnosis. The adipose component is usually predominant and the mature bone tissue is irregular in distribution. Bone spicules may be surrounded by fibrous tissue bands [10, 12].

Histologically confirmed osteolipomas are benign neoplasms, as with classic lipomas, and do not recur, so have excellent prognosis.

Conclusion

In conclusion, osteolipomas are a rare occurrence. When arising in a juxta and/or intra-articular location, they result in a broad differential diagnosis radiologically. Because of the absence of specific radiologic findings, the differential diagnosis for lesions with fatty and osseous components should include not only malignant entities such as liposarcoma but also heterologous differentiation of rather benign lipomas such as an osteolipoma, especially in the setting of internal mature bony formation. Osteolipoma has a same prognosis as simple lipoma and surgical excision is the recommended treatment. No recurrences have been reported.

So to summarize, although osteolipomas are very rare, it is important to keep them in mind when a lesion with adipose tissue in combination with ossification is encountered.

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