

Osteolipoma of leg masquerading as osteoid osteoma: A case report

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ABSTRACT

Lipomas are the most common, subcutaneous, and slow-growing tumors composed of fat (adipose tissue). Out of many types of these benign tumors, ossifying lipoma (osteolipoma) is the rarest subtype. Here, randomly distributed trabeculae of lamellar bone are seen within mature adipose tissue. They are featured only as isolated case reports and small case series, thus the true incidence is not known. The most common site for osteolipoma is the head and neck region and they are rarely reported in the lower extremities. Herein, we discuss the case of a 19-year-old man who presented with a progressively enlarging painful mass in the left leg. Radiology was typical of osteoid osteoma. Excision was performed and histopathological examination confirmed the lesion as osteolipoma with no evidence of malignancy. No recurrence of the tumor was observed after 2 years of follow-up. Although osteolipoma is a rare entity, the differential diagnosis of the lesion can be kept in mind whenever we encounter ossification within the adipose tissue.

Key words: Histopathological examination, Osteoid osteoma, Osteolipoma

Lipoma is the most common soft-tissue mesenchymal neoplasm in adults. It is a benign tumor composed of mature white adipocytes and other mesenchymal elements such as smooth muscle, fibrous, chondral, or osseous tissue may occasionally be found in addition to adipocytes and has been named according to the type of tissue present such as bone formation (osteolipoma), cartilage (chondrolipoma), abundant fibrous tissue (fibrolipoma), and extensive myxoid changes (myxolipoma) [1]. 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 [2]. Pure lipoma of the bone is rare and arises within the medullary cavity, cortex, or on the surface of the bone. They are generally soft and yellow and consist of lobules of mature adipocytes. When delicate trabeculae of lamellar or woven bone are present throughout the tumor, they are labeled as osteolipoma which is a much rarer occurrence [3].

Herein, we are reporting a case of osteolipoma of the left leg mimicking osteoid osteoma both clinically and radiologically.

CASE REPORT


A 19-year-old man presented with a progressively enlarging, painful mass over the left leg for approximately 6 months. There was no history of trauma or chronic illness.

On examination, his vitals were stable and no significant findings were noticed except a firm to hard mass of approximately 3.0 cm over the anteromedial aspect of his left leg. There was exquisite and much-localized tenderness associated with the lesion. Hip and knee movements were in the normal range. There was no lymphadenopathy and on systemic examination, no abnormality was detected.

Baseline investigations were within normal limit and a plain roentgenogram of the left knee with the upper 1/3 leg anteroposterior view revealed a pedunculated lesion on the medial condyle distal 3rd of about 2.5 cm suggestive of osteoid osteoma (Fig. 1a). The pre-operative differential diagnosis was primarily osteoid osteoma.

Given the benign imaging characteristics, an excisional biopsy was undertaken. It was removed surgically by blunt dissection and the pedicle was tied and excised. The post-operative course was uneventful. On gross examination, the specimen had the shape of a round to oval smooth and bony hard nodule of 3.0 cm in the greatest dimension. The entire surface was covered by a thin layer of fibrous tissue. There was no exudate or hemorrhage on the surface (Fig. 1b). The nodule was cut through with a saw. The cut surface resembled bone but was less dense and admixed with yellow soft tissue (Fig. 1c). Sections were decalcified and submitted for histological examination.

Permanent H&E stained sections revealed a nodule composed of a calcified shell of bone. The internal part of the nodule was composed of mature adipose tissue and calcifying bone. No fibrous

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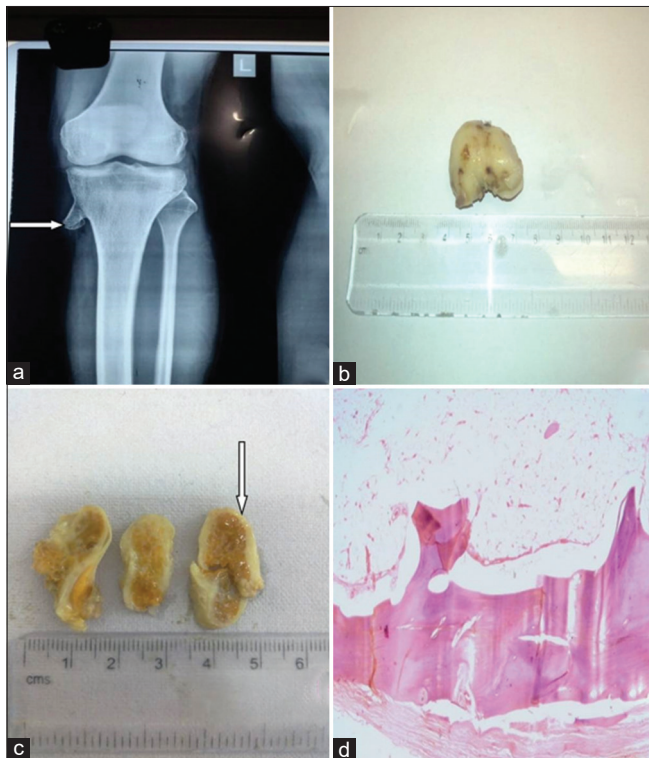


Figure 1: (a) Plain roentgenogram of the left knee with the upper 1/3 leg anteroposterior view revealed a pedunculated lesion on medial condyle distal 3rd of tibia suggestive of osteoid osteoma; (b) excised round to oval smooth nodule; (c) cut surface showing bone and yellow soft tissue; and (d) tissue section showing mature bony trabeculae and adipose tissue (H and E, ×20)

proliferation of inflammatory cells was identified. No mature bone marrow elements were found (Fig. 1d). Histopathological diagnosis was made as osteolipoma. There was no recurrence or any new similar growth observed within 2 years of follow-up.

DISCUSSION

Osteolipoma (Ossifying lipoma) is the rarest subtype of lipoma, with the first case being reported in 1959 [4].

They have been found at various sites, with the highest frequency in the head-and-neck regions [5], usually in the suprasellar and interpeduncular cisterns. Here, they can be diagnosed on computed tomography scans with the central fat attenuation and peripheral calcification [6]. Involvement of distal extremities is extremely rare and only less than 10 cases are reported in distal femur/knee region on a thorough literature search [7]. The presence of these non-fatty elements may lead to a wide differential diagnosis in radiology including benign and malignant lipomatous and non-lipomatous entities [8]. The radiological differential diagnosis will depend on the site of the lesion. For the intra-articular location, the presentation will be earlier but the differential will be immense starting from hemangioma, synovial chondromatosis, calcified synovitis, myositis ossificans, or a loose body. Malignancies such as conventional or surface-based osteosarcoma or soft-tissue sarcomas such as synovial sarcoma may also enter the differentials [9]. Magnetic resonance imaging might be helpful for the intra-articular location to narrow down this differential diagnosis because of the ease of detection of fat.

In our case, clinical features were typical of osteoid osteoma. The peak incidence of osteoid osteoma is noted in the second decade and 70% of them develop in a patient younger than 20 years and the lower extremities are most frequently involved [10]. Radiology was also typical of osteoid osteoma on plane X-ray in our case. Here, dense cortical sclerosis which was eccentric and fusiform was evident; however, osteoid osteoma seldom exceeds 2.0 cm in greatest dimension. In fact, the term osteoblastoma is usually applied if a lesion of identical histology exceeds 2.0 cm in diameter [11].

Histopathology is the gold standard for diagnosis. In the case of osteoid osteoma, anastomosing trabeculae of woven bone rimmed by osteoblasts with intervening capillary proliferation and benign giant cells are seen while osteolipoma shows mature adipose tissue and lamellar bone [12]. Cytogenetic aberrations that are translocation involving 12q13-15 might further aid in correct diagnosis, as 2/3 of lipomas exhibit genetic abnormalities which involved gene HMGA2 [13].

CONCLUSION

Osteolipoma is a rare tumor that can occur as a pedunculated lesion at the tibia and masquerading as osteoid osteoma. Surgical excision is the treatment of choice and the prognosis is excellent. Surgeons and pathologists must aware of this entity when mature bony trabeculae are seen throughout the adipocytic tumor.

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