

An Unusual Location of Ossified Intramuscular Lipoma: A Case Report

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Abstract- Lipoma is the most common soft tissue tumor but the presence of osseous component within the tumor is quite rare. Some studies show that less than 1% of lipomas were ossified. We describe the histological, radiological and diagnostic features of an ossified intramuscular lipoma. To the best of the authors' knowledge, a symptomatic ossified intramuscular lipoma without any cortical erosion and hyperostosis has not been previously reported in the literature.

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Introduction

Lipoma is the most common soft tissue tumor that are usually detected in the subcutaneous adipose tissue but the presence of osseous component within the tumor is quite rare (1,2). In the study of 635 cases, Allen found that less than 1% of lipomas were ossified (3). Two different rare variants of ossified lipomas were recognized: intraosseous (within bone) and surface (juxtacortical-parosteal) lipoma. The latter is accompanied by periosteal reaction and found in the diaphysis and metaphysis of long bones most frequently (4).

We describe the histological, radiological and diagnostic features of an ossified intramuscular lipoma. To the best of the authors' knowledge, a symptomatic ossified intramuscular lipoma without any cortical erosion and hyperostosis has not been previously reported in the literature.

Case Report

The written consent from this case was obtained from the patient. A 60-year-old male patient visited our clinic with a painful swelling in his left thigh. The patient noticed a soft tissue mass in the anteromedial aspect of his thigh three years ago. Pressure on the site and activity aggravated his pain. No history of trauma and infection was detected prior to the appearance of the mass. There was no family history of soft tissue masses.

On physical examination, a large well-defined tender firm mass was palpable on the anteromedial aspect of the mid thigh (5×8 cm). No contracture was found in the knee and hip joints and their range of motion was normal. No inflammatory signs, lymphadenopathies and skin changes were observed. No bruit was heard on auscultation. Neurovascular examination including distal pulses was normal. Laboratory data showed normal values including calcium, phosphorus, and alkaline phosphatase.

Radiologically, plain x-ray showed a soft tissue mass with diffuse ossification in the medial side of the left femur. The ossified portion of the mass was attached to the bone by a thin pedicle. No periosteal reaction, cortical hyperostosis and erosion were found (Figure 1). CT scan of the lesion showed a soft tissue mass with fat density in vastus medialis muscle. Intralesional diffuse ossification without any cortical erosion was seen (Figure 2). 3-D CT scan revealed the ossified mass attached to the bone by an approximately 0.5 cm pedicle. T2 weighted MR images showed a well-defined high signal mass in vastus medialis muscle with a low signal centre compatible with the bone signal (Figure 3).

An incisional biopsy was performed in our centre in order to establish the diagnosis. Histological examination of the sample showed mature adipose tissue and trabecula of mature lamellar bone surrounded by fibrous proliferation with no atypia (Figure 4). Through a 10 cm longitudinal incision across the medial aspect of the left thigh, the vastus medialis muscle was exposed.

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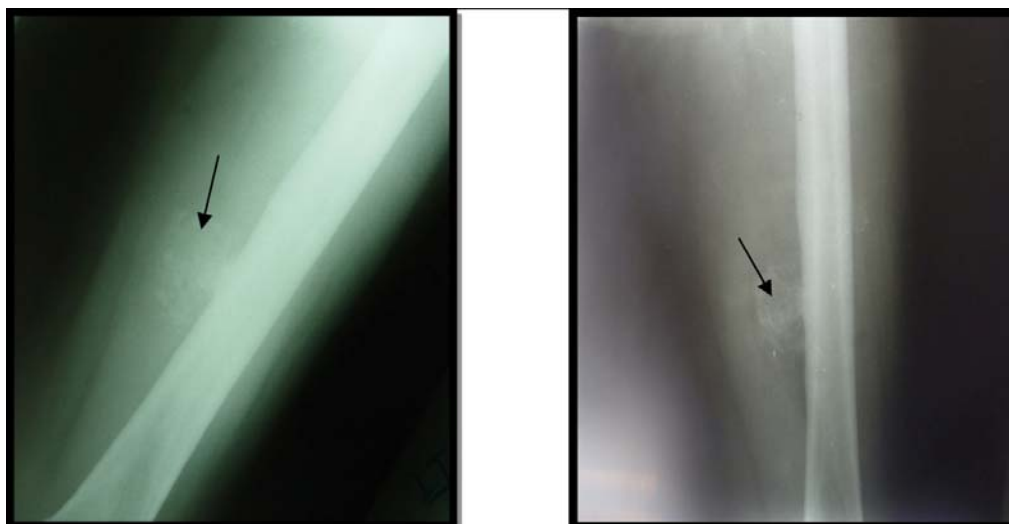


Figure 1. Anteroposterior and lateral plain x-rays showing an ossified soft tissue mass. The arrow shows the attachment of the ossification to the femur.

The mass was found in the muscle with a bony attachment to the femur. With the diagnosis of ossified intramuscular lipoma, we performed thorough excision of the tumor and its biopsy tract (Figure 5).

Anteroposterior and lateral plain x – ray were made every three months postoperatively for one year and variably thereafter. The patient was examined by the senior author at all follow-ups. Particular attention was paid to any swelling/tenderness at the site of the tumor. There was full range of motion of hip and knee joints. The duration of our follow- up was twenty months.

At the time of the most recent follow up, no recurrence of the tumor and distant metastasis were demonstrated clinically and radiographically and the function of the limb was normal.

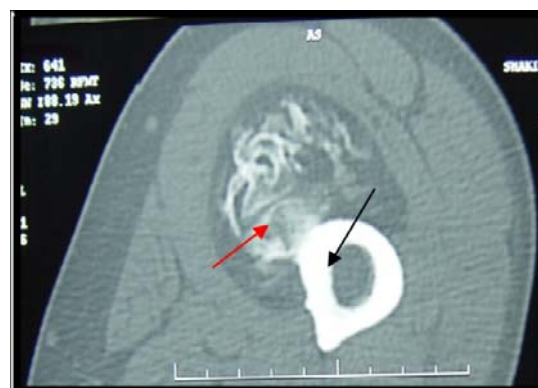


Figure 2. CT Scan of the lesion showing the axial cut of the mass. The density of the mass was similar to the subcutaneous fat. Diffuse ossification is seen in the center (Red arrow). The ossification was attached to the femur by a thin pedicle (Black arrow).

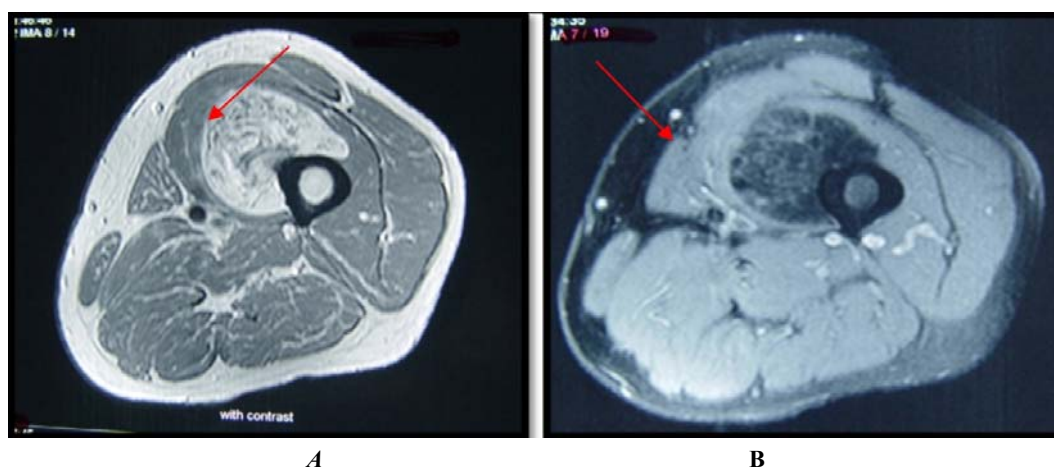


Figure 3. MRI (Axial T1 (3.A) and T2 (3.B) weighted) of the lesion showing a well-defined ossified mass (arrow) on the anteromedial aspect of the thigh.

An unusual location of ossified intramuscular lipoma

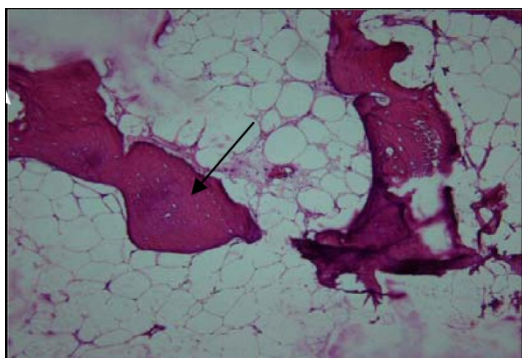


Figure 4. Histopathology of the lesion showing mature adipose tissue with trabecula of mature lamellar bone (Arrow).

Discussion

An ossified lipoma is a rare variant of these tumors that was first by Plaut *et al.* (5). Allen found six cases of ossified lipoma in a series of 635 lipomas over a 5-year period (3). The majority of tumors are located in the head and neck regions (6). Similar to our case, Heffernan *et al.* reported a painful ossified lipoma. This aspect of the tumor makes it unusual comparing to ossified lipomas (7). As the tumor is situated superficially, micro trauma or muscle fiber mechanical impingement with the tumor may be the cause of pain. Aggravation of the symptom by walking or pressure on the site confirms the theory.

Unlike the case demonstrated here, parosteal lipomas have periosteal reaction, cortical erosion and hyperostosis. Some authors declared that the contact of the tumor with the bone stimulates and irritates the periosteum and causes hyperostosis of the cortex (4).



Figure 5. Gross pathology of the lesion demonstrating a hard whitish yellow colored lobulated 7.5 X 4.5 cm mass.

Interestingly, the cortex and bone were intact in our case and no periosteal reaction was detected. We consider that this unusual case is a condition between parosteal lipomas and independent intramuscular ossified lipomas. However, it seems that the pedicle between the lesion and the femur was originated from the mass and the periosteum was not the origin of the bony attachment.

Radiographically, Heffernan *et al.* (7) described an ossified lipoma without any connection to surrounding bony structure which contains mature osseous components in the left medial distal thigh. Unlike the case described by Heffernan, a thin pedicle connects the ossified lipoma to the bone in our case which makes it more unusual.

Pathologically, Obermann *et al.* (1) showed that ossified lipomas typically contain mature adipose tissue. Fibrous tissue forms a layer around the tumor associated with thin trabeculae of mature bone. Normally, no nuclear atypia or increasing rate of mitosis is detected. Similar to the Obermann's pathologic description, mature adipose tissue and trabecula of mature lamellar bone surrounded by fibrous proliferation with no atypia are shown in our case.

In summary, we reported a case of symptomatic intramuscular ossified lipoma with its peculiar clinical and radiologic aspects which shows a rare variant of a common tumor.

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