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Tibial Osteolipoma: A Case Report and Review of the Literature

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Abstract **Case Report**

Osteolipoma is an extremely rare histologic variant of lipoma. It is sometimes called lipoma with osseous element. It can occur in any part of the body ranging from intracranial cavity to different musculoskeletal regions. We presented a case seen in a 40 years old Nigerian woman with a non-enlarging, non-tender swelling in the right leg just below the knee joint medially. The diagnosis was confirmed by histology after excisional biopsy which examination showed sheets of matured adipocytes traversed into lobules by fibro collagenous strands. Osteolipoma is still relatively rare. However, they are benign and should not be confused with other sinister lesions.

Keywords: Lipoma, lipoblasts, osteolipoma, mesenchymoma, tumor.

INTRODUCTION

Osteolipoma has been used interchangeably with other terms such as ossifying lipoma, lipoma with osseous element, and so on [1]. Osteolipoma may be viewed as lipoma with areas of bone formation. It is a benign tumor. Lipomas in general are the most common benign tumor of fat cells and they can appear in any part of the body. Osteolipoma however, is an extremely rare histologic variant of lipoma that contains mature lamellar bone within the tumor, and osteolipoma not occurring in bone tissue is very rare [1]. It is sometimes called ossifying lipoma or osseous metaplasia [2].

There have been a number of case reports on this rare variant of lipoma [3]. It has been found albeit often incidentally in different parts of the body ranging from the intracranial cavity to different musculoskeletal regions of the body [4-6]. It is often associated with the skeleton. However, a few cases show no skeletal involvement whatsoever [7]. We present a rare case of osteolipoma independent of bone tissue located in the leg.

CASE SUMMARY

A 40-year-old woman, presented with a non-enlarging swelling in the right lower limb of 10 years duration. There were no constitutional symptoms and no associated skin changes over the mass. There was no history of pain but sometimes had feelings of the heaviness of the affected leg. It did not affect her physical activity or her gait. It was firm to the touch. A general physical examination was normal except for a firm, none tender, mobile mass over the superior-medial surface of the tibia of the right leg. The mass measured 5cm by 5cm by 4cm in size with no differential warmth. Hip and knee movements were within normal range. There were no lymph nodes palpable in the groin. No evidence of neurovascular abnormalities. Vital signs were essentially normal. Based on clinical findings, an initial assessment of a lipoma was made. She was scheduled for the following investigations including complete full blood, hemoglobin concentration, Electrolytes and urea, and Radiological imaging of the mass. Radiological imaging (X-ray) of the mass revealed a soft tissue mass that was inferio-medial to the right knee joint. The mass showed punctuate calcifications. There was a layer separating the mass from the muscle. There was no radiologic evidence of a connection between the mass and the joint compartment. The bones and joint surfaces and spaces were within normal limits. A pre-operative assessment of a lipoma was therefore made.

Based on the initial clinical assessment and results of the investigations, the patient was scheduled for a fine needle aspiration biopsy. After initial imaging, an ultrasound-guided needle biopsy was

performed revealing only benign mature fat cells and evaluated as non-diagnostic patients had an excisional biopsy after informed consent was obtained from the patient. During the operation, the tumor was found to be located over the anterior surface of the right tibia. An incision was made mid-swelling and deepened through the fascia. The fatty mass was identified and blunt dissection was done around the mass and the fatty tissue was excised. The mass measured about 4cm X 4cm X 3cm. The wound was closed in multi-layers and the mass was sent for histopathologic assessment. The postoperative phase was not remarkable.

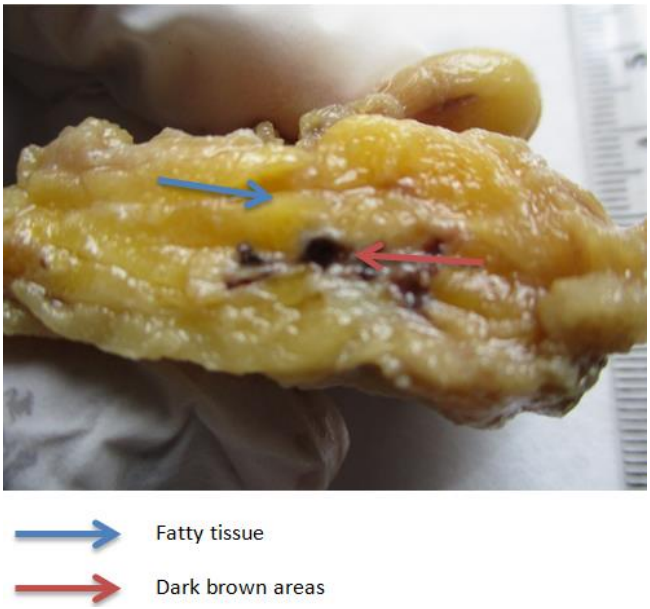

Figure 1: The Gross of the cut section of the resected specimen shows a fatty appearance (blue arrow) with ossified areas (brown arrow)

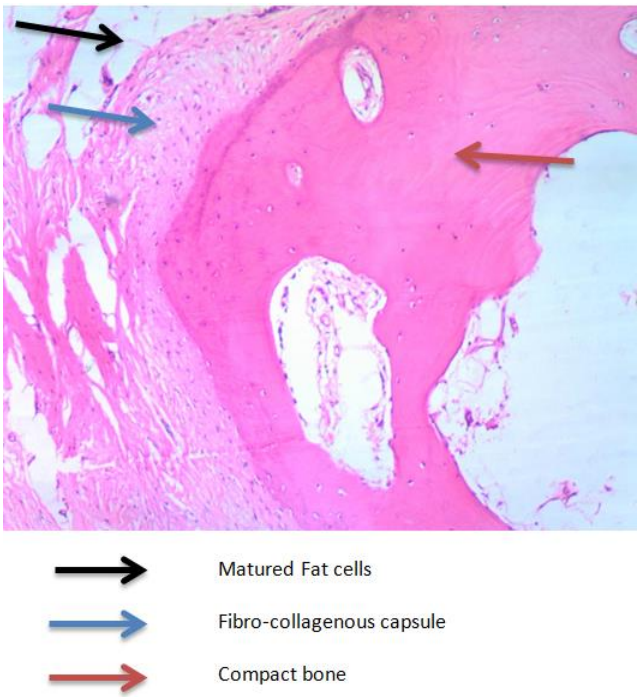

Figure 2: Microscopic image of resected tissue showing matured fat cells (black arrow) encompassed by a fibro collagenous capsule (blue arrow)

Grossly, the mass was a nodular piece of fatty tissue measuring 5.0 X 4.0 2.0cm. Serial sections show fatty tissue with dark brown areas gritty to the knife and reminiscent of calcification. (Figure 1) Histologic examination showed sheets of matured adipocytes traversed into lobules by fibro collagenous strands. Seen within the lobules are islands of calcifications. The definitive pathologic diagnosis was intramuscular osteolipoma without evidence of malignancy (Figure 2).

DISCUSSION

Lipoma is quite common and has been described in many different locations [4, 5]. However, this variant has also been seen in different locations although not as common as the typical Lipoma [6]. Lipomas are quite common findings in surgery [5]. They are one of the commonest soft tissue tumors [4]. They have been described in various locations in the human body from the scalp down to the lower limbs [5]. Typically, lipomas are lobulated masses of fatty tissues which occur only as sheets of matured fat cells with or without strand of fibro-collagen and no area of calcification whatsoever [4].

Osteolipoma is quite rare and a few have been reported mainly in adult patients in whom it usually undertake a long indolent course [7]. The first case was reported in 1959 by Plaut *et al*., [8]. It often originates mostly from deep soft tissues but occasionally from the subcutaneous plane. Most patients complain of swelling and occasionally these swellings may be painful and tender with no constitutional symptoms [7]. Our index patient presented with similar clinical features. There was no associated fever, no weight loss, and no history of swellings elsewhere on the body. There was also no history of previous trauma to the affected leg.

The pathogenesis of osteolipoma is unclear. However, multiple theories have been advanced concerning the pathogenesis of osteolipoma. Some believe that the ossification is as a result of repeated trauma and/or possibly ischemia that led to metaplasia of the fibrous elements pre-existing within the tumor. Others theorize that blood-borne monocytes or osteogenic factors convert fibroblasts into osteoblasts in a metaplastic response to insults to the body. Another theory suggests these tumors originate directly from pluripotent stem cells which later differentiate into lipoblasts, or osteoblasts and fibroblasts, characterizing a mesenchymoma [9].

In a review of literature involving 38 cases by Wong BLK *et al*., the commonest sites of the location of osteolipoma within the head and neck region were the oral cavity in 21 (56.8%) patients, followed by the neck in 7 (19.0%) patients. Other reported sites were the salivary glands, nasopharynx, orbit, paranasal sinuses, and tympanomastoid region. A case of involvement of the tongue was also reported in this review. All patients had their tumors excised surgically [10].

Radiologic findings are often specified with evidence of calcifications. Many cases of Osteolipomatous lesions have been reported in the literature [2]. Most of them with pedicles attached to the adjacent or underlying bone [11]. However, our case is special because of the fact that it was not pedunculated and had no bony attachment.

CONCLUSION

Osteolipoma is still relatively rare. However, they are benign and should not be confused with other sinister lesions, especially in view of areas of bone formation within the mass. Surgical removal of the lesion is the treatment of choice and tissue removed should be subjected to histopathologic examination to exclude malignancies.

Ethical Declaration: Written informed consent was obtained from the patient whose information is used in this study.

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Authors' declaration

All authors have equally contributed to this manuscript in ways that conform to ICMJE authorship criteria. All authors have read and approved the final version of the manuscript.

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