

## PAROSTEAL LIPOMA WITH OSTEOCHONDROMA IN FIBULA- A RARE CASE

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### PRESENTATION OF CASE

Parosteal lipomas are rare lesions that truly arise in the periosteal membrane. Lipomas are the most common soft tissue lesions and surprisingly are among the rarest bone neoplasias. Osseous lipomas have been classified according to their site of origin either within bone (intraosseous) or on its surface (juxtacortical).<sup>1</sup> Surface osseous lipomas are subdivided into parosteal and subperiosteal lipomas. Parosteal lipomas often induce a periosteal reaction. The most frequently affected sites are the diaphysis and metaphyseal<sup>2</sup> regions of long bones. The parosteal type is a rare tumour accounting for 0.3% of all lipomas,<sup>3</sup> usually asymptomatic and affecting mainly adults in fifth and sixth decade. They are known to be associated with underlying bony changes like focal cortical hyperostosis, pressure erosion of the underlying bone, bowing deformity and osteochondroma-like configuration.<sup>4</sup>

We report a case of parosteal lipoma with osteochondroma in a 12-year-old male child who came with complaint of swelling over posterior aspect in the right calf since one year. Radiograph of right knee joint AP and lateral views showed a bony growth from the proximal end of fibula, cortex and medulla were in continuation with main bone. There was a well-defined fat density lesion noted surrounding the bony outgrowth. CT scan showed lipomatous mass adherent to fibular periosteum. The bony outgrowth showed marrow continuity with underlying fibula. MRI showed a large well-defined oval-shaped mass lesion noted adjacent to fibula measuring approximately 8.7 x 5 cm causing bone remodelling of the fibula. The lesion was hyperintense on T1W and T2W sequences showing fat suppression on PDFS. This lesion noted to be displacing adjacent muscles laterally. The present case report describes a rare case of parosteal lipoma located adjacent to fibula in association with osteochondroma visible on plain x-ray and confirmed by imaging studies (CT and MRI). Unlike

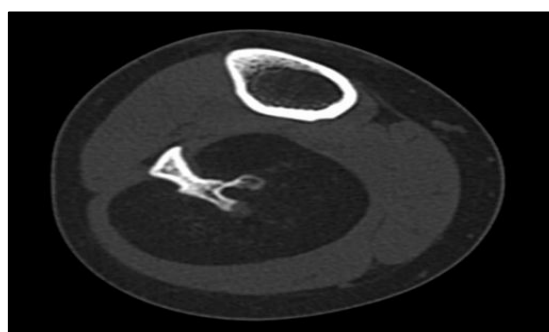
the parosteal lipomas reported earlier in adults over 40 yrs. in this case it presented in a boy of 12 years.



**Figure 1. Clinical Photograph of Child with Painless Swelling in Right Leg Calf Region**



**Figure 2. Radiograph of Right Knee Joint AP and Lateral Views Showing a Bony Growth from the Proximal End of Fibula, Cortex and Medulla are in Continuation with Main Bone and Well-Defined Fat Density Lesion Noted Surrounding the Bony Outgrowth**



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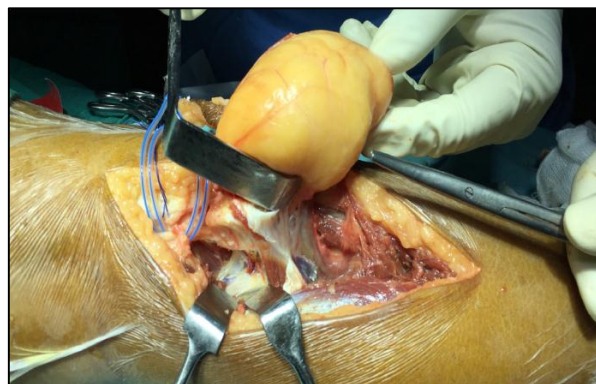




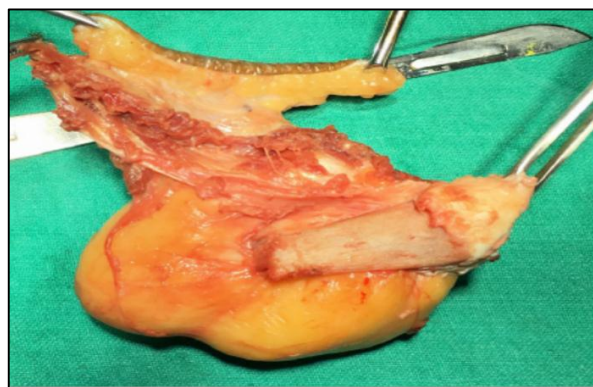
**Figure 3. Axial, Sagittal and Coronal CT Images Showing Lipomatous Mass Adherent to Fibular Periosteum and a Bony Outgrowth. The Cortex and Medullary Cavity are in Continuity with Fibula**



**Figure 4. MRI Showing a Large Well-Defined Oval-Shaped Mass Lesion Noted Adjacent to Fibula Measuring Approximately 8.7 x 5 cm Causing Bone Remodelling of the Fibula. The Lesion is Hyperintense on T1 and T2 Images showing fat Suppression on PDFS; This Lesion Noted to be Displacing Adjacent Muscles Laterally without any Compression over Neurovascular Bundle**



**Figure 5. The Parosteal Lipoma with Osteochondroma was Resected Along with Periosteum of Proximal End of Fibula and then Sent to Biopsy**



**Figure 6. Biopsy Revealed Both Osteal and Fat Components**

**CLINICAL DIAGNOSIS**

HISTOPATHOLOGY REPORT	
B.NO: 5993/16	IP/OP NO : 531608/540544
NATURE OF SPECIMEN : Head of the fibula & tumor mass.	
CLINICAL HISTORY : Swelling over posterior aspect of right calf since 1 year.	
GROSS EXAMINATION : Received part of fibula (head) measuring 6x2.5x2 cms. Lower end showing bony growth: measuring 2x1 cm. Also received yellowish soft tissue mass measuring 8.5x7.5x4 cms. Cut section - shows slimy, homogenous grey yellow area.	
MICROSCOPIC EXAMINATION :	
Decalcified sections from the bony lesion (head of fibula) examined show tissue lined by fibrous capsule underneath which are seen sheets of chondrocytes which are orderly arranged as a cartilaginous capsules, and bony trabeculae, the inter trabecular area show fatty tissue and haemopoietic elements.	
DIAG : FEATURES ARE SUGGESTIVE OF OSTEOCHONDROMA.	
Sections from the soft tissue mass examined show lobules of mature adipose tissue and few skeletal muscle bundles.	
DIAG : FEATURES ARE SUGGESTIVE OF LIPOMA.	

**DISCUSSION OF MANAGEMENT**

Lipomas are the most common benign mesenchymal tumours that usually arise in soft tissues. Parosteal lipoma is a rare benign tumour of adipose tissue arising from mesenchymal cells of periosteum. These lesions show no

specific age or sex predilection and are generally asymptomatic. Most common sites are femur followed by proximal radius. Rarely, these lesions have been reported arising from scapula, clavicle, ribs, pelvis, metacarpals, metatarsals, mandible and skull. Only few cases reported with involvement of fibula.

On radiographs, a parosteal lipoma is a well-defined radiolucent mass (of fat density) is adherent to the external osseous surface.<sup>4</sup> Parosteal lipomas may have underlying bony alterations in combination with cortical hyperostosis or periostitis. Such cortical changes may produce an osteochondroma-like configuration.<sup>4</sup>

On computed tomography, parosteal lipomas have fat density lesion with an osseous component adherent to the surface of the adjacent bone. Computed tomography characterises degree of septation and defines relationship of mass with underlying cortex, which is important for surgical planning.

MR imaging is considered superior to CT in the preoperative evaluation of muscle atrophy and thus plays an important role in the evaluation of the presence and site of nerve impingement by parosteal lipoma. On MRI, the tumour is identified as a juxtacortical mass with signal intensity identical to that of fat, low signal intensity on T1 in the lesion corresponding to fibrovascular strands that are commonly found in lipomatous lesions. These strands can be differentiated from those of well-differentiated liposarcoma as these are thin and lack postcontrast enhancement.<sup>5</sup> T1 and T2 hypointense areas represent osseous components. This finding is best appreciated on T2 weighted images because of the decreased signal intensity of normal muscle relative to fat. Parosteal lipomas may involve in nerve compression.<sup>5</sup>

In our case, medullary continuity between bony protuberance and the adjacent bone, which is the diagnostic clue for osteochondroma and surrounding juxtacortical benign lipoma were seen in the proximal fibula well appreciated in MR imaging. Additionally, no findings related with nerve compression were detected in MR imaging providing confidence to the clinical examination results.

## DIFFERENTIAL DIAGNOSIS

The close differential diagnosis is soft tissue lipoma. It was excluded because the soft tissue lipoma is not adherent to bone.

## MANAGEMENT

No treatment is necessary, if patient is symptomatic surgical resection is ideal.<sup>6</sup>

## SUMMARY

Imaging plays an important role in diagnosis, characterisation of the lesion with plain radiograph, CT and MRI evaluating bone involvement and the effect of the parosteal lipoma on the neurovascular bundle and muscle atrophy. The prognosis is usually favourable with no proven reports of malignancy or recurrence and with full recovery of the patient.

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