

## Case Report

# Intraspinal Osteolipoma: A Rare Case

Rishabh Jain, Shashank Raj, Gurpreet Singh Sandhu, Vikas Bhatia, Mahesh Prakash

Department of Radiodiagnosis and Imaging, Post Graduate Institute of Medical Education and Research, Chandigarh, India.



### \*Corresponding author:

Vikas Bhatia,  
Department of Radiodiagnosis  
and Imaging, Post Graduate  
Institute of Medical Education  
and Research, Chandigarh,  
India.

drvikasbhatia@gmail.com

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## ABSTRACT

Osteolipomas have been described as the presence of metaplastic bone within lipoma. They have been rarely described in spine, with the incidence of <1% and generally present with symptoms of compressive myelopathy. We report a case of a 67-year-old female with chronic backache and pain radiating to bilateral lower limbs (L>R). On imaging, she was diagnosed to have an extradural fat-containing osseous lesion in lumbar spine causing compression of traversing and exiting nerve roots resulting in clinical symptoms.

**Keywords:** Computed tomography, Extradural, Lumbar spine, Magnetic resonance imaging, Osteolipoma

## INTRODUCTION

Lipoma is the most common benign soft tissue tumor in the adults.<sup>[1]</sup> They are mostly located in the superficial subcutaneous tissue, however, may also be found in deeper tissues with the presence of mesenchymal components such as fibrous connective tissue (fibrolipoma), smooth muscle (myolipoma), blood vessels (angioliipoma), chondroid (chondrolipoma), and osseous tissue (osteolipoma).<sup>[2,3]</sup> Although lipomas originating in the bony tissues are common, isolated adipocytes with osteoid and chondroid matrix and no connection to the bone are very rare. The reported incidence of osteolipoma in literature is <1%.<sup>[4]</sup> Most of them arise from the buccal mucosa, palate, neck, brain, thigh, and knee.<sup>[5-9]</sup> A thorough review of literature showed only four cases of intraspinal osteolipomas – two in cervical region, one in the thoracic, and one in the lumbar region.<sup>[10-13]</sup> We present a case of extradural intraspinal fat-containing osseous lesion in the lumbar spine and discuss the clinical presentation, differential diagnosis, and a brief review of literature.

## CASE REPORT

A 67-year-old obese female presented with complains of low backache for 8–10 years. The pain was sharp and radiating to the bilateral lower limbs (L>R). There was no associated sensory or bladder/bowel complains. The pain had gradually worsened in the past 2 years, more on getting up from lying position, bending forward, and currently, she required assistance during walking.

Examination revealed positive straight-leg-raising test. The motor and sensory examinations were essentially normal. A provisional diagnosis of radiculopathy was made and a contrast enhanced-magnetic resonance imaging (MRI) of spine was done subsequently.

MRI lumbosacra spine (LS) [Figure 1a-d] revealed a 10 mm [CC] × 7.5 mm [TR] × 5.8 mm [AP] extradural lesion at L2/L3 level compressing the cauda equina and the exiting left side nerve roots. The lesion was T2/T1 hyperintense and suppressed on short inversion time inversion recovery

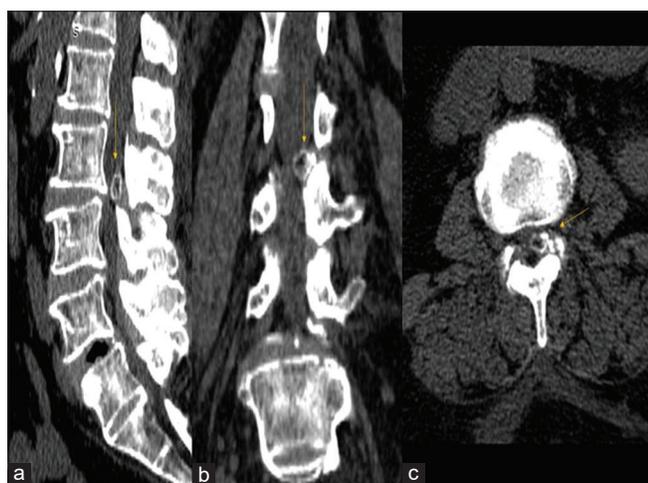
sequence. No flow voids were seen within. Well-defined T1/T2 hypointense rim was seen around the lesion showing peripheral enhancement on post-contrast images. No communication with the facet joint was seen. CT scan of LS spine [Figure 2a-c] was subsequently done which confirmed well-defined fat-attenuating osseous lesion in the extradural location at L2/L3 level adjacent to the left facet joint showing peripheral cortical rim. The patient was not taken up for surgery due to old age and associated cardiovascular disease.

## DISCUSSION

Osteolipomas have been described as metaplastic bone within a lipoma.<sup>[3]</sup> They can be interosseous or parosteal in



**Figure 1:** Sagittal T2W (a), sagittal T1W (b) and axial T1W (c) images showing a hyperintense well defined lesion with hypointense rim. On post contrast fat saturated sagittal (d) images there is suppression of central fat signal with peripheral rim enhancement.



**Figure 2:** (a) Sagittal, (b) coronal, (c) axial non-contrasted cranial computed tomography sections showing a well-defined extra axial fat attenuating lesion at L2/L3 level on left side showing peripheral cortical rim. Associated degenerative changes are also noted.

position. When a lipoma undergoes ossification independent of bone, it is called ossifying lipoma.<sup>[14]</sup> They are always mostly accompanied with spinal dysraphism.

To the best of our knowledge, only four case reports of isolated intraspinal osteolipoma have been described in literature so far. Yin *et al.* described the first case of intraspinal extradural osteolipoma in cervical region causing nerve compression.<sup>[10]</sup> Aiyer *et al.* reported another osteolipoma causing dorsal column dysfunction and present in cervical region which was reported.<sup>[11]</sup> Kojima *et al.* reported isolated intramedullary osteolipoma in the upper thoracic cord.<sup>[12]</sup> However, there has been only one other case in literature of a lumbar intraspinal osteolipoma which presented with cauda equina syndrome.<sup>[13]</sup> Our index case resembles this case in terms of imaging characteristics both on MRI and CT.

Most of these patients present with features of compressive myelopathy over the years and diagnosed after MR evaluation. Heterogeneous T1/T2 hyperintense lesion on MRI should raise the suspicion of both fat and calcium in the lesion and a CT evaluation should be done for further confirmation.<sup>[13]</sup>

The differential diagnosis of spinal osteolipoma includes bone containing lesions such as calcified synovial cyst, dermoid, teratomas, tumoral calcinosis, extraosseous osteochondroma, myositis ossificans, and ossifying fibromas.

A calcified synovial cyst is usually associated with adjacent facet joint, degenerative spondylosis, and vacuum phenomenon and shows T1/T2W hypointense signal when completely calcified.

Ossified ligamentum flavum and ossified posterior longitudinal ligament can mimic the appearance of an osteolipoma on imaging and present with compressive myelopathy.<sup>[15]</sup> They can be differentiated by the presence of hypointense T1/T2W signal and location along the ligament.

Pathogenesis of osteolipomas is believed to be secondary ossification due to repetitive insults which may lead to development into osteoblasts.<sup>[8,14,16]</sup> This has been supported by the cytogenetic analysis of three cases of osteolipoma.<sup>[17]</sup>

## CONCLUSION

Both MRI with fat suppression and CT are required for the evaluation of extradural heterogeneous hyperintense fat lesions in the spinal canal. At the same time, the interpreting radiologist should be aware of the differential diagnosis of this type of lesion in the epidural space.

## Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms.

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Nil.

**Conflicts of interest**

There are no conflicts of interest.

**REFERENCES**

- Murphey MD, Carroll JF, Flemming DJ, Pope TL, Gannon FH, Kransdorf MJ, *et al.* From the archives of the AFIP: Benign musculoskeletal lipomatous lesions. *Radiographics* 2004;24:1433-66.
- Drevelgas A, Pilavaki M, Chourmouzi D. Lipomatous tumors of soft tissue: MR appearance with histological correlation. *Eur J Radiol* 2004;50:257-67.
- Katzer B. Histopathology of rare chondroosteoblastic metaplasia in benign lipomas. *Pathol Res Pract* 1989;184:437-45.
- Obermann EC, Bele S, Brawanski A, Knuechel R, Hofstaedter F. Ossifying lipoma. *Virchows Arch* 1999;434:181-3.
- Chaudhuri A, Mondal I, Samaddar A, Das N, Nag D. Osteolipoma of knee: A rare case report. *Ann Appl Bio Sci* 2017;4:C7-9.
- Shabbir F, Putnam G. Oral osteolipoma: A case report: Oral osteolipoma: A case report. *Oral Surg* 2014;7:56-8.
- Sinson G, Gennarelli TA, Wells GB. Suprasellar osteolipoma: Case report. *Surg Neurol* 1998;50:457-60.
- Heffernan EJ, Lefaivre K, Munk PL, Nielsen TO, Masri BA. Ossifying lipoma of the thigh. *Br J Radiol* 2008;81:e207-10.
- Bulkeley W, Mills OL, Gonzalvo A, Wong K. Osteolipoma of the parapharyngeal space mimicking liposarcoma: A case report. *Head Neck* 2012;34:301-3.
- Lin YC, Huang CC, Chen HJ. Intraspinal osteolipoma. Case report. *J Neurosurg* 2001;94:126-8.
- Aiyer SN, Shetty AP, Kanna R, Maheswaran A, Rajasekaran S. Isolated dorsal column dysfunction due to an intraspinal osteolipoma case report and review of literature. *J Clin Orthop Trauma* 2016;7:2-4.
- Kojima K, Iwanami A, Mikami S, Ishii K, Matsumoto M, Nakamura M, *et al.* An intramedullary osteolipoma of the upper thoracic spinal cord: A case report. *JBJS Case Connect* 2016;6:e80.
- Raja SD, Kanna RM, Shetty AP, Rajasekaran S. Lumbar intraspinal osteolipoma presenting as cauda equina syndrome: A case report and review of literature. *Case Rep Orthop* 2018;2018:5.
- Kameyama K, Akasaka Y, Miyazaki H, Hata J. Ossifying lipoma independent of bone tissue. *ORL J Otorhinolaryngol Relat Spec* 2000;62:170-2.
- Kotani Y, Takahata M, Abumi K, Ito M, Sudo H, Minami A, *et al.* Cervical myelopathy resulting from combined ossification of the ligamentum flavum and posterior longitudinal ligament: Report of two cases and literature review. *Spine J* 2013;13:e1-6.
- Demiralp B, Alderete JF, Kose O, Ozcan A, Cicek I, Basbozkurt M, *et al.* Osteolipoma independent of bone tissue: A case report. *Cases J* 2009;2:8711.
- Fritchie KJ, Renner JB, Rao KW, Esther RJ. Osteolipoma: Radiological, pathological, and cytogenetic analysis of three cases. *Skeletal Radiol* 2012;41:237-44.

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