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Case Report

Extradural chondroma presenting as lumbar mass with compressive neuropathy

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Abstract

The identification of a soft tissue chondroma within the spine represents a rarity and is typically not included within the differential diagnosis for patients with sensory complaints of the leg. The authors describe 46-year-old female presenting with 3-week history of decreased sensation and paresthesias of the left leg. Magnetic resonance imaging of the lumbar spine demonstrated an L3 extradural soft tissue mass. She underwent an uncomplicated excision through an L3 laminectomy and exhibited complete resolution of symptoms. Pathologic examination revealed benign cartilaginous tissue; however, the authors recommend long-term follow-up for such lesions as the potential for malignant transformation is unknown.

Key words: Dural-based chondroma, lumbar mass, radiculopathy, spinal chondroma

INTRODUCTION

Patients presenting with recent onset of low back pain and dermatomal sensory loss are often evaluated for common entities including disc herniation, degenerative lateral recess stenosis, nerve sheath tumor, and meningioma. Described herein is a patient presenting with such symptoms who was found to have an extradural soft tissue chondroma in the lumbar spine, which was successfully treated with surgical excision.

When found in an intraosseous location, chondromas are called endochondromas. If associated with the cortical surface, they are termed periosteal chondromas, and when located at a site distant from the bone, they are referred to as soft tissue chondromas. True soft tissue chondromas are uncommon, and the identification of this tumor within the spinal canal represents an extreme rarity.[1,2]

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CASE REPORT

A 46-year-old female presented with a 3-week history of lower back pain with decreased sensation and paresthesias of the left lower extremity. She denied prior oncological history or new motor weakness. Plain X-ray films of the lumbar spine were noted to be unremarkable with no boney erosion or reactive bone growth visualized [Figure 1]. The magnetic resonance imaging of the lumbar spine with and without contrast demonstrated an extradural soft tissue mass within the spinal canal at the L3 level with extension into the left L3/4 neural foramen [Figure 2].

The patient initially refused surgery and noted moderate improvement of symptoms following administration of dexamethasone. As symptoms did not completely resolve, she agreed to proceed with an L3 laminectomy with wide left L3/4 foraminotomy for excision of the lesion. Intraoperative electromyography was utilized for the monitoring of motor potentials during tumor removal. During the operation, the thecal sac was noted to have a normal appearance, with

moderate amounts of abnormal grey tissue, found both ventrally and dorsally to the ligamentum flavum. At the site of the nerve root axilla, excess soft tissue was encountered which was firm in consistency and noted to be compressing the nerve. While the tissue was resected clear of the dura, transient self-resolving irritation was noted on electromyogram. A gross total resection was performed. Postoperatively the patient did well and had exhibited complete resolution of symptoms at 5-month follow-up.

Pathologic examination revealed benign cartilaginous tissue organized in a lobulated pattern of loose clusters of chondrocytes surrounded by abundant chondroid stroma. Neoplastic cells were relatively uniform in morphology with small dark oval nuclei. No calcification was present. Findings suggestive of aggressive chondrosarcoma such as mitotic figures, double-nucleated chondrocytes, and a significant spindle cell component were notably absent [Figure 3].

DISCUSSION

Chondromas of the spinal column comprise <5% of primary spinal tumors.[3-9] It is rare for these tumors to arise in an extradural location but when such tumors have been encountered they are frequently located within the cranium. These cranial chondromas typically represent the periosteal variant which is common at the spheno-petrosal, spheno-occipital, or petro-occipital synchondroses.[2,4] Definitive treatment of these tumors is usually accomplished with complete resection.[5]

The soft tissue variant of chondroma such as described above is rare and is thought to arise from cartilaginous cell rests of mesenchymal origin that are thought to be displaced during development. These ectopic masses are typically asymptomatic and often noted as incidental findings on radiographic evaluation. This variant of chondroma is a rarity at any location particularly along the central nervous system and exceptionally rare in the lumbar spine.

Cho *et al.* described a case of lumbar extradural chondroma in a patient with ipsilateral lower extremity paresthesias. In their report, Cho *et al.*, describe a complete excision through a unilateral hemilaminotomy without reported recurrence.[2] Cetinkal *et al.* have reported a single case of extradural chondroma at the L2 level. This patient presented with femoral numbness and L2 hypesthesia and was treated with complete excision through a partial hemilaminectomy. It is of note that in this rare case, the intradural compartment was explored, and no gross infiltration of tumor was observed.[3] Additional authors have described the more common periosteal variant presenting within the vertebrae. Recently, Ogata *et al.* described a periosteal chondroma in the lumbar region presenting with lower extremity weakness and radiculopathy.[9] These periosteal chondromas are distinct in their origination from within the periosteal tissue plane and are frequently nestled partly within the underlying cortical bone.[10] It is of note that the present case was characterized by localization outside of the periosteal tissues and contained partially by the epidural fat pad.

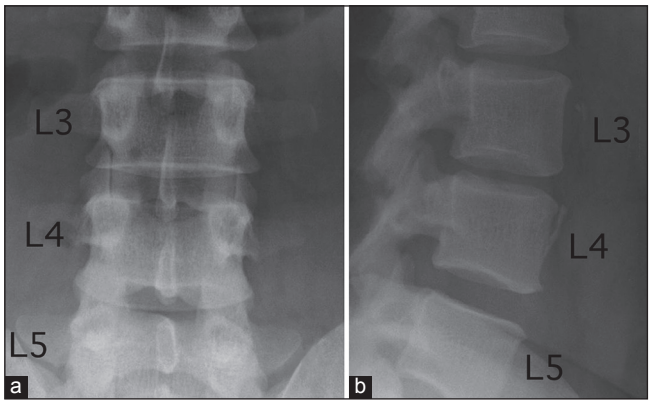

Figure 1: (a) Anteroposterior and (b) lateral X-ray films of the lumbar spine with attention to the L3/4 intervertebral space show no signs of boney erosion or reactive bone growth to suggest invasive tumor

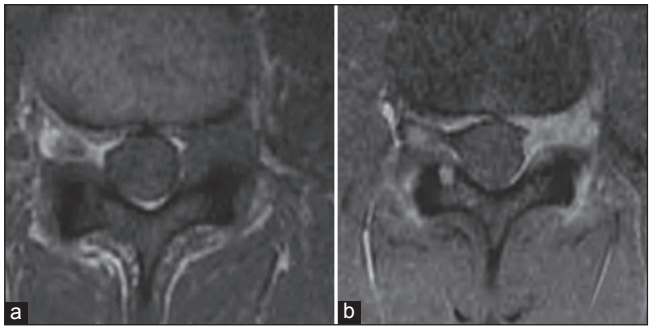

Figure 2: Axial noncontrast T1 (a) and postgadolinium T1 with fat saturation (b) magnetic resonance imaging of the lumbar spine show a homogeneously enhancing soft tissue mass within the left L3 lateral recess extending into L3/4 neural foramen

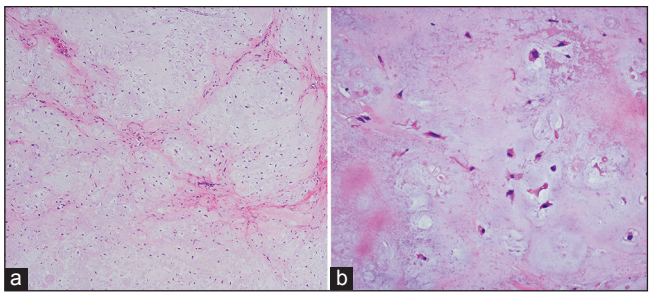

Figure 3: Hematoxylin and eosin stain at ×10 magnification (a) shows benign cartilaginous tissue organized in a lobulated pattern. At ×40 magnification (b) chondrocytes surrounded by abundant chondroid stroma without mitosis are present

While the majority of chondromas of the lumbar spine are likely to remain asymptomatic or present merely as a palpable paravertebral mass, many may mimic disc herniation or nerve sheath tumors.[7,8] For this patient, our differential diagnosis upon presentation included nerve sheath tumor, meningioma, or possibly lymphoma. While the majority of vertebral chondromas represent benign tumors, long-term follow-up is recommended for lesions of unusual pathology, such as the

presented case as the potential for malignant transformation is unknown.[3]

Histologically, chondromas typically appear as well differentiated lobules of chondrocytes in hyaline cartilage. Cells may reside in small nests referred to as isogenous groups and occupy lucent spaces within their myxoid matrix called lacunae. Varying degrees of calcification are found in approximately one-third of cases. Immunohistochemical staining will typically be positive for S-100 protein, and negative for epithelial markers such as AE1/AE3 and epithelial membrane antigen.[3] Additional research will be helpful in further characterizing the genetic makeup of similar ectopic lesions as this may provide insight into their formation.

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