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Case Report

Intraspinal calcinosis mimicking intervertebral disc extrusion: A clinical and surgical case report

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Abstract

Background: Subcutaneous calcinosis is a well-recognized manifestation of systemic sclerosis that usually involves multiple pressure points and may also be found in the paraspinal or intraspinal regions. In this case, intraspinal calcinosis uniquely led to a severe neurological deficit.

Case Description: A patient with severe systemic sclerosis/calcinosis exhibited left greater than right lower extremity radiculopathy attributed to intraspinal left-sided L4-L5 calcinosis. On examination, the patient exhibited bilateral positive Lasegue signs, distal lower extremity weakness (left greater than right), and bilaterally decreased Achilles responses. When the magnetic resonance imaging (MRI) revealed a significant intracanalicular mass on the left side at the L4-L5 level, the patient underwent a left-sided L4-L5 decompressive laminectomy. The MRI scan 5 years later revealed no recurrence of the calcinosis, and the patient had no residual neurological deficit.

Conclusions: Spinal calcinosis rarely involves the lumbar spinal canal. Here, a patient with a large left-sided L4-L5 focus of intraspinal calcinosis, mimicking a disc herniation, required a laminectomy to resect the lesion. Lumbar calcinosis should be radiologically evaluated utilizing using X-ray, MRI, and computed tomography studies to adequately document the pathology. Patients, when symptomatic, may require surgical decompression and excision of these lesions.

Key Words: CREST syndrome, spinal calcinosis, surgical treatment, systemic sclerosis

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INTRODUCTION

Systemic sclerosis is classified into two groups based on the extent of skin thickening: (1) limited and (2) diffuse scleroderma. The acronym CREST refers to its five main features: calcinosis, Raynaud's disease, esophageal dysmotility, sclerodactyly, and telangiectasia. Subcutaneous calcinosis occurs in both types of systemic

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sclerosis, and is more common in patients with limited scleroderma as part of the CREST syndrome.[2,5] Paraspinal and intraspinal calcifications (calcinosis) rarely occur in the cervical followed by the thoracic and even more rarely the lumbar spine where they can lead to severe neurological deficits warranting operative decompression.[3,5,11] Here, we present a patient with severe systemic sclerosis who exhibited marked left-sided L4-L5 lumbar calcinosis, mimicking a disc herniation, that warranted such operative decompression.

CASE DESCRIPTION

History

A 56-year-old female patient presented with swelling of the joints of the hands and coldness of the extremities. A skin biopsy showed reduced blood vessels in the dermis, and degenerative changes in the collagen/elastic fibers. She was diagnosed with systemic sclerosis, and methotrexate was prescribed. She then presented with 3 months of increasing left lower extremity radiculopathy accompanied by bilateral positive Lasegue signs (30°), weakness of both dorsi and plantar flexion, and diminished Achilles reflexes.

Radiographic findings

The X-rays showed stenosis at the L5 and S1 levels along with ossification involving the L3, L4, and L5 vertebral bodies. The most prominent magnetic resonance (MRI) finding was an intraspinal lesion at the L4-L5 level resulting in significant left L5 root compression. Additional MRI studies of the cervical, thoracic, and lumbar regions demonstrated additional intervertebral disc protrusions. In particular, the lumbosacral MRI revealed a perineural cyst of the sacrum, and a large calcified mass dorsal to S1 vertebral body [Figure 1].

Operation and postoperative course

The patient underwent a laminectomy at the L4-L5 level, where a calcified mass was decompressed/excised. The pathohistological examination confirmed collagen fibers (accounting for the fibrinous external layer) covered by frank calcium deposits consistent with the diagnosis of calcinosis [Figure 2]. Postoperatively, the patient was asymptomatic. The MRI 6 months later showed no signs of recurrent compression/calcification. She was suggested to continue with methotrexate. Five years later, the MRI again confirmed no recurrence of calcification [Figure 3].

DISCUSSION

Types of calcinosis

Soft tissue calcifications are historically divided into four types: dystrophic, tumorous, metastatic, and idiopathic.[4-6]

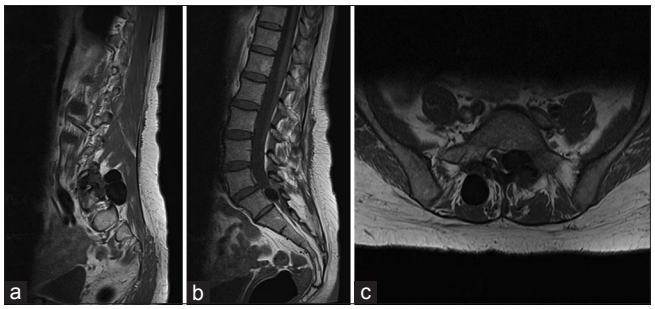

Figure 1: Preoperative MRI scan in sagittal (a and b) and transverse plane (c) showing intraspinal and paraspinal masses at levels L5 and S1

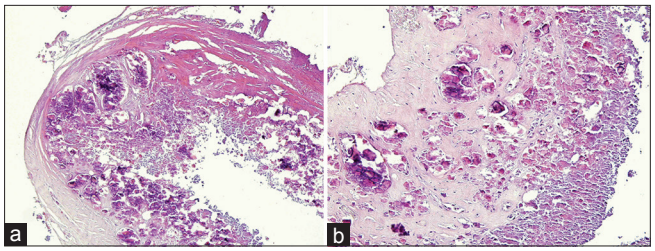

Figure 2: Microphotography of pathohistological section of removed intraspinal and paraspinal masses presented with hematoxylin–eosin staining, magnification of ×100 (a) and ×200 (b)

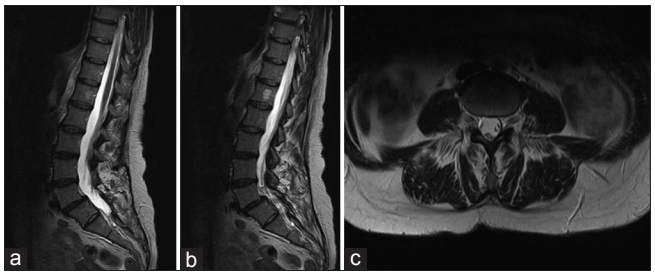

Figure 3: Control MRI scan, 5 years after initial tumor occurred, in sagittal (a and b) and transverse plane (c), revealed no recurrence of tumors

Serum levels of calcium and phosphorus in patients with dystrophic calcinosis, including our patient, are usually within normal limits. There is a fifth type of calcinosis called calciphylaxis because of the presence of a vitamin D or parathyroid hormone playing the role of a "calcifer."[5]

Spinal locations of calcinosis

Spinal calcinosis rarely occurs.[3,7,11] In some studies, the most common sites for spinal calcinosis are the cervical followed by the thoracic spine, and very rarely, the lumbar spine; other studies demonstrate calcinosis commonly involving the cervical or lumbar regions.[3,4,6,8,11]

Neurological presentation of calcinosis

Neurological symptoms and signs of spinal calcinosis may include focal pain, weakness, radiculopathy, decreased range of motion, and focal neurological deficits.[3,7,9,11] Our patient presented with a left-sided L5 radiculopathy attributed to the L4-L5 left-sided

intraspinal lesion that mimicked a calcified disc herniation. Antiinflammatory medications, methotrexate, long-term low-calcium/low-phosphorus diets, calcium channel blockers, and even low-dose Warfarin may lead to symptom reduction/resolution in some cases, but in this patient operative decompression was warranted.[1,10]

Lumbar laminectomy for calcinosis

Patients with significant neurological deficits associated with intraspinal calcinosis may require operative decompression.[10] Here, the patient underwent an open left-sided L4-L5 laminectomy for excision of intracanalicular calcinosis resulting in full symptom/sign resolution. In this setting, more likely than not, a minimally invasive approach would not have been as safe or effective as it would have provided inadequate exposure.[3]

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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