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CASE REPORT

A Case Report on Lumbar Synovial Cyst: An Uncommon Presentation

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ABSTRACT

Lumbar synovial cyst, though rare, can mimic many other conditions including lumbar radiculopathy or neurogenic claudication and therefore should be included in the differential diagnosis for radiculopathy, especially in elderly patients. Here we discuss our experience with a postoperative case of transpedicular screw fixation presenting with typical features radiculopathy and claudication symptoms caused by a lumbar synovial cyst, its diagnosis and successful management of the neurological symptoms.

Keywords: Nerve root compression, Spine surgery, Synovial cyst

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INTRODUCTION

Spinal ganglion cyst was first reported in 1880[1] with first surgical treatment for nerve root compression caused by juxta-facet cyst being reported in 1950.[2] Spinal synovial cyst or juxtafacet cysts are uncommon but not rare causes of radiculopathy, neurogenic claudication, myelopathy, neurological deficit, and even cauda equine syndrome.[3] The majority are found in the lumbar spine region, at an L4-L5 level associated with facet joint osteoarthritis and spondylolisthesis.[4] Trauma is the next common cause of extradural lumbar synovial cyst.[5] The terms spinal synovial and ganglion cyst are being used interchangeably, but these two lesions can be differentiated by the presence or absence of a synovial lining membrane.[6] The incidence of lumbar synovial cysts is 0.65 to 2.3% depending upon the diagnostic technique utilized.[7]

Here we discuss our experience with a postoperative case of transpedicular screw fixation presenting with typical features radiculopathy and claudication symptoms caused by a lumbar synovial cyst, its diagnosis and successful management of the neurological symptoms.

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CASE REPORT

A 66-year male patient presented the outpatient clinic with a history of pain over right lower back region radiating all over the lateral aspect of the thigh and leg up to right ankle region since past one month with leg pain more troublesome than back pain. The pain was of moderate to the severe intensity at the time of presentation with an nerve root compression (NRS) score of 7 over the previous week. Leg pain increased on walking with symptoms of numbness and heaviness of lower limb produced after 10-15 minutes of walking since past 7 to 8 days and got partially relieved on lying down and sitting. Back pain typically aggravated on sitting to standing. The patient had a history of transpedicular screw fixation done at L4-L5 in view of spondylolisthesis, 8 years back. After the surgery, the patient was completely fine till the time of production of the above symptoms. The patient was a known case of hypertension and ischemic heart disease, on treatment with tablet metoprolol 25 mg once a day, tablet Ecosprin 75 mg once a day, tablet atorvastatin 10 mg once a day with the history of angioplasty done 6 years ago. Examination findings included hypoesthesia in the region of right S1 dermatome, straight leg raising test positive on the right side at 50, FAIR test positive on right limb and tenderness present over right SI joint region. MRI of the lumbar spine region showed previous posterior spinal decompression, pedicle screw fixation and disc insert at the L5/S1 level with a note being made of asymmetrical, left-sided small disc bulge. In addition, a small foraminal/extraforaminal disc protrusion and significant facet arthropathy at L4/5 causing moderate–severe spinal canal narrowing and mass effect on the thecal sac/caudaequina nerves was observed. (Figs. 1 and 2) A diagnosis of facet synovial cyst producing lateral canal stenosis was made, and the patient was planned for percutaneous facet synovial cyst aspiration under fluoroscopic guidance. Under all aseptic precautions, parts were cleaned and draped, and after adjusting for true Anteroposterior (AP) view and squaring of the L5 vertebral level, AP view lumbar spine showed previous transpedicular screw inserts at L5-S1 levels. (Fig. 3). In an oblique view, L4-L5 facet joint identified and facet joint aspiration was done, under local anesthesia coverage, with a 22 G, a 12 cms spinal needle inserted through an 18 G intravenous cannula sheath. (Fig. 4). A total

volume of 0.8 mL hemorrhagic cyst fluid was aspirated. 1 mL mixture of 1% lignocaine and 10 mg depo medrol was given both intra-articular and peri-articular L4-L5 facet region. (Figs. 5 to 7). Significant symptom relief was noted, immediately after the procedure and on 2 weeks and 3 months follow-up of the patient. Postprocedure, the patient was started on tablet aceclofenac 100 mg twice a day for 5 days, capsule clindamycin 150 mg twice a day

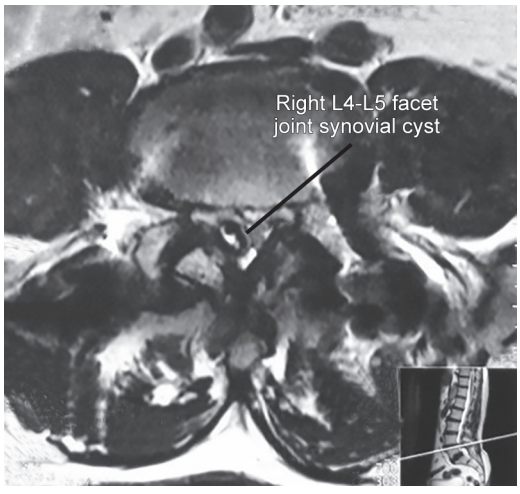

Fig. 1: MRI transverse section at L3-L4 level depicting synovial cyst

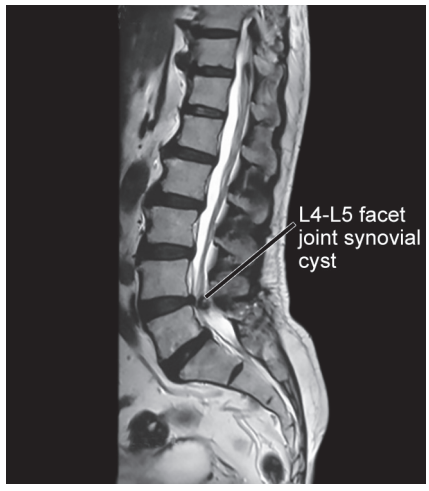

Fig 2: Sagittal MRI section depicting synovial cyst at L4-L5 level

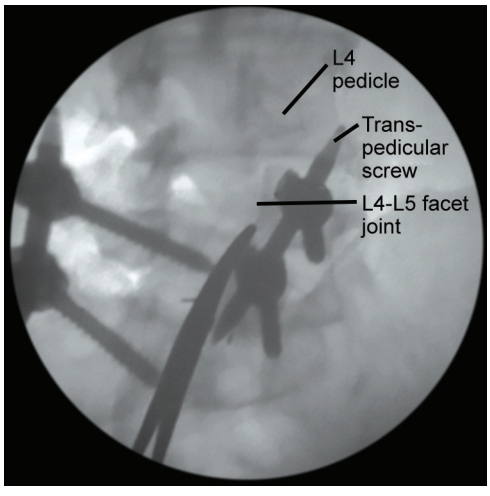

Fig. 3: Oblique view showing L4-L5 facet joint with transpedicular screws in situ

Fig 4: 23 G Spinal needle inserted through the 18 G cannula

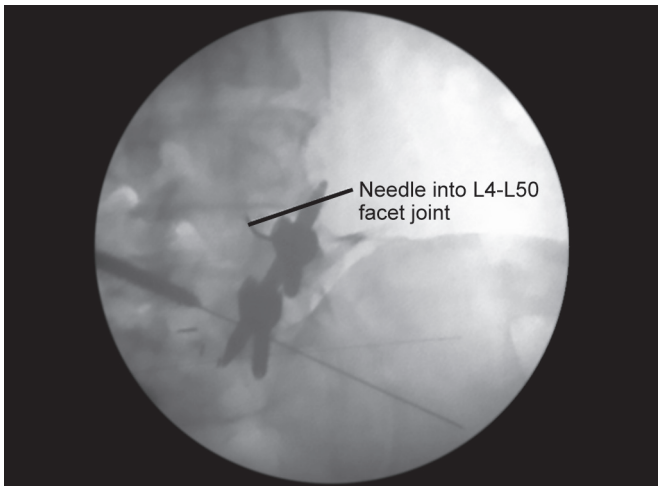

Fig 5: Oblique view showing spinal needle inside the Right L4-L5 facet joint

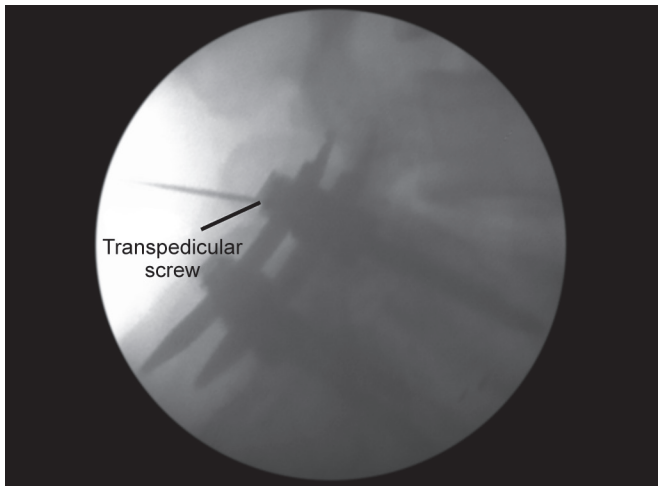

Fig 6: Lateral view obscured by the pedicle screws in view

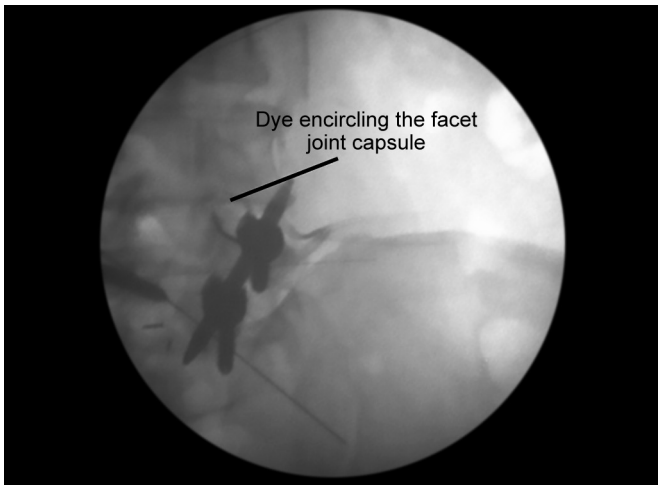

Fig 7: Facet joint capsule after dye injection

for 5 days, tablet Nortriptyline 10 mg and tablet Pregabalin 75 mg once a day at bedtime for 2 weeks period and was advised to follow up after 2 weeks period.

DISCUSSION

Our patient had a synovial cyst located on the postero-lateral side of the spinal canal with continuity with the facet joint possibly arising as an outpouching of the synovium of the facet joint. Mobile segments of the lumbar vertebrae as a result of increased stress precipitate the development of the lumbar synovial cyst.[8] Transpedicular screw fixation at L5-S1 facet level might have resulted in increased stress precipitation on L4-L5 facet resulting in the formation of the synovial cyst. Clinical findings of S1 radiculopathy can be explained by the location of the synovial cyst causing compression of the cauda equine fibers, in particular, S1 nerve fiber, on the right side in this particular case. Acute deterioration in symptoms may result from hemorrhage into the cystic cavity in 2% of patients.[9] Relatively acute development of symptoms over the period of one month period can be explained by the *hemorrhagic cystic* fluid of the synovial cyst.

Controversy regarding percutaneous versus open surgical treatment of lumbar synovial cyst does exist. Numerous minimal invasive methods for treatment of lumbar synovial cyst have been mentioned in literature including both CT and endoscopy-guided needle aspiration and steroid injection into the cyst cavity.[10] In patients with intractable pain and severe neurological deficits, surgical treatment remains the gold standard wherein the cyst wall needs to be removed to avoid recurrence. During their course, Lumbar synovial cysts may show spontaneous regression with resolution of symptoms, however, if left untreated may result in complications like lysis in the bone or haemorrhage resembling malignancy or infection on MRI imaging.[11] The differential diagnosis of extradural lumbar cysts include perineural cyst, schwannomas, migrated disk fragment, arachnoid cyst, neurofibroma, meningioma, abscess, lipoma, and metastatic diseases.[12]

CONCLUSION

The extradural lumbar synovial cyst is a treatable cause of lumbar radiculopathy or neurogenic claudication which should be considered as a differential diagnosis, especially in elderly patients. MRI is the imaging modality for diagnosis which can be followed up with serial images to know the fluctuation of size. It can have a spontaneous resolution, but reports of acute presentation with cauda equina syndrome necessitate prompt diagnosis and requisite management for this condition.

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