Case Report

Lumbar Facet Cyst as a Rare Cause of L5 Radiculopathy: A Case Report

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Keywords

Facet cyst · Radiculopathy · Lumbar spine

Abstract

Lumbar facet cysts arise from zygapophyseal joints and are commonly associated with spondylosis. They are a rare cause of symptomatic nerve root compression. We are presenting a rare case of L4/5 lumbar facet cyst compressing the nerve root in a patient presenting with L5 radiculopathy. The clinical picture of a facet cyst in this case is similar to intervertebral disc disease.

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Introduction

Intraspinal extradural synovial cysts arising from spine facet joints are most commonly associated with degenerative spondylosis of the facet joints [1]. They are frequently seen in the lumbar spine, but it can arise in the thoracic and cervical spine as well [2].

Spinal facet cysts are usually asymptomatic and found incidentally; however, they may rarely present with long-standing low back pain, radiculopathy, or symptoms of neurogenic claudication [3, 4].

Here, we present a rare case of a facet cyst causing compression of right L5 nerve root in a patient with right lower limb radiculopathy.

Case Report

A 61-year-old man presented with right-sided lower limb radiculopathic pain lasting for 6 months and related to activity. It increased in severity for the last 3 months. His medical history included diabetes, dyslipidemia, and benign prostatic hyperplasia. Clinically he has no neurological deficits. Straight leg raising test was positive on the right side at 40°.

Plain anterior-posterior and lateral radiograph of the lumbosacral region revealed mild degenerative changes. MRI showed an extradural cystic lesion arising from the right side L4/5 facet and causing compression of the right L5 nerve root (Fig. 1, Fig. 2). Inflammatory markers were normal.

Conservative treatments, including analgesic medications and physiotherapy, were attempted, but with no significant improvement. The patient underwent resection of the facet cyst under general anesthesia in a prone position through the posterior approach. Intraoperatively, an extradural cyst of approximately 1.5 cm located along the medial border of the facet joint was found. It was arising from the L4/5 facet joint which was moderately degenerated. The cyst was compressing the thecal sac and the right side L5 nerve root which was under tension (Fig. 3). During release of the cyst from the dura, it got ruptured and mucoid-like fluid came out (Fig. 4). The cyst was resected in pieces and a sample was sent for histopathology examination (Fig. 5). On microscopy, a fibrocollagenous cyst wall was seen with dense granulation tissue. The cyst was lined by fibrinous material; no obvious epithelial lining was identified. On the whole, the features were in keeping with a facet cyst.

Postoperatively, the patient's symptoms of radiculopathy improved and he was mobilized full weight bearing. He was sent home on day 1 postoperatively. He was reviewed in the outpatient clinic 3 months after surgery and remained asymptomatic.

Discussion

Spinal facet cysts are usually common in an older population with an average age of 66 years and frequencies ranging from 0.6 to 7.3% [5]. Bilateral lumbar facet cysts are rare, with reported frequency of 4% in surgically treated patients for lumbar facet cyst at the Mayo clinic over 24 years [5].

In the lumbar spine, synovial facet cysts are most commonly found at the L4–L5 level (68.4%) followed by the L5–S1 level (21.1%) [6, 7]. Generally, the L4–L5 level has the most movements at the lumbar spine predisposing to facet joint osteoarthritis and cyst formation [7, 8]. Their etiopathogenesis is poorly understood, but they are often associated with degenerative facet disease, spondylolisthesis and spinal trauma [9–11].

Spinal facet cysts are usually asymptomatic and found incidentally on MRI; however, they may present with back pain, radicular pain, neurogenic claudication, and rarely with cauda equina syndrome and myelopathy [3, 4, 12, 13]. In our case, the patient presented with right-sided L5 radicular pain typical of lumbar disc disease. However, his MRI revealed right-sided L4/5 facet cyst compressing the right side L5 root which could explain his symptom. Motor deficit can occur in (12–37.2%) of the patients, sensory loss in (26–43%), and reflex changes in (35–57%) [14–16].

The differential diagnosis for nondiscogenic sciatica includes lumbar radicular herpes zoster, lumbar instability, nerve root schwannoma, sacroiliitis, sciatic neuritis, facet cyst, and hypertrophy, piriformis syndrome, and intrapelvic mass or coxarthrosis [17].

The differential diagnosis of soft tissue mass in the intraspinal lumbar epidural space includes facet cyst, extruded or sequestered disc fragment, metastatic tumor, meningioma, schwannoma, neurofibroma with cystic degeneration, arachnoid cyst, perineural cyst, and dermoid cyst [7].

There are many radiological tools which help in making a diagnosis of intraspinal facet cysts including myelography, CT scan, facet arthrogram, and MRI [18]. However, magnetic resonance imaging is known to offer the best means of diagnosing and visualizing the cyst, especially with the use of contrast agent [7, 18]. Typically, facet cyst are characterized by their low-intensity signal in T1-weighted images on MR imaging and a high-intensity signal in T2-weighted images [15].

Extensive nonsurgical treatment can be considered as the first therapeutic option, especially in patients without neurological deficits as spontaneous regression of these cysts are possible [19]. The nonsurgical management consists of analgesics, physiotherapy, bracing, facet injection, and cyst aspiration [5]. Many studies have reported cases of spontaneous resolution of facet cyst with conservative treatment with complete remission of clinical and radiological findings [19–21].

The fluoroscopic or CT-guided direct lumbar facet synovial cyst aspiration technique is a usually safe and minimally invasive procedure. It has good short-term results in terms of pain relief; however, a review of studies utilizing these techniques reveals a high long-term failure rate, which is around 50–100% [9–22]. The high-failure rate contributed to failure of complete decompression of these cysts, since they contain thick gelatinous nonabsorbable materials and also it leaves the cyst capsule behind which may still compress the neurological structures leading to lack of complete symptom relief [22]. In addition, failure of complete removal of synovial tissue and cyst capsule may lead to recurrences.

There have been reports in the literature that image guided percutaneous steroid injection into facet cyst may result in regression and resolution of the cyst both clinically and radiologically [23, 24]. In a retrospective report of a 44 consecutive patients with symptomatic lumbar facet cyst received primary treatment with CT-guided synovial cyst rupture with intra-articular steroid injection reported improvement in pain medications, numeric rating scale, Oswestry Disability Index, and 12-item short form health survey (SF-12 PCS) [25].

A recent study described the use of targeted radiofrequency ablation to manage facet cyst [26]. In this technique the cyst is percutaneously drained under image guidance and then cauterized along with the associated facet capsule and facet joint, where the original cyst developed. The outcomes from this study and long-term follow-up demonstrated that this technique reduces the frequency of cyst recurrence compared to simple aspiration and steroid injection or cyst rupture [26].

Surgical treatment is the gold standard due to high recurrence rate and poor outcome with conservative therapy. Surgical resection of the cyst is indicated in cases not responding to conservative therapy, recurrent cysts, patient with intractable pain or neurological deficit. Instrumented spinal fusion surgery can be performed in cases of spinal instability [27].

Facet cysts can be effectively and safely excised with minimally invasive surgical techniques. MIS approach decreases soft-tissue injury, blood loss, length of the incision, resulting in earlier ambulation and short hospital stay [28, 29]. In addition, MIS minimizes disruption of ligamentous and bony structures and could decrease the risk of progressive instability and the need for fusion, particularly in the presence of preexisting spondylolisthesis [28, 29].

Some studies have compared outcomes of different surgical treatment methods in patients with synovial cysts. Synovial cyst recurrence occurs in 1.8 to 3% after decompression and excision of synovial cysts but it has never been reported in patients after decompression and fusion, although hospital stay and blood loss is more in patients treated with decompression and fusion [30, 31].

Our patient was managed initially with non-surgical therapy with analgesics and physiotherapy. However, he showed no improvement with non-surgical therapy and underwent excision of the cyst through medial facetectomy.

In conclusion, intraspinal lumbar synovial cysts arising from facet joint are infrequent cause of sciatic pain. MRI is the gold standard in diagnosing facet cysts. Surgical decompression and excision result in clinical improvement. We presented a case of lumbar spine L4/5 facet cyst in young man and treated with surgical excision. Patient has a complete relief of his symptoms after the surgery.

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Statement of Ethics

The authors have no ethical conflicts to disclose.

Disclosure Statement

There are no conflicts of interest to declare.

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Author Contributions

S.H.: Manuscript writing, literature review, preparing the figures. K.G.: Operating surgeon, reviewed the manuscript. M.E.: Idea of the study. A.S.: Literature review. H.K.: Pathologist. K.B.: Pathologist.

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Fig. 1. T2 sagittal MRI showing a hyperintense cystic lesion (white arrow) at the L4/5 level.

Fig. 2. Axial MRI T2 image showing cystic lesion (white arrow) arising from the right L4/5 facet joint (black arrow) causing narrowing of the right neural foramina. It also shows bilateral facet joint arthritis and hypertrophy.

Fig. 3. Schematic illustration of intraoperative findings. **A** Facet cyst. **B** Dura. **C** Right L5 root. **D** Degenerated facet joint.

Fig. 4. Resected facet cyst.

Fig. 5. Microscopy (H&E, 10×). Cyst wall composed of granulation tissue (right) and lined by fibrinous material (left).