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## Fluoroscopy-guided percutaneous rupture of lumbar facet joint synovial cyst: An alternative to surgery

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### Abstract

Lumbosacral radiculopathy is very common presentation in old age people. Of the more common causes, the rarest is the presence of Lumbar intrasynovial cysts (LISCs). This case report of a 64 year old patient presenting with low back pain radiating to left leg and presence of a LISC (MRI finding) at L4-L5 has set a very good example for considering FGPCR for treatment. The patient reported 90% relief in pain after the procedure. So FGPCR can be considered before proceeding for surgery.

**Keywords:** Lumbar intrasynovial cysts, presence of a LISC

### Introduction

Low back pain radiating to both lower limbs is a very common complaint in old age. Usual etiologies include compression of nerve, disc prolapse and facet arthropathy. Lumbar intrasynovial cysts (LISC) are among the rare causes and often associated with spondylolisthesis. These cysts originate from the facet joint capsule<sup>[1]</sup>. The incidence of such cysts is 0.65% to 10% among patients presenting with low back pain and in most of them it is in the L4-L5 region<sup>[2, 3]</sup>.

The usual presentation in patients is low back pain, radiculopathy and neurogenic claudication. The cyst can extend to the spinal canal compressing the neural elements and make the picture worse<sup>[4, 5]</sup>. As these cysts are rare, they are incidentally detected upon undergoing an imaging study or during an operative procedure. MRI shows a contrast enhanced capsule arising from the facet joint which confirms the diagnosis<sup>[6]</sup>.

There has been much debate regarding approach to treatment of LISCs. Many authors have concluded surgical intervention as the best treatment option<sup>[3]</sup>. But considering the potential complications of surgery, non-surgical options are being considered increasingly. The alternative treatment options like physiotherapy, acupuncture, braces, analgesics have not shown promising results in pain relief<sup>[7]</sup>. Although fluoroscopy-guided percutaneous rupture of cyst is an invasive procedure, it can be used for better and prolonged pain relief. The fears of surgical complications make patients less motivated to go for surgery and they prefer some alternative treatment option.

Here we present the case report of a patient with rare presentation of LISC treated with FG-PCR of cyst. The patient presented in our clinic with the chief complaint of severe excruciating pain in the lower back radiating to left leg. There was 80% relief in pain immediately after the procedure as described by the patient.

### Case report

A 64 years old male patient attended our clinic with chief complaint of low back pain since one year. The pain was excruciating and radiating to left leg. He was also having numbness in both lower limbs. He was taking oral analgesics for the past one year but was not relieved of pain. He had also undergone alternative treatments in the form of physiotherapy sessions. He was a known case of diabetes and hypertension for the past 16 years.

The clinical examination revealed important findings. Lumbar extension was very painful and restricted. The straight leg raise test was bilaterally negative. The left extensor hallucis longus muscle strength was 4/5, while the other muscle groups had normal strength. There was hypoesthesia on the dorsum of left foot. The Numeric Rating Score (NRS) for pain was 5/10.

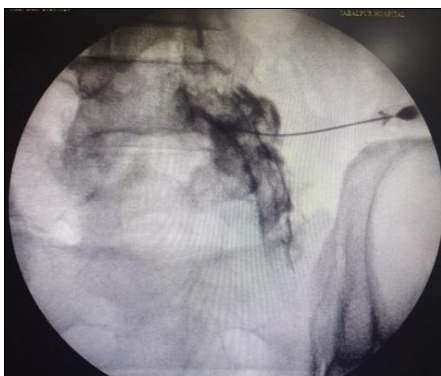
Lumbar MRI revealed an extradural intraspinal cystic formation, 13mm X7mm, oval in shape at the left paramedian location in the neighbourhood of facet joint at L4-5 level (MRI film). The margins of cyst were smooth, connected to the facet joint & appeared T1-hypointense, T2-hypointense. It also showed an increase in the joint fluid (Fig). There was also hypertrophy of the ligamentum flavum. The cyst was causing mass effect on the L4-5 intervertebral space, thecal sac. The cyst was causing severe stenosis of lateral recess & central canal with compression of left L5 nerve root. Grade 1 spondylolisthesis was also present. The patient was unresponsive to conservative treatment. Therefore he was taken for fluoroscopy- guided percutaneous rupture of left facet joint cyst. The procedure was explained to the patient and a written informed consent was obtained. A xylocaine sensitivity test was performed before the procedure.



**Fig 1:** MRI showing facet joint cyst at L4-5 level

#### Procedural technique

The patient was made to lie down in prone position and a pillow was kept below the abdomen to reduce lumbar lordosis. The patient was connected to a monitor. All aseptic precautions were followed. Local anesthesia was applied to the skin and subcutaneous tissue. The left L4-5 facet joint was visualised by fluoroscopy. A 23 gauge, 3.5 inch spinal needle was introduced at the facet joint. The location of the cyst and facet joint was confirmed by pushing some contrast and drawing it back. Some more contrast was given again under pressure to rupture the cyst. Rupture of cyst was confirmed by reduction in pressure of the needle. Some more contrast was administered and it was seen to spread in the epidural space and along the existing nerve root. The patient tolerated the whole procedure very well and there were no intra- or post procedural complications. The patient was observed in the recovery room for two hours and then discharged.



**Fig 2:** Coronal view showing spread of dye after rupture of cyst

#### Follow up

Low back pain and left leg pain was completely relieved after the procedure. The clinical examination was insignificant, except that muscle strength in the left EHL was 4/5 after three months. The pain was minimal (NRS score 1/10). Control MRI scan at three months did not show any cyst at the concerned facet joint. Another control MRI was taken after six months of the procedure. It showed completely insignificant findings.



**Fig 3:** Follow up MRI

#### Discussion

Several authors have reported that LISCs are a rare finding among patients presenting with low back pain and signs of lumbar radiculopathy [2, 3]. The diagnosis is confirmed by MRI and the incidence among such patients is 0.65% to 10% [2, 3]. These cysts do not respond to conservative treatment and surgical intervention is suggested, the methods being facetectomy, laminectomy, flavectomy, cyst excision and microsurgery techniques [2, 8]. But complications of surgery in the form of spinal nerve injury, dural tear, epidural hematoma, CSF leak, neurological deficits, recurrent cyst and deep vein thrombosis can occur. The incidence of such complications have been reported to be around 1.6% [2, 8]. Moreover, surgical intervention is not well tolerated by elderly people having multiple comorbidities.

Several authors have described good results with intra-cystic and intra-articular steroid injections. Amoretti *et al.* [7] reported 54% satisfactory results with the use of steroids. Similarly Bureau *et al.* [9] reported pain relief in 75% of patients in his case series. Parlier-Cuau *et al.* [10] reported pain relief in 67% of his patients. But in many of these studies more than one intervention of steroid injection had to be done to get the desired pain relief [7, 9, 10]. Therefore percutaneous cyst rupture has emerged as a promising method of treatment of facet joint cysts.

Our case was a 64 yrs old male suffering from symptoms of excruciating pain in the lumbar region radiating to the left leg. The clinical presentation was very similar to that of lumbar disc herniation. The initial MRI confirmed the presence of lumbar intrasynovial cyst arising from the facet joint and encroaching upon the spinal canal causing significant spinal stenosis.

After the procedure, the patient reported 90% pain relief immediately. Follow up MRI were taken at three weeks and six months. The cyst was completely resolved with this technique. There was no evidence of any recurrence. Complete relief of pain immediately after the procedure has

been described by Allen *et al.*, and is consistent with our finding <sup>[11]</sup>. A similar case report was also presented by Osman Hakun *et al.* which describes complete pain relief after the procedure <sup>[12]</sup>.

There was no recurrence in the one year follow up period. But even if recurrence occurs, PCR is a safe procedure to repeat <sup>[1, 6]</sup>. Both CT-guided and fluoroscopic PCR have been described with no significant difference in the outcome but radiation exposure is obviously more in CT-guided procedure <sup>[13, 14]</sup>.

To conclude fluoroscopy guided PCR of facet joint cyst has a promising result in the treatment with advantage of being a minimally invasive procedure with less side effects, cost-effective and well-tolerated by elderly people.

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