



CASE REPORT

Percutaneous fluoroscopic lumbar facet joint synovial cyst aspiration for manifesting with radiculopathy and low back pain

Bel ağrısı ve radikülopatiye neden olan lumbal faset eklem sinovyal kistinin floroskopik perkütan aspirasyonu

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Summary

Lumbar facet joint synovial cysts are benign degenerative abnormalities of the lumbar spine and can cause lower extremity radiculopathy, spinal stenosis, and low back pain. Herein, we report a case with a synovial cyst treated by percutaneous fluoroscopic aspiration via the facet joint. A 46-year-old woman presented to the neurosurgery clinic complaining of a 2-month history of low back pain with left-sided radicular symptoms. Her physical examination was consistent with a left L5 radiculopathy, and MRI confirmed a left L5–S1 facet joint synovial cyst compressing the nerve root. Percutaneous fluoroscopic cyst aspiration via the facet joint was planned. The cyst was aspirated, and a total of 0.2–0.3 cc of fluid was removed. During the aspiration, the patient reported pain relief. Thus, the procedure was completed. An MRI taken after 3 weeks showed that the cyst had become smaller than before, with no evidence of nerve root compression. For 1 year, the patient has had no pain or neurological symptoms. Patients who undergo a fluoroscopic percutaneous rupture by filling of the facet joint cyst typically have successful outcomes. We conclude that aspiration of the facet joint cyst without rupture can also result in the same successful outcome.

Keywords: Aspiration; fluoroscopy; lumbar facet joint; radiculopathy; synovial cyst.

Özet

Lomber faset eklem sinovyal kistleri, lomber omurganın dejeneratif anormalliklerindedir ve alt ekstremité radikülopatisine, spinal stenoza ve bel ağrısına neden olabilirler. Burada perkütan floroskopik faset eklem içerisinde aspirasyon ile tedavi edilen bir sinovyal kistli olguyu sunuyoruz. 46 yaşında kadın hasta, beyin cerrahisi polikliniğine 2 aydır devam eden sol radiküler bel ağrısı şikayeti ile başvurdu. Fizik muayenesinde sol L5 radikülopatisi mevcuttu; sinir köküne bası yapan bir sol L5-S1 faset eklem sinovyal kisti MR ile tespit edildi. Faset eklem yoluyla perkütan floroskopik kist aspirasyonu planlandı. Kist aspirasyonu ile toplam 0.2–0.3 cc sıvı aspire edildi. Aspirasyon yapıldığı sırada hasta ağrısının hafiflediğini bildirdi ve işlem tamamlandı. 3 hafta sonra çekilen MR'da kistin eskisinden daha küçük hale geldiği ve herhangi bir sinir kökü basısı yapmadığı doğrulandı. Uzun süre izlenen hastada (1 yıl) bel ağrısı ve nörolojik semptom yoktu. Bilindiği üzere, faset eklem kisti doldurularak floroskopik perkütan rüptür uygulanan hastalarda başarılı sonuçlar alınmaktadır; buradaki vakada olduğu gibi aspire edilerek de aynı başarılı sonuçların alınabileceği kanaatindeyiz.

Anahtar sözcükler: Aspirasyon; floroskopi; lumbal faset eklem; radikülopati; sinoviyal kist.

Introduction

Lumbar facet joint synovial cysts (LFSCs) can cause low back pain, spinal stenosis, and lower extremity radiculopathy. These cysts have a predilection for the facet joint and originate from their capsule. L4–L5 is the most common level for synovial cysts to occur, followed by L5–S1 and then L3–L4.^[1–6] Treatment for LFSCs includes both conservative and surgical treatments, with reports of spontaneous resolution

if left untreated. While surgery is the gold standard for the treatment of symptomatic LFSCs, conservative options include bed rest, physical therapy, oral analgesics, anti-inflammatories, and percutaneous rupture with injection and then aspiration.^[7,8] Herein, we present a case of a patient with radicular symptoms caused by LFSCs, diagnosed by magnetic resonance imaging (MRI) and treated by only percutaneous fluoroscopic cyst aspiration.^[1,6,9–13]

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Case Report

The patient is a 46-year-old woman who presented to the neurosurgery clinic complaining of a 2-month history of low back pain with left-sided radicular symptoms. She also had a history of trauma 4 months prior. Her physical examination was consistent with a left L5 radiculopathy, and MRI confirmed a left L5–S1 facet joint synovial cyst compressing the nerve root (Fig. 1). Pain was aggravated, especially when she was sitting. The patient described an electric shock-like sensation in her left leg. In the physical examination, lumbar motions were painful and limited anteriorly, there was left leg L5 dermatomal hypoesthesia, and dorsiflexion motor weakness of 1/5. Despite oral medications, the patient experienced no relief of her symptoms. Percutaneous fluoroscopic cyst aspiration via the facet joint was planned.

The patient was placed in the prone position on the fluoroscopy table and monitored according to ASA standards. After usual sterile preparation, draping, and local anesthesia under fluoroscopy, the L5–S1 spinal level was localized, and the endplates were flattened. Then, the entry point was determined under 30-degree oblique fluoroscopy on the left side. The facet joint was reached with a 25 G spinal needle (Fig. 2). After the fluoroscopy was turned to the lateral position, the needle was advanced to the synovial cyst via the facet joint under real-time lateral fluoroscopy. When the anterior edge of the facet joint was reached, the cyst was aspirated with a 2 cc syringe. The aspiration was repeated 4 or 5 times, and a total of 0.2–0.3 cc of fluid was aspirated. During the aspiration, the patient reported pain relief. Thus, the procedure was completed, and the patient was taken to the post-procedure recovery room for observation and later discharged. NSAIDs were suggested for medical therapy, and MRI was repeated 3 weeks after the procedure. The MRI showed that the cyst had become smaller than before, and no nerve root compression was observed (Fig. 3). Telephone follow-up was conducted to assess the patient's post-procedure pain. For 1 year, the patient has had no pain and no neurological symptoms.

Discussion

The facet joint is a synovial joint that is also known to produce cysts. These cysts are thought to result from a degenerative cascade and may cause low



Figure 1. Facet joint synovial cyst in L5–S1 spinal level (black arrow).

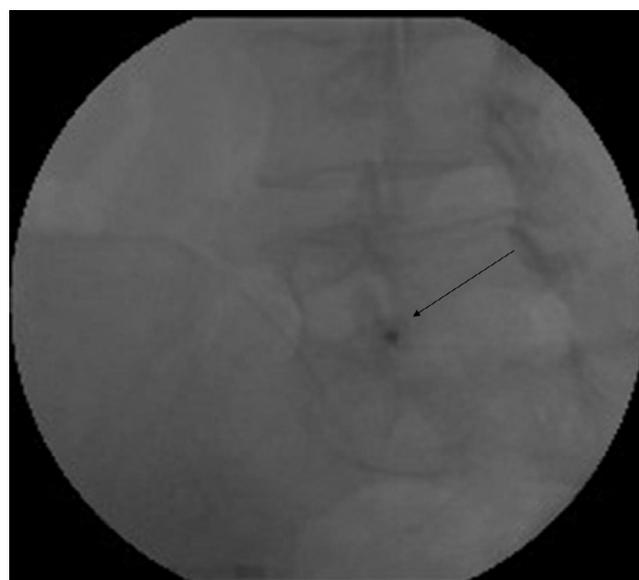


Figure 2. Fluoroscopic view of the needle (black arrow).



Figure 3. Small facet joint synovial cyst after aspiration (black arrow).

back pain. Cysts encroach upon the neuroforamen and cause spinal nerve irritation and radiculopathy. L4–L5 is both the most mobile segment in the spine and the most common location for cysts.^[14]

This suggests that underlying microinstability of the motion segment and chronic hypermobility are partly related to facet joint synovial cyst formation. The next most common level for synovial cyst occurrence is L5–S1, followed by L3–4, and then L2–3.^[1–6] In this case, the facet joint cyst was located at the L5–S1 spinal level. Synovial cysts have been reported in association with both facet joints and the ligamentum flavum, but most LFSCs appear to arise from the joint capsule in association with degenerative spondylosis involving the facet joints. Although these cysts are considered benign, when associated with spinal stenosis or direct nerve root compression, persistent neurogenic claudication or sciatica symptoms can result.^[11,15] Our patient was complaining of radiculopathy, and the cyst was compressing the nerve root on MRI.

There are currently no established guidelines for the treatment of symptomatic LFSCs. Treatment options have been reported in several clinical series and include steroid injection and aspiration after cyst rupture, as well as surgical excision.^[11] Surgical treatment is most effective, with very rare instances of recurrence when the entire cyst is excised, but it is not without inherent risks. Typically, surgical treatment requires laminectomy and/or facetectomy and now includes a minimally invasive endoscopic/microscopic approach. Common surgical risks include spinal instability, dural tear, neurologic injury, epidural hemorrhage and hematoma, seroma, and cyst recurrence. Typically, the procedure of choice is tailored depending on cyst size and adherence to concomitant disease.^[7] A less invasive method of treatment includes aspiration of the cysts under tomography or fluoroscopic guidance with subsequent injection of corticosteroids. Percutaneous procedures are also not without risk. These risks include infection, bleeding, dural puncture, nerve injury, and possible worsening of neurological deficit or pain.

Allen et al.^[1] performed a study to evaluate the therapeutic value and safety of LFSC rupture in symptomatic patients. They performed fluoroscopically guided, contrast-enhanced, percutaneous facet joint cyst distension and rupture followed by an intra-articular facet joint steroid injection. They found excellent long-term (average follow-up 1

year) pain relief in 23 of 32 patients, a 70% chance of a successful long-term outcome, and no complications with this technique. Martha et al.^[11] treated 101 patients for LFSCs with fluoroscopically guided corticosteroid facet joint injection and attempted rupture by filling the cyst. They found a correlation with avoiding subsequent surgery in half of the treated patients, and there was no significant difference in current pain between patients who received injections and those who underwent subsequent surgery. They concluded that successful cyst rupture does not appear to have added benefit and was associated with worse disability 3 years post-injection. Similarly, Foley performed a percutaneous rupture of an LFSC via the facet joint in a 44-year-old man and reported excellent pain relief in the follow-up of the patient.^[14]

In all these studies, the procedure was performed by cyst rupture. Differently, in our procedure, we only performed aspiration of the cyst via the facet joint, so no rupture due to filling of the cyst was attempted. Our patient remained virtually asymptomatic and was quite pleased with this treatment. For 1 year, the patient has had no pain and no neurological symptoms.

Conclusion

Patients who undergo a fluoroscopic percutaneous rupture by filling of the facet joint cyst typically have a successful outcome. We conclude that only aspiration of the facet joint cyst without rupture can also achieve the same successful outcome. Therefore, fluoroscopic percutaneous facet joint aspiration without rupture can be a valuable, effective, and safe minimally invasive treatment option. Future studies could improve upon our case report by implementing prospective randomized trials to investigate the impact of fluoroscopically guided cyst injection rupture compared with an aspiration-only control group.

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