



## Symptomatic lumbar intraspinal synovial cyst: a case report

### *Semptomatik lomber intraspinal sinovyal kist: Olgu sunumu*

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Juksta-faset kistleri adı verilen sinovyal ve gangliyon kistleri nadir görülen, radiküler semptomlarla disk hernilerini taklit edebilen intraspinal lezyonlardır. Yetmiş beş yaşında erkek hasta, altı aydır var olan ve son bir haftadır artış gösteren sol bacak ağrısı, ayakta uyuşma gibi radiküler şikayetlerle başvurdu. Fizik muayenede sol ekstansör hallusis longus güç kaybı (4/5), sol L<sub>4-5</sub> hipoestezisi saptandı. Manyetik rezonans görüntüleme, L<sub>4-5</sub> faset ekleminde kaynaklanan intraspinal kist görüldü. Hastaya medial fasetektomi ve kist eksizyonu uygulandı. Ameliyat sonrası erken dönemde ağrı yakınmaları geçen hastanın bir yıllık kontrolünde ekstansör hallusis longus güç kaybının düzeldiği ve nörolojik muayenesinin normal olduğu görüldü.

**Anahtar sözcükler:** Lomber vertebra; lumbosakral bölge/patoloji; manyetik rezonans görüntüleme; radikülopati/etioloji; spinal kord/patoloji; sinovyal kist/komplikasyon/cerrahi.

Synovial and ganglion cysts, also known as juxta-facet cysts, are intraspinal lesions that may mimic disc herniations and cause radicular symptoms. A 75-year-old male patient presented with a 6-month history of left leg pain and numbness in the foot that increased in severity within the past week. Physical examination showed motor deficit of the left extensor hallucis longus muscle (4/5) and hypoesthesia on the left L<sub>4-5</sub> dermatomes. Magnetic resonance imaging revealed an intraspinal cyst originating from the L<sub>4-5</sub> facet joint. Medial facetectomy and cyst excision were performed, which provided immediate relief of pain. He had no loss of strength of the extensor hallucis longus muscle and his neurologic examination was normal during the first postoperative year.

**Key words:** Lumbar vertebrae; lumbosacral region/pathology; magnetic resonance imaging; radiculopathy/etiology; spinal cord/pathology; synovial cyst/complications/surgery.

Synovial and ganglion cysts, also known as juxta-facet cysts, are intraspinal lesions that may mimic disc herniations and cause radicular symptoms. The cyst content can be serous or gelatinous. Facet joint arthrosis or rheumatoid arthritis is the usual cause.<sup>[1]</sup> Although they can be seen all along the spinal cord, their most common localization is lumbar 4-5 disc space. Cervical and thoracic localizations are extremely rare; but they can cause myelopathy if present at these regions.

Although plain X-rays are generally helpful for degenerative changes, they may also be beneficial for the differential diagnosis of the mass lesions

such as tumors and infection. Computerized tomography (CT) and magnetic resonance imaging (MRI) are imaging modalities that can be used for the diagnosis. On CT scans, a thick, cystic structure on the neighborhood with the facet joint and on the MRI, capsule with contrast enhancement are characteristic for the synovial cysts.<sup>[1,2]</sup>

Although good results had been reported with conservative treatment in the literature, surgical excision may be used for the patients with radicular symptoms and myelopathy.<sup>[3]</sup>

BIIn this study, a case with neurologic deficit due to a rarely seen synovial cyst was reported.

## Case report

A 75-year-old male patient presented with a 6-month history of left leg pain and numbness in the foot that increased in severity within the past week. He had no trauma history. Physical examination revealed motor deficit of the left extensor hallucis longus muscle (4/5), hypoesthesia on the left L4-5 dermatomes and pain on L4-5 vertebrae with palpation. Straight leg raising test was positive for the left leg. He had minimal degenerative changes on his plain X-rays. Magnetic resonance imaging revealed an 16x11 mm intraspinal synovial cyst originating from the left L4-5 facet joint with middle intensity on T1-weighted scans, hyperintense on T2-weighted images and hypointense on T1 and T2-weighted scans due to surrounding calcifications. MRI also revealed stenosis of the anteroposterior spinal canal with facet joint hypertrophy.

Surgical treatment was planned due to severe pain and neurologic deficit. Midline posterior incision was utilized under general anesthesia, medial facetectomy, foraminotomy and cyst excision was performed. Pain and numbness recovered immediately at the postoperative period. Patient mobilized on the first day following surgery with a walker. He

had no loss of strength of the extensor hallucis longus muscle and neurologic examination was normal at first year follow-up.

## Discussion

Synovial or ganglion cysts, also known as juxtafacet cysts, are rarely seen intraspinal lesions that may mimic symptoms of disc herniations. They must be kept in mind for the patients presented acute radicular symptoms.

Kao et al.<sup>[4]</sup> was the first to report symptomatic spinal nerve compression resulting from a lumbar spinal cyst and renamed these synovial and ganglion cysts as “juxtafacet” cysts. Synovial cysts are periarthral cysts of synovial membrane and mostly contain clear and yellow mucinous liquid or gas.<sup>[3]</sup> On the other hand, ganglion cysts do not contain any synovial membrane and they generally result from cystic softening and mucoid degeneration of the tendon sheaths or connective tissues of joint capsules.<sup>[5]</sup> Today, the term “intraspinal synovial cyst” is used instead of juxtafacet cysts or intraspinal facet cysts.<sup>[6,7]</sup>

Lumbar intraspinal synovial cysts are most commonly seen at the 6th decade;<sup>[1,8]</sup> and females are more commonly affected.<sup>[9]</sup> The reported incidence of these



**Figure 1.** Lumbar magnetic resonance imaging. **(a)** Cystic structure with stenosis of the anteroposterior diameter of the spinal canal at L<sub>4-5</sub> level on T<sub>2</sub>-weighted sagittal section. **(b)** Intraspinal cyst originating from the facet joint at L<sub>4-5</sub> level on T<sub>2</sub>-weighted axial section.

cysts in patients who had undergone a lumbar spinal surgery is between 0.01% and 0.8%.<sup>[8]</sup> During imaging studies of lumbar region, the reported incidence increases to approximately 2%.<sup>[1,8]</sup> Although disc injury<sup>[2]</sup> and bleeding after trauma<sup>[5]</sup> are thought to cause intraspinal cysts, arthrosis of facet joint is generally accepted as the major pathophysiological factor. The most common localization is the L<sub>4-5</sub> spinal segment which is the most mobile part of the lumbar spine. In our study, synovial cyst was seen on the left L<sub>4-5</sub> facet joint with degenerative changes.

Though radicular pain is the most common clinical symptom, neurological deficit is rarely encountered. On the cervical and thoracic regions, signs of myelopathy may be seen.<sup>[3,5]</sup> These cysts are easily diagnosed by imaging techniques, but in the differential diagnosis, schwannoma, meningioma and metastases must be kept in mind.<sup>[5]</sup> On the plain radiographs, degenerative changes are common (60%) also spondilolisthesis can be rarely detected.<sup>[6]</sup> Although MRI is the gold standard for demonstrating the cyst, CT can also reveal the cyst wall and the surrounding bony structures.<sup>[5]</sup> In our patient intraspinal synovial cyst and nerve root entrapment was detected by MRI.

Conservative treatment and several surgical methods are treatment alternatives for the synovial cysts. Conservative treatment includes bed rest, analgesics, corset, and cyst aspiration with or without steroid injectio.<sup>[1,7,8]</sup> Hsu et al.<sup>[7]</sup> who had compared conservative and surgical treatment had reported that, in six patients, symptoms improved with rest, medication, and bracing; epidural corticosteroid injections provided short-term relief in three out of four patients and facet corticosteroid injections provided good to partial relief in two out of three patients. In the same study, surgical decompression of eight patients resulted in seven excellent to good, and one fair outcome due to long-term symptoms and additional degenerative changes.<sup>[7]</sup> As a conclusion, the authors stated that, patients with intraspinal facet cysts might respond to conservative treatment if there is no significant neurologic deficit, on the other hand, for the patients with radicular symptoms, surgical treatment must be the treatment of choice. In another study by Shah and Lutz<sup>[1]</sup> effectiveness of conservative treatment for 10 patients with unilateral radicular pain had been analyzed. Five patients had

cyst aspiration followed by steroid instillation and 5 other had? cyst aspiration followed by a transforaminal epidural steroid injection. In the follow-up period, the period of pain relief was 3-4 weeks and only one patient had sustained benefit with nonsurgical management. For this reason, surgical treatment was offered for remaining nine patients and the authors concluded that surgical treatment was a superior to conservative treatment.

The patient in this study admitted to our hospital with 6-months history of radicular pain that increased in severity within the past week. Due to the neurologic deficit detected on admission surgical treatment was planned and left L<sub>4-5</sub> facetectomy with cyst excision was performed. In the early postoperative period, all neurologic signs were regressed and his motor deficit recovered completely.

The natural history of lumbar intraspinal synovial cysts is not completely understood. Apart from lumbar disc herniations, spontaneous regressions are very rarely seen.<sup>[11]</sup> Surgical treatment is the treatment of choice in most of the reports.<sup>[1-3,8,12,13]</sup> The indications for surgical treatment are symptomatic radiculopathy, myelopathy, progressive neurologic deficit and unresectable pain.<sup>[1-3]</sup> In the literature, 57 to 90% good results had been reported with surgical treatment.<sup>[8,12]</sup> Cyst excision and simple decompression is enough for most of the patients but in complex cases, laminectomy and decompression can be added to the surgical treatment regimen.

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