

Lumbar Ligamentum Flavum Cyst: Case Report

Lomber Düzeyde Ligamentum Flavum Kisti: Olgu Sunumu

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ABSTRACT

Ligamentum flavum cyst, a cystic lesion adjacent to the lumbar spine, is a rare cause of neurological symptoms and signs. It is usually seen in older ages. It is more common in the lower lumbar region than in the cervical region. Here, we aimed to discuss ligamentum flavum cysts in two cases.

In a 54-year-old male, a lumbar magnetic resonance imaging showed a ligamentum flavum cyst located at the right posterolateral of the spinal canal at the L3-L4 level, and spinal canal stenosis at this level. After the surgical removal of the cyst, the patient's symptoms entirely resolved. A 43-year-old female patient had a ligamentum flavum cyst on the left posterolateral of the spinal at L4-L5 level with thecal sac compression. Conservative treatment was planned, and the symptoms regressed during follow-up.

Keywords: Ligamentum flavum cyst, radiculopathy, lumbar vertebra, magnetic resonance imaging

ÖZ

Lomber vertebra komşuluğunda kistik bir lezyon olan ligamentum flavum kistleri nörolojik semptom ve bulguların nadir bir nedenidir. Genellikle ileri yaşlarda görülür. Alt lomber bölgede, servikal bölgeye göre daha sıktır. Burada iki olgu dahilinde ligamentum flavum kistlerini tartışmak amaçlanmıştır.

Elli dört yaşında erkek olguda, lomber magnetik rezonans görüntüleme, L3-L4 seviyesinde spinal kanal sağ posterolateralinde yerleşen bir ligamentum flavum kisti ve buna bağlı bu seviyede spinal kanalda daralma görüntüleri. Kist cerrahi yöntemle çıkartıldıktan sonra olgunun yakınmaları tamamen düzeldi. Kırk üç yaşında kadın olguda, L4-L5 düzeyinde sol posterolateralde tekal saka indentasyon gösteren, ligamentum flavum kisti saptandı. Hastaya konservatif tedavi planlandı ve takipte semptomların gerilediği görüldü.

Anahtar Kelimeler: Ligamentum flavum kisti, radikülopati, lomber vertebra, manyetik rezonans görüntüleme

Introduction

The term ligamentum flavum cyst is defined as a cystic formation arising from ligamentum flavum that is not lined with synovial epithelium (1). Ligamentum flavum cyst is a rare cause of spinal cord and nerve compression (2). It was first defined by Moiel et al. (3) in 1967. It occurs most frequently in the lower lumbar region (4). It may cause neurological complaints due to spinal canal stenosis or lumbar root compression (5). These cysts accompany degenerative changes in the spine. It can be distinguished from synovial and other degenerative spinal cysts based on localization and histopathological features (6). We aimed to present two cases of ligamentum flavum cysts that we diagnosed based on original magnetic resonance imaging (MRI) findings and confirmed one histopathologically.

Case Reports

Case 1

A lumbar MRI was requested for a 54-year-old male patient with low back pain, slow-developing gait disturbance, hip, and right leg pain. Neurological examination revealed normal motor functions, but sensory impairment in the right L4 dermatome. The patient's medical history included hypertension and diabetes. No pathology was observed in laboratory tests. Degenerative changes were observed on the direct X-ray of the lumbosacral vertebra. Multilevel facet arthropathy, more prominent in L3-L4, was observed in lumbar MRI. A 17x5.5 mm ligamentum flavum cyst, which was hypointense on T1-weighted images (T1WI) and hyperintense on T2-WI, was found at L3-L4 level. The cyst caused right lateral recess stenosis by compressing thecal sac and spinal



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cord from the right lateral side, and it was not related to the facet joint (Figure 1 a,b). At this level, significant stenosis was observed in the spinal canal due to cyst and ligamentum flavum hypertrophy. Since the patient refused, electromyography (EMG) was not performed. The cyst was surgically resected with hypertrophic ligamentum flavum, and partial L3-L4 hemilaminectomy was performed. Histopathological examination revealed myxoid and pseudocystic degeneration of the ligamentum flavum without synovial epithelium. In the postoperative period, the patient's symptoms improved, and he recovered without any problem. Informed consent was obtained.

Case 2

A 43-year-old female patient presented with chronic low back pain and progressive neurogenic claudication symptoms over a 6-month period. There were no features in her medical and family history. There was no motor or sensory disorder in her neurological examination. Deep tendon reflexes were normal. Laboratory tests were normal. MRI revealed a 11x8.5 mm ligamentum flavum cyst, which was hypointense on T1WI and hyperintense on T2WI, at L4-L5 level on the left with thecal sac indentation (Figure 2 a,b). Diffuse bulging of the disc and facet joint degeneration were detected at this level. EMG was not performed. Conservative treatment was planned because the patient did not accept the surgery, and the symptoms regressed during the follow-up. Informed consent was obtained.

Discussion

The term ligamentum flavum cyst is defined as a cystic formation originating from ligamentum flavum that is not lined with synovial epithelium (1). Ligamentum flavum cyst is a juxtafacet cyst, and it is thought that continuous stress caused by small recurrent trauma may cause cyst development (7).

While these cysts are frequently seen in lumbar vertebrae, they are also rarely found in cervical vertebrae (8). The most commonly reported level is L4-L5, the most mobile part of the vertebra, followed by L5-S1 and L3-L4 levels (4). Osteoarthritis, spondylosis, spondylolisthesis, and degenerative disc disease are common with vertebra cysts (9). Most ligamentum flavum cysts develop posterolaterally near the facet joint in the spinal canal (10). Most symptomatic cysts usually present with radiculopathy. The history and physical examination findings of these patients may resemble symptoms related to sciatica and disc herniation (11). Typically, cysts can cause radicular pain (97%), sensory (55%) or motor (39%) deficit, Lasègue sign (33%), abnormal reflexes (18%), and rarely present as cauda equina syndrome (1).

Ligamentum flavum cysts can be easily identified by MRI. The cysts are characteristically hypointense on T1WI and hyperintense on T2WI. The presence of blood, gas, air, or proteinaceous content may change the signal intensity (4). Conservative treatment has proved to be

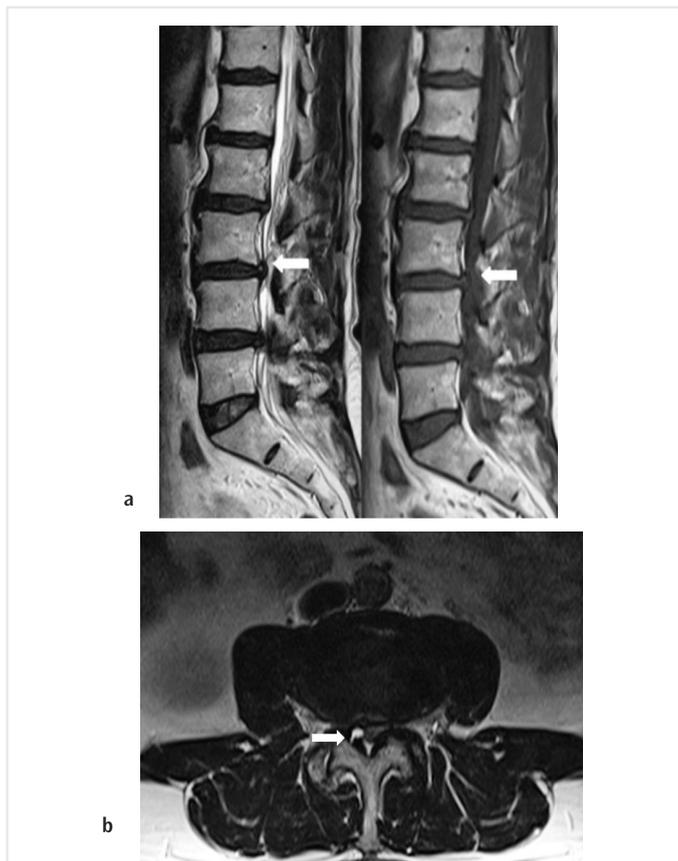


Figure 1. a) Sagittal T1-weighted imaging (T1WI) and T2-WI); b) axial magnetic resonance imaging showing cystic lesion (arrows) in the thickened ligamentum flavum at the L3-L4 intervertebral level, which is hypointense on T1WI and hyperintense on T2W images

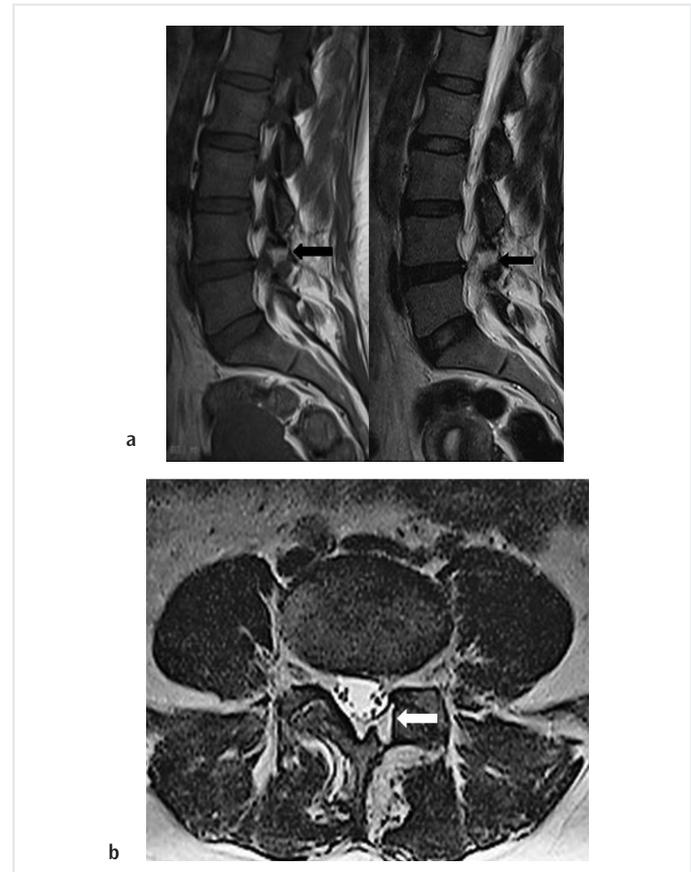


Figure 2. a) Sagittal T1-weighted imaging (T1WI) and T2-WI); b) Axial T2WI showing hyperintense cystic lesion (arrows) in the ligamentum flavum on the left at the L4-L5 intervertebral level

unsuccessful and has transient and unreliable short-term outcomes. Surgical treatment is the gold standard in patients with severe pain and neurological deficit (12). Surgical decompression with complete excision of the ligamentum flavum cyst is the most successful treatment strategy and has excellent results (12). Instrumentation is performed only if facetectomy is performed or other pathologies are present (8).

Although the ligamentum flavum cyst is a rare cause of spinal compression and radiculopathy, it should be considered in the differential diagnosis of cystic lesions of the lumbar spinal canal. Preoperative diagnosis is not easy due to its rare and nonspecific clinical and radiological findings. MRI is the best imaging method to help us with this.

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