

## Simultaneous Presence of Juxtafacet Cyst and Ligamentum Flavum Hematoma

### Abstract

Juxtafacet cysts and ligamentum flavum hematoma have the potential to cause acute root or spinal cord compression despite their low incidences. Their simultaneous presence with acute nerve compression has not been reported. Herein, we present a case who reported with low back and leg pain to the emergency department.

**Keywords:** *Juxtafacet cyst, ligamentum flavum hematoma, low back pain, lumbar spine*

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### Introduction

Low back pain (LBP) is a common presenting symptom in emergency departments (EDs) as well as primary care providers and outpatient clinics (40%–80%).<sup>[1]</sup> Lumbosacral sprain and mechanical back pain are the most common diagnoses for these patients. There are less commonly seen pathologies such as spinal cysts and ligamentum flavum hematomas (LFH), but the diagnoses of these rare conditions are increasing in number with technological advancements in imaging techniques and the augmentations in their availability.

The major spinal cysts are synovial, ganglion, epidermoid, neurenteric, and arachnoid cysts, which are mostly benign. The term juxtafacet cyst (JFC) covers synovial and ganglion cysts. Ligamentum flavum runs between the laminae of the spine. The common pathologies affecting ligamentum flavum are hypertrophy, calcification, ossification, and cyst formation. LFH is a much rarer pathology, and literature consists of limited case reports.<sup>[2,3]</sup> The simultaneous presence of JFC and LFH causing acute muscle weakness has not been reported yet.

### Case Report

A 54-year-old female patient presented to the ED with LBP and leg pain. Her complaints were lasting for a long time

but became unbearable during the last couple of days. She claimed no trauma history. On neurological examination, 3/5 motor weakness in right foot dorsiflexion and hypoesthesia in the right L4 and L5 dermatome were detected. A round-shaped centrally hyperintense lesion was seen just above the L4–5 disc level in T2-weighted sagittal magnetic resonance imaging (MRI). On axial sections, it was observed that the lesion completely obscured the canal, especially from the right side [Figure 1]. Emergently, a total laminectomy of L4 was performed. The roots of L4 and L5 on the right side were revealed entirely, and the lesion was found just below the L4 root. A thin stalk communicating to the joint space with adhesions to the dura mater at some points was seen. The lesion was totally removed [Figure 2]. During the dissection, the cystic part was pierced. The cyst wall was colorless, and the cystic fluid content was clear. No intracystic hemorrhage was seen. The pathologic diagnosis was hemorrhagic cartilage tissue. Pathological evaluation revealed the presence of ligamentum flavum hematoma, additionally. However, no hemosiderin or amyloid deposits were reported within the cyst wall of the specimen. The patient was discharged with full recovery.

### Discussion

The term “Juxtafacet cyst” was first used in 1974.<sup>[4]</sup> JFC is not in the joint structure, although the word “facet” is mentioned in this term. It covers synovial cyst and

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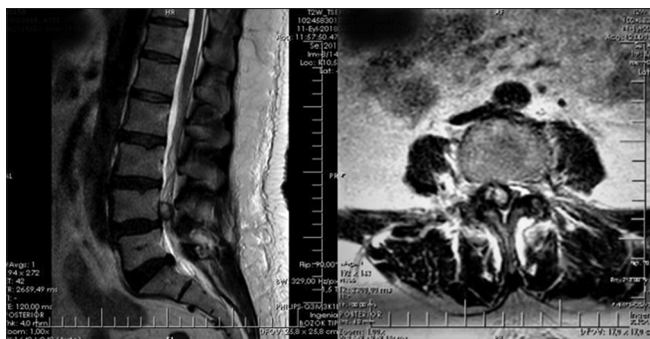
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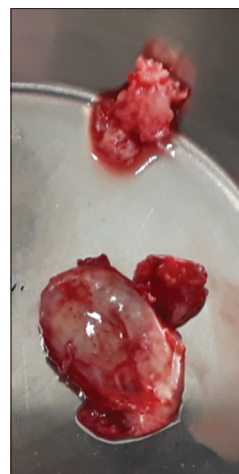
**Figure 1:** T2-weighted lumbar images in sagittal and axial planes showing a hyperintense round lesion at L4–5 level

ganglion pseudocyst which differ from each other with the presence of a synovial lining.<sup>[5]</sup> Synovial cysts have a synovial lining that originates from the synovium of facet and extends to the spinal canal, whereas ganglion pseudocysts do not.<sup>[6]</sup> The capsule of the synovial cyst can be fibrous or calcified and is generally seen hypointense on T2 sequences of MRI, but the content intensity of the cyst is variable on T1 and T2. They are not very prone to bleeding. Exploration of facet joints is performed during the surgical intervention of synovial cysts. Adhesions to the dura or nerve roots may appear during dissection. Similar to the data above, our patient had a hyperintense lesion with a hypointense capsule on T2 sequences. The cyst content was found to be a colorless clear fluid like cerebrospinal fluid during the operation. The cyst that was observed to be adherent to dura was dissected carefully.

The differential diagnoses of synovial cyst should include ligamentum flavum cyst as well. Ligamentum flavum cysts originate from ligamentum flavum, so any connection with joint facets is not expected. No exploration of facet joints is needed during the surgery.<sup>[6]</sup>

However, these histological differences have minimal clinical implications.<sup>[7]</sup> The JFC cases are in their 50s and 60s with female dominance. More than 90% are located in the lumbar segment, especially in L4–L5 level.<sup>[6]</sup> Christophis *et al.* proposed that the juxtafacet term is a misleading name, and it should be changed into “cystic formations of mobile spine” in 2007.<sup>[8]</sup> However, we are not sure that the CFYMO term is appropriate for cysts located in any parts of the spine due to the reported immobile segment cysts.<sup>[9]</sup>

LFH does not occur due to poor vascularization unless the presence of major trauma, degeneration, or hypertrophy. However, in some cases, minor back injury, stepping onto a box, heavy lifting, sports exercises, and local injection were suspected in the etiology.<sup>[2]</sup> There are also some cases with no detected etiological factors, like in our patient.<sup>[9,10]</sup> There are only fifty cases in Medline research regarding LFH. Male dominance is present in literature contrary to our case, and hematoma was located in lumbar segments in the majority. Although different etiologies and mechanisms



**Figure 2:** Surgical specimens, remnant of the cystic lesion, and ligamentum flavum hematoma

have been proposed for both JFC and LFH, the precise mechanism is still under debate. The treatment is generally oriented by the clinic, and the predominantly preferred one is surgery in literature.<sup>[7,11]</sup> The most important feature that distinguishes our case from its peers is the presence of JFC and LFH simultaneously. We performed surgery, and a full recovery was achieved.

## Conclusion

Rare spinal pathologies also should be kept in mind when a patient is admitted with LBP and acute neurological signs.

## Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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## Conflicts of interest

There are no conflicts of interest.

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