

INTRACYSTIC HEMORRHAGE IN THE LUMBAR SPINE AS A CAUSE OF SUDDEN LEG WEAKNESS – A CASE REPORT

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Abstract: Introduction: Synovial cysts of the facet joint are rare benign changes occurring in the spinal synovial joints, predominantly in the lumbar region. Although these cysts are generally benign, intracystic hemorrhages are extremely rare and can lead to severe complications.

Case Presentation: This case report details a patient who developed cauda equina syndrome due to hemorrhage within a synovial cyst in the lumbar spine. The patient's symptoms included acute radicular pain and neurological deterioration. Diagnostic imaging revealed a large synovial cyst with evidence of intracystic bleeding.

Conclusion: Acute radicular pain and rapid neurological deterioration can result from a synovial cyst in the lumbar spine, particularly when complicated by intracystic bleeding. Urgent decompressive surgery and removal of the cyst resulted in complete recovery for the patient.

Keywords: synovial cysts, bleeding, leg weakness.

INTRODUCTION

Synovial cysts, which arise as a consequence of facet osteoarthritis, can cause pain syndromes and radicular complaints due to the direct compression of the dural sac and nerve roots in the lateral recesses (1). Their etiology is likely related to increased mobility of the facet joints and herniation of the synovium through a ruptured capsule. Although these cysts are most commonly located epidurally and posterolaterally outside the vertebral canal, anterior cysts that project towards the canal can also occur. Occasionally, these cysts may enlarge and exacerbate symptoms, with hemorrhage

potentially causing rapid and significant cyst expansion (2). Conversely, spontaneous resolution of symptoms can occur following decompression of the facet joint cyst. Synovial cysts located in the upper lumbar spine are relatively rare, and only a few cases involving acute intracystic bleeding have been reported (3). Intracystic bleeding can lead to the development of acute cauda equina syndrome, a serious neurological condition that requires immediate intervention (3).

In this report, we present the clinical course, diagnostic approach, and treatment of a patient with this rare but potentially serious condition.

CASE REPORT

Patient SM, a 54-year-old man, presented to a neurologist at the Clinical Hospital Center in Gračanica, Serbia, with complaints of lumbar spine pain, leg weakness, and urination difficulties, which had started a week prior. On his own initiative, he had been using non-steroidal anti-inflammatory drugs (NSAIDs) to manage the pain. The day before hospitalization, while driving, he experienced tightness in his right calf. When attempting to stand, he noticed weakness in his legs and difficulty moving. Over the following two days, his mobility was severely restricted, and he could only walk and stand with assistance.

Neurological examination upon admission revealed polyradicular motor and sensory deficits at the L5 and S1 levels. The most significant weakness was in the feet, with the manual muscle test (MMT) scoring 1/5 for the right peroneal and tibial muscles, and 2/5 for the left foot. Motor and sensory deficits followed a radicular distribution pattern.

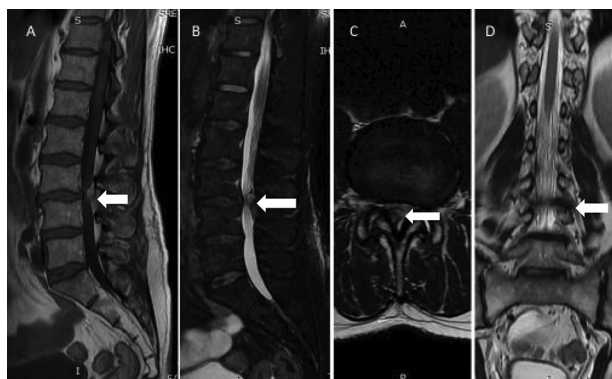


Figure 1. Lumbo-sacral spine MR: sagittal TW1 (A), sagittal TW2 (B), axial TW2 (C), and coronal TW2 (D) show a synovial cyst of the right L3-4 facet joint with signs of hemorrhage and critical spinal canal stenosis. (Changes are indicated by arrows.)



Figure 2. CT scan of the lumbo-sacral spine: (A) spondylolisthesis L3 corresponds to Taillard grade I (< 10%), (B) synovial cyst in the posterolateral part of the L3-4 right facet joint, (C) hypertrophic facet arthropathy at the level of the facet joint L3-4. (Changes are indicated by arrows.)

Given the clinical presentation and neurological findings, neuroradiological diagnostics were promptly performed, confirming the presence of a synovial cyst in the right L3-4 facet joint, measuring 2 x 1.5 cm, with intraspinal extension and critical stenosis of the spinal canal (Figures 1 and 2). The patient underwent urgent surgical intervention, during which the tumor-like mass in the spinal canal was removed. Intraoperative findings revealed a degeneratively altered synovial cyst with areas of fresh bleeding.

Postoperatively, the patient experienced gradual neurological recovery. One month after surgery, he was able to move independently. Follow-up magnetic resonance imaging showed satisfactory postoperative results, with no recurrence of the original pathology (Figure 3). The patient adhered to a rehabilitation program and regular check-ups. One year after the surgery, he resumed his daily activities without issues.

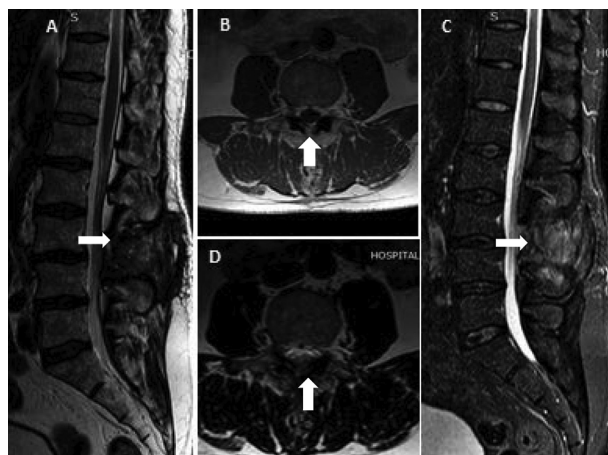


Figure 3. MR of the lumbo-sacral spine: (A-D) sagittal and axial tomograms - state after L3 decompressive laminectomy and medial facetectomy. (Changes are indicated by arrows.)

Informed consent for publication was obtained from the patient.

DISCUSSION

Synovial cysts are rare but significant complications of facet osteoarthritis that can lead to severe neurological symptoms. Facet syndrome typically presents with pain that worsens with prolonged sitting, standing, backward bending, lateral bending, and twisting motions (4). The term “juxtafacet cyst” is commonly used in the literature to describe synovial and ganglion cysts located in the extradural region of the spine. Studies indicate that most non-hemorrhagic lumbar synovial cysts are found at the L4-L5 level (5). In contrast, the cyst in our patient was located in the upper lumbar region, underscoring the rarity and severity of the condition.

The patient’s symptoms included lumbar pain, leg weakness, and urination problems, which are characteristic of cauda equina syndrome. Clinical findings on admission revealed polyradicular motor and sensory deficits at the L5 and S1 levels, consistent with the neurological examination. The manual muscle test (MMT) demonstrated significant weakness in the feet, highlighting the severity of the condition. Cannarsa et al. (6) reported that bleeding within synovial cysts occurs more frequently in men and at a younger age, suggesting a link to microtrauma based on occupation and lifestyle. Although NSAIDs were used by the patient to manage pain, they are not a primary cause of bleeding. However, their use might exacerbate bleeding risks due to reduced blood clotting, particularly in predisposed individuals (7).

Intracystic hemorrhage can rapidly enlarge the cyst and lead to acute compression of nerve roots, as

observed in our case. While clinical and neurological evaluations are essential for assessing spinal synovial cysts, radiological diagnostics are crucial for accurate identification of these lesions. In our patient, magnetic resonance imaging (MRI) confirmed a synovial cyst in the right L3-4 facet joint, with intraspinal extension and spinal canal stenosis (Figures 1 and 2). Computed tomography (CT) revealed L3 spondylolisthesis and hypertrophic facet arthropathy at the same level. The combined use of MRI and CT provided a comprehensive view of the pathological changes, facilitating precise diagnostic and therapeutic planning. MRI is particularly useful in differentiating synovial cysts from peripheral nerve tumors, such as neurofibromas, especially in younger patients (8).

Conservative management is typically the first-line treatment for patients without neurological deficits, as synovial cysts can sometimes regress spontaneously (9). For our patient, surgical intervention, including decompressive laminectomy and cyst excision, led to a gradual recovery of neurological function and significant improvement in clinical condition.

CONCLUSION

Acute radicular pain can result from a synovial cyst in the upper lumbar spine, with or without associated intracystic hemorrhage. In our patient, acute

intracystic bleeding led to rapid and severe neurological deterioration. Urgent diagnostic evaluation was crucial for determining prognosis and selecting an appropriate therapeutic strategy. Decompressive surgery and removal of the synovial cyst resulted in complete resolution of acute symptoms and significant improvement in neurological deficits.

Abbreviations

NSAIDs - Non-steroidal anti-inflammatory drugs

MMT - Manual Motor Test

CT - Computed Tomography

MR - Magnetic Resonance

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Sažetak

INTRACISTIČNO KRVARENJE U LUMBALNOJ KIČMI KAO UZROK IZNENADNE SLABOSTI NOGU – PRIKAZ SLUČAJA

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Uvod. Sinovijalne ciste fasetnog zgloba su retke benigne promene koje se javljaju u kičmenim sinovijalnim zglobovima, često u lumbalnoj regiji. Ove promene mogu izazvati različite simptome, a intracistične hemoragije su izuzetno retke, ali mogu biti ozbiljne komplikacije.

Prezentacija slučaja. U ovom prikazu slučaja opisujemo klinički tok, dijagnostički pristup i terapiju pacijenta koji je imao sindrom cauda ekuina izazva-

nog krvarenjem unutar sinovijalne ciste u lumbalnoj kičmi.

Zaključak. Akutni radikularni bol može biti uzrokovan sinovijalnom cistom u gornjoj lumbalnoj kičmi. Intracistična krvarenja, kod našeg pacijenta, uzrok su brzog i ozbiljnog neurološkog pogoršanja, pa hitna dekompresivna operacija i uklanjanje sinovijalne ciste dovode do potpunog oporavka.

Cljučne reči: ciste, krvarenje, slabost nogu.

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