

Lumbar Arthrosynovial Cyst: An Unusual Cause of Sciatica

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Abstract

Case Report

We report the case of a 46-year-old female patient with hyperalgesic sciatica caused by a lumbar arthrosynovial cyst (ASK). Lumbar arthrosynovial cysts are relatively rare degenerative lesions of the spine. They may be completely asymptomatic or cause symptoms through compression of nerve structures. They most often develop at the L4/L5 level, where spinal mobility is greatest. Their aetiopathogenesis is uncertain, but degenerative spinal instability is the determining factor in their development. MRI is the examination of choice for diagnosing these lesions. Conservative treatment is not very effective. Surgical resection of the cyst, with or without arthrodesis, remains the most appropriate treatment option.

Keywords: Arthrosynovial cyst, Sciatica, MRI, Degenerative spinal instability.

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INTRODUCTION

In 1885, Baker first described the formation of synovial cysts adjacent to joints. In 1950, these cysts were described by Vosschulte and Börger [1] as a possible cause of spinal nerve compression. Before the era of CT and MRI scans, arthro-synovial cysts were usually discovered accidentally during spinal surgery.

However, with the refinement of neuroimaging techniques and their increasingly frequent use in the evaluation of degenerative spinal diseases, they are now being diagnosed pre-operatively.

Although they are frequently incidentalomas, in some patients they can produce symptoms mimicking those of herniated discs, through compression of nerve roots (radiculopathy) and/or spinal cords (myelopathy). At present, the debate concerning the pathogenesis and management of these juxta-facet synovial cysts is still open.

OBSERVATION

We report the case of a 46-year-old female orthopaedic consultant with right lumbosciatalgia that had been worsening for three months. The patient has had low back pain for some twenty years; radicular pain is a relatively recent component. For the past ten days, she has been unable to perform any activity.

Symptomatic treatment with steroidal and non-steroidal anti-inflammatories and muscle relaxants has had no effect. The course of the pain suggests an L5 radicular topography.

On clinical examination, muscle testing of the lower limbs was normal, and there was no sensory deficit. Slight right Achilles hyporeflexia was noted. Lasègue's sign is positive bilaterally. There was paravertebral muscle contracture and segmental stiffness in the lumbosacral region.

An MRI scan carried out immediately showed moderate disc degeneration in L3/L4 and L5/S1, with a discreet, non-conflicting disc protrusion. In L4/L5, degenerative hypertrophy of the right posterior articular mass can be seen, with individualization of a well-limited, rounded formation 6mm long, hypointense in T1, hypersignal T2, adjacent to the anteromedial side of this posterior joint. This KAS-like formation is responsible for compression of the right lateral aspect of the dural sac and the emergence of the L5 root (figure 1).

In view of the hyperalgesic nature of the right sciatica, the decision was taken to remove the KAS. No arthrodesis was performed, as the mobile segment concerned was stable. Anatomopathological analysis will confirm the nature of the lesion. The immediate post-operative period will be marked by a drastic reduction in pain.



Figure 1: Lumbar MRI in axial and sagittal sections (T1, T2 sequence): well-demarcated oval mass, in a ventromedial position in relation to the right L4-L5 zygapophyseal facet (arrow), compressing the L5 emergence root on its posterior side (star)

DISCUSSION

Epidemiology

Of 1,800 lumbar CT and MRI scans performed over an 18-month interval, Eyster *et al.*, reported 11 cases (0.6%) of lumbar arthrosynovial cysts [2]. Similarly, Lemish *et al.*, identified 10 cysts out of 2,000 lumbar CT scans [3]. The average age of patients with lumbar ASK is 65 years, with an age range of 28 to 94 years [4, 9, 10]. The M/F ratio varied from study to study. However, there is a slight preponderance of women [4-10]. Location KAS develop on the zygapophyseal joints. They can be found at all levels of the spine, from C1-C2 to the lumbosacral junction. However, they are much more common in the lumbar region (88%-99%) than in the thoracic (8%) or cervical (1-4%) regions.

They develop most frequently at L4-L5 (68%), the most mobile intervertebral space, followed by L5-S1 (15%) and L3-L4 (12%) [5, 11, 12]. KAS may grow dorsolaterally to the joint (in which case they are usually asymptomatic) or ventromedially, leading to stenosis of the lateral recess [6, 10, 12, 13].

The etiopathogenesis of KAS remains uncertain. However, repetitive strain injury to the spine and degenerative segmental instability are the most frequently cited causes. Thus, posterior facet arthrotic lesions (90%) [10], joint laxity (60%) [4] and spondylolisthesis at the lesion level (50%) [5] are frequently associated with KAS.

Symptomatology

The clinical presentation of a KAS depends on its volume, location and relationship to bone and nerve structures. KAS may be asymptomatic or accidentally discovered (KAS developing posteriorly to the joint). Their endocanal growth in a ventromedial direction leads to symptoms associated with compression of nerve structures.

The most frequent symptom is uni- or bilateral lumbosciatica/cruralgia due to radicular compression (50 to 93%). A history of isolated low back pain often precedes radicular pain. This is followed by neurogenic claudication due to canal stenosis (10 to 44%) and neurological sensory, motor and reflex deficits (20 to 27%). These symptoms may develop insidiously, or occur acutely, following intracystic or epidural hemorrhage originating in the lesion [14].

Imaging CT-scanner and MRI are the two neuroimaging techniques recommended for the diagnosis and characterization of KAS. MRI, however, is more sensitive than CT [5]. KAS appear as small, well-demarcated, extradural masses adjacent to the facet joints. They are positioned dorsal to the nerve structures, unlike herniated discs, which are positioned ventral to them.

On T1 weighting, they appear hypointense to isointense, with hypointensity often more marked at the periphery of the lesion, reflecting the presence of micro-calcifications or capsular hemorrhage. At T2 weighting, they are hyperintense with capsular enhancement after gadolinium injection. These MRI characteristics may vary, however, depending on the cystic content and, in particular, its viscosity. CT scans reveal iso- to hypodense lesions with a hyperdense periphery reflecting the presence of capsular calcifications. The diameter of KAS varies from 4 to 22mm [12].

Curative treatment may be conservative or surgical. In the literature, it is most often surgical, consisting of laminectomy and microsurgical removal of the mass, sometimes combined with arthrodesis [1, 2, 8, 12, 13].

Post-operative complications are possible, particularly when cysts are large, leading to adhesions

between their wall and the dural sheath. Three out of five postoperative complications in the 194 Mayo-Clinic patients were the result of surgery on large, adherent cysts (3 cerebromeningeal breaches, 1 epidural hematoma, 1 compressive serous collection). Moreover, adherence of the cyst to the dural sheath can lead to incomplete excision [2].

In the Mayo-Clinic series [1], 147 patients underwent a six-month follow-up. One hundred and thirty-four patients out of 147 considered themselves well relieved. The 120 patients with motor deficits improved, as did the 116 with sensory deficits. For other authors, in a series of 16 cases, the results 15 months after surgery were excellent, with all patients relieved and remaining asymptomatic [12].

An alternative to surgical treatment is percutaneous aspiration of the cyst contents, followed or not by injection of delayed corticoids under scopy [14]. In a series of 30 patients treated by this procedure [4], complete disappearance of symptoms or persistence of minor symptoms with no impact on daily activity were noted in 36% of cases at two years.

CONCLUSION

Lumbar KAS is a relatively rare cause of low back pain. Advances in neuroimaging have improved preoperative diagnosis and made it much easier to distinguish them from other extradural masses.

Surgical resection and root decompression can be performed with low operative risk and excellent results.

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