

# Lumbar Synovial Cyst: A Case Report from the Neurosurgery Department of the Idrissa Pouye General Hospital (HOGIP) in Dakar

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**Abstract:** *Introduction:* Spinal synovial cyst is a rare lesion in the general population, the frequency of symptomatic synovial cysts in the population is between 0.5 and 2.3%. They are more frequent in the lumbar region, leading to unilateral or bilateral lumboradiculalgia. Diagnosis is made on imaging and treatment involves percutaneous techniques or surgery. We report a case of lumbar synovial cyst treated surgically. *Observations:* A 54-year-old female patient, with a history of gonarthrosis, was seen in consultation for a right lumbosciatica of type L5 associated with a painful radicular claudication reducing the walking perimeter evolving for about 1 year. On admission, the patient was found to be overweight with a positive Lasègue sign on the right and pain on extension of the spine. The CT scan revealed a rounded lesion at the right L4-L5 level and conflicting with the ipsilateral L5 root at its emergence, continuous with the joint space. The indication for surgery was based on the severity of the radicular pain. The postoperative course was simple, with pain regression the day after surgery. *Conclusion:* The lumbar synovial cyst is a rare lesion most often manifested by radiculalgia. The diagnosis is made on imaging and surgical removal is the standard treatment.

**Keywords:** Cyst, Synovial, Lumbar, Radiculalgia

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## 1. Introduction

First described by Von Gruker in 1880 during an autopsy [1], spinal facet joint synovial cysts are para-articular cystic formations secondary to degeneration of the adjacent joint [2]. Two distinct types of cysts have been described; intracanal anterior cysts (30% of cases) and extracanal posterior cysts (70% of cases) [3, 4]. These conditions are rarely reported in the spine and are usually the result of an arthrotic complication [5].

The frequency of symptomatic synovial cysts in the population is between 0.5 and 2.3%, depending on the author [3, 6]. They are more frequent in the lumbar region, leading to unilateral or bilateral lumboradiculalgia. Diagnosis is made on imaging, including computed tomography (CT) or magnetic resonance imaging (MRI). Treatment involves

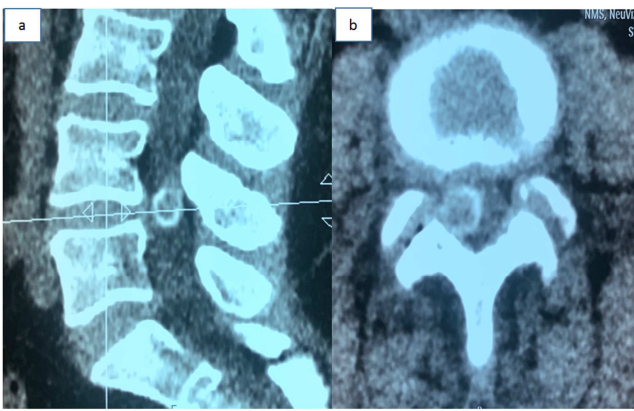
percutaneous techniques or surgery, in addition to conventional symptomatic treatment [3]. We report a case of anterior lumbar synovial cyst, revealed by lumbosciatica and treated surgically.

## 2. Observation

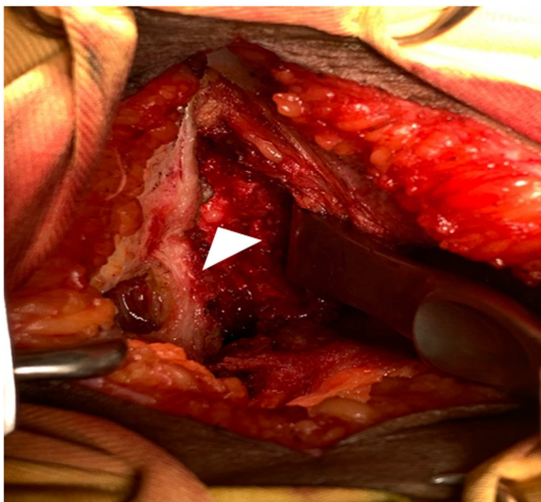
The patient was 54 years old, hypertensive and poorly followed up. She was seen in consultation for a right lumbosciatica of type L5 evolving for one year with progressive aggravation of the symptomatology resulting in an ipsilateral radicular claudication reducing the walking perimeter. In addition, she had been under orthopedic care for 4 years for bilateral gonarthrosis while waiting for a knee prosthesis. The examination revealed an overweight (BMI: 55.1) with a scoliotic attitude of the spine without obvious

sensory-motor deficit. There was a right limp on walking with a positive Lasègue sign at about 40° and pain on extension of the spine. A non-injection CT scan showed a rounded, isodense lesion with eggshell calcification at the right L4-L5 level, posterolateral and continuous with the ipsilateral joint space and conflicting with the ipsilateral L5 root at its emergence (Figure 1).

The indication for surgery was based on the severity of the radicular pain. The lesion was approached through a right unilateral approach, and immediately a rounded lesion was found partially involving the L4-L5 arthrotic joint block (Figure 2). Macroscopically complete excision showed that it was a cystic lesion, centered on the joint, adherent to the dural sheath and to the L5 root, suggesting a synovial cyst. The postoperative course was simple, with disappearance of pain the day after the operation.



**Figure 1.** Sagittal (a) and axial (b) sections of the lumbar CT scan: right L4-L5 juxta-articular rounded lesion, posterolateral and compressing the emergence of the ipsilateral L5 root.



**Figure 2.** Surgical view of the cystic lesion (arrowhead).

### 3. Discussion

Spinal synovial cyst is rare, with an incidence of 0.002% to 0.08% [7]. The preferred level of lumbar joint cysts is L4-L5, which is considered the most mobile level. The cysts are then found in decreasing order of frequency at L5-S1, L3-L4

and L2-L3 [8]. The lumbar synovial cyst with intraspinal development is formed by mechanical overload of the posterior arch. It is accepted that it is related to arthritic articular and mucinous degeneration of the periarticular tissue, resulting in herniation of the synovial tissue through a defect in the joint capsule, a hypothesis supported by the continuity between the cyst and the joint space [2, 5].

The clinical expression is generally that of common vertebral sciatica, most often L5 as in our patient's case, more rarely L4 or S1, but intermittent radicular claudication or a pluriradicular syndrome may suggest the diagnosis. Bilateral or pluriradicular involvement is not exceptional [9]. In general, the onset is progressive without any traumatic trigger, often preceded by a period of intermittent low back pain lasting several months. A brutal onset may be seen in cases of intracystic hemorrhage, but not all cysts with hematic content have been responsible for an acute symptomatology [10, 11]. The relatively long diagnostic delay in our patient could be explained by the association with his gonarthrosis. Clinically, anteflexion is well tolerated, whereas lumbar extension exacerbates the pain, in relation to the tension of the cyst [9].

Imaging allows the diagnosis of synovial cysts to be confirmed. The CT scan easily allows the diagnosis of cysts when they are calcified, as in our patient's case, or when they contain gas. Generally, joint cysts are hypodense or even isodense in the center on lumbar CT and hyperdense in the periphery if there are microcalcifications [8]. The diagnosis of a simple cyst is much more difficult, its density being close to that of the dural sac. MRI is then essential to identify the lesion. Typically, the capsule is hypointense and the center of the cyst is hyperintense in relation to the cerebrospinal fluid in T2-weighted sequence [9]. The hyperintense center is explained by the presence of methemoglobin, a sequela of hemorrhage [12, 13]. The capsule regularly takes on contrast when gadolinium is injected [9, 12]. When the cyst is completely calcified, its appearance will change. It is globally hypointense in T1 or T2 weighted sequence [12].

The combination of clinical signs, cystic nature, relationship to the facet joints and continuity with the joint cavity is sufficient to make the diagnosis of synovial cyst. However, other spinal conditions may pose a problem of differential diagnosis before surgery: neuroma, extradural spinal arachnoid cyst, radicular cyst (Tarlov's perineural) and villonodular pigmented synovitis [5].

Curative treatment can be conservative or surgical. In the literature, it is most often surgical, consisting of laminectomy and microsurgical removal of the mass, sometimes associated with arthrodesis [2, 9, 10]. Postoperative complications (dural breach, epidural hematoma, compressive serous collection) are possible, especially when the cysts are large, leading to adhesions between their wall and the dural sheath [2]. We did not note any of these complications in our patient. An alternative to surgical treatment is percutaneous aspiration of the cyst contents, followed or not by injection of delayed corticoids under scopy [14, 15].

## 4. Conclusion

Lumbar synovial cyst is a rare lesion, often associated with degenerative joint arthropathy. This lesion is most often manifested by radicular symptoms and may mimic other clinical entities such as neuroma. The diagnosis is based on imaging and confirmed by surgery and histology. Complete surgical excision is the gold standard of treatment.

## Declaration of Interest

The authors declare that they have no conflicts of interest.

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