Percutaneous Endoscopic Lumbar Approach to a Facet Joint Synovial Cyst: Case Report and Review of the Literature

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Lumbar facet joint synovial cysts are rare lesions that may cause radiculopathy, usually due to progressive neurogenic claudication, and require surgical intervention. However, the endoscopic approach may be an alternative that avoids the risk of instability. This paper describes the endoscopic approach to a lumbar facet joint synovial cyst in a 78-year-old female patient. The endoscopic approach to lumbar facet joint synovial cysts is a viable approach.

Key Words: Lumbar facet joint disiase, Percutaneous endoscopic approach, Synovial cysts

INTRODUCTION

The classification of spinal cysts is based in histopathology, localization and etiology. Different types of cyst such as synovial cyst, arachnoid cyst, cyst of the ligamentum flavum, discal cyst and ganglions are present in the spine. The localization can be intradural and extradural and this will determine what type of surgical access will be used. Among the different types of cyst the synovial cyst is the most commonly found.

Lumbar facet joint synovial cysts are rare lesions that may cause radiculopathy, neurogenic claudication and even cauda equina syndrome. The most frequent site where it is found is anterior to the yellow ligament, postero-lateral to the dura and its contents, at the L4-5 level. It does not respond well to clinical management, oftentimes requiring surgical intervention. Different approaches may be used, such as corticosteroids and local anesthetic injections, Computed Tomography (CT) guided needle aspiration, microscopic resection and, nowadays, endoscopic resection. These cysts seldom disappear without intervention and the open microscopic approach may lead to spinal instability after removing part of the facet joint. The percutaneous endoscopic approach is a viable option that avoids the risk of instability.

We aim to describe the percutaneous endoscopic approach to a lumbar facet joint synovial cyst in a 78-year-old female patient.

CASE REPORT

Our patient was a 78-year-old female with a history of rheumatoid arthritis, which caused numerous deformities in peripheral joints, and thrombophilia, which had previously precipitated four episodes of deep vein thrombosis in her lower limbs and one episode of pulmonary embolism and required continuous use of rivaroxaban.

She presented to our clinic complaining of progressive neurogenic claudication and right side sciatica for 6 months and a limited walking ability (around 50 meters). She underwent mag-
Fig. 1. T2 weighted MRI images of the lumbar spine in the sagittal (Ⓐ) and axial (Ⓑ) views. Note the epidural cyst adjacent to the L4-L5 facet joint and the compression of the cauda equina and emerging nerve root.

Fig. 2. We approached the posterior portion of the spinal canal through the inferior articular facet (Ⓐ). Endoscopic view of the synovial cyst capsule (Ⓑ, black star).

Surgery was done under general anesthesia without somatosensory evoked potentials (SSEPs). Using fluoroscopy to identify the target level and the significant landmarks, we introduced the spinal needle on the right side of the patient, 10 cm lateral to the midline advancing under anteroposterior fluoroscopy toward the inferior plateau of L4 vertebra. Using latero-lateral view in the fluoroscopy we aimed and advanced towards in the L4's inferior articular facet-lamina transition. For endoscopic discectomies, the target (the intervertebral space and disc) is more anterior than our current case and the bony landmark used to introduce the needle is the superior articular facet of the inferior vertebra. However, to access the spinal canal (more posterior) and the structure therein, the inferior facet-lamina transition of the superior vertebra is a more suitable target.

After advancing the 18G needle up to the cranial portion of the inferior articular facet, a Kirshner’s wire (K-wire) was introduced. An eight mm skin incision was done and two sequential dilators were used with the K-wire as guide. The sharp tip TOM Shidi cannula (MaxMoreSpine, Unterföhring, Germany) was advanced 5 mm using a surgical mallet, followed by manual drills with a respective diameter of 4, 6, and 8 mm to enlarge the entrance into the facet-lamina transition created by the TOM Shidi cannula and allow the endoscope to be introduced and positioned (Fig. 2).

Post-operative course was uneventful. Immediately after surgery the sciatica resolved and neurogenic claudication improved with a complete resolution at the 12 weeks post-operative visit.

Histopathologic analysis showed the presence of synovial membrane cell with mucinous component and hemosiderin compatible with synovial cyst.

DISCUSSION

The natural history and development of lumbar facet joint
The percutaneous endoscopic approach to the lumbar facet joins cysts is a viable approach. It should be mainly considered for patients that would benefit from shorter hospital stays, minimally invasive procedures and reducing the risk of spinal instability.

REFERENCES