



## Percutaneous Endoscopic Lumbar Surgery via the Transfacet Approach for Lumbar Synovial Cyst

Hsuan-Han Wu<sup>1</sup>, Lei Chu<sup>4</sup>, Yongjian Zhu<sup>3</sup>, Chun-Yuan Cheng<sup>1,2</sup>, Chien-Min Chen<sup>1,2</sup>

■ **BACKGROUND:** There are currently no high-quality studies on the optimal therapeutic approach for juxtafacet cyst, as treatment guidelines have not been developed. Herein, a novel technique in which we used an endoscopic transfacet approach to treat a patient with symptomatic lumbar synovial cyst is presented.

■ **CASE DESCRIPTION:** An 87-year-old man presented with severe dull pain in the right anterior thigh. Lumbar magnetic resonance imaging revealed disc extrusion over the central canal zone at the L2–L3 and L4–L5 levels and an ovoid lesion with a hyperintense center plus a hypointense rim on the T2-weighted image. The lesion was located over the medial side of the right juxtafacet region at the L2–L3 level, causing thecal sac compression. After the operation, the visual analog pain scale improved with a value of 0–1/10, and straight leg raise test was negative. Microscopically, cystic fibrous tissue with focal myxoid degeneration, fibrin exudate, and scant synovial-like lining was observed. These findings were consistent with clinical synovial cyst. Three months later, lumbar magnetic resonance imaging was performed, and no evidence of cyst was disclosed. Lumbar computed tomography revealed the upper part of left L2–L3 facet joint was removed. The patient did not report any radicular pain during the 6-month follow-up period.

■ **CONCLUSIONS:** Percutaneous endoscopic lumbar surgery could be a new option for the management of lumbar synovial cysts, especially when general anesthesia is not appropriate for the patient.

### INTRODUCTION

The term “juxtafacet cyst” (JFC) was first coined by Kao et al. in 1968 to include both synovial cysts and ganglion cysts adjacent to a spinal facet joint or arising from the ligamentum flavum of the spinal facet joints.<sup>1</sup> When this condition develops in the lumbar spine, despite being relatively rare, it is an increasingly recognized cause of symptomatic nerve root compression, which may lead to radiculopathy, neurogenic claudication, and cauda equina syndrome.

To date, the pathophysiology of these cysts has not been fully elucidated. Segmental instability caused by spondylosis encompasses factors such as loss of disc height and degenerative spondylolisthesis, which have been identified as being highly correlated with cyst formation.<sup>2,3</sup> Many different types of treatments have been proposed, including oral medications, physical therapy, facet joint or cyst steroid injection or aspiration, cyst rupture, and decompression surgery with or without fusion. There are currently no high-quality studies on the optimal therapeutic approach for JFC, as treatment guidelines have not been developed, but generally it appears that surgical management is more effective than nonsurgical management.<sup>4-6</sup> Herein, we report our experience using an endoscopic transfacet approach to treat an 87-year-old man with symptomatic lumbar synovial cyst.

### CASE PRESENTATION

An 87-year-old man with underlying coronary artery disease (2-vessel disease) and chronic obstructive pulmonary disease (chronic bronchitis) was admitted to our neurosurgery department at Changhua Christian Hospital in November 2016 for severe intermittent low back pain radiating to the right thigh. His medical history included tolerable low back pain radiating to the bilateral anterior thigh, knee, and medial leg for 6 months before admission. About 6 weeks before admission, he visited our

#### Key words

- Endoscope
- Lumbar synovial cysts
- Transfacet approach

#### Abbreviations and Acronyms

**JFC:** Juxtafacet cyst

**MRI:** Magnetic resonance imaging

From the <sup>1</sup>Division of Neurosurgery, Department of Surgery, Changhua Christian Hospital, Changhua; <sup>2</sup>School of Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan; <sup>3</sup>Department of Neurosurgery, The Second Affiliated Hospital of Zhejiang University School

of Medicine, Hangzhou; and <sup>4</sup>Department of Orthopaedic Surgery, The Second Affiliated Hospital of Chongqing Medical University, Chongqing, China

To whom correspondence should be addressed: Chien-Min Chen, M.D., Ph.D.  
[E-mail: cmchen.cch@gmail.com]

Hsuan-Han Wu and Lei Chu contributed equally to this work.

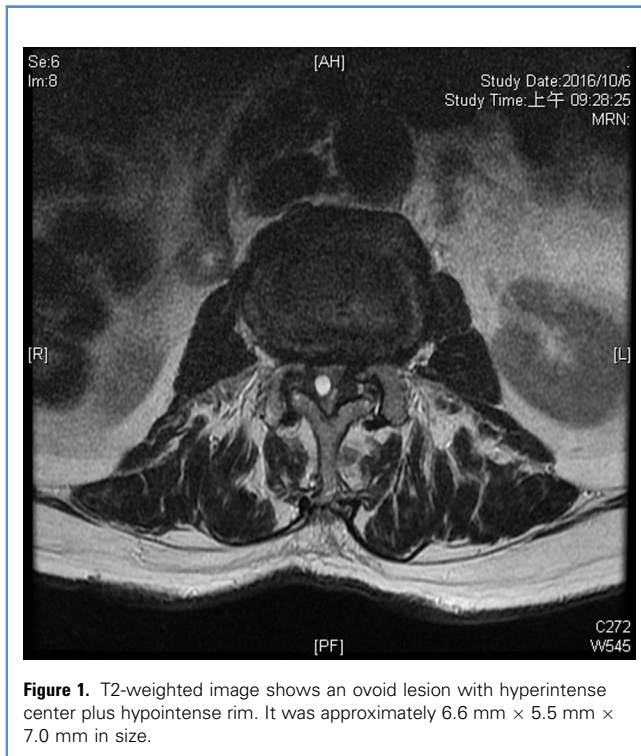
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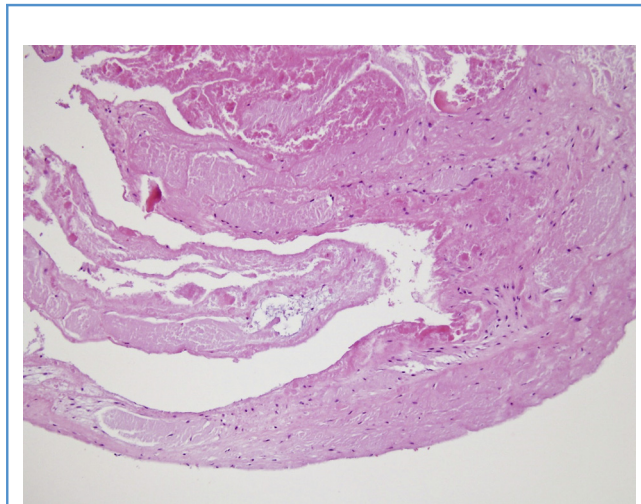
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**Figure 1.** T2-weighted image shows an ovoid lesion with hyperintense center plus hypointense rim. It was approximately 6.6 mm × 5.5 mm × 7.0 mm in size.

outpatient clinic because a more severe dull pain in the right anterior thigh had developed. When aggravated by sitting up or hip flexion, the visual analog pain scale reached 6 of 10.

Findings of the physical examination showed no significant loss of bilateral muscle power, but the straight leg raise test was positive at about 30° over the right side. Because radiculopathy was considered, we arranged lumbar magnetic resonance imaging (MRI), which revealed disc extrusion over the central canal zone at the L2–L3 and L4–L5 level, and an ovoid lesion



**Figure 2.** Microscopically, cystic fibrous tissue with focal monoid degeneration, fibrin exudate, and scant synovial-like lining was observed, which was consistent with clinical synovial cyst.



**Figure 3.** Lumbar T2-weighted magnetic resonance showed no residual cyst at 3 months postoperatively.

with a hyperintense center plus a hypointense rim on the T2-weighted image (Figure 1). The lesion was located over the medial side of the right juxtafacet region at the L2–L3 level,



**Figure 4.** Lumbar computed tomography 3 months postoperatively showed the upper part of right L2–L3 facet was penetrated (red arrow).

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