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Intraspinal Ganglion Cyst

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The pathogenesis of juxtafacet cysts is closely related to degenerative instability of the lumbar spine and degenerative changes in the ligamentum flavum and the facet joint. A 56-year-old man presented with severe right thigh pain and numbness for 1 month after a laminar fracture of the L4 spine. Magnetic resonance imaging revealed a heterogenous cystic mass surrounding the facet joint between the fourth and fifth lumbar vertebrae on the right side. Conservative therapy was unsuccessful and the lesion was removed by surgical decompression alone without fusion. The histological examination showed a fragmented, cystic wall-like structure composed of myxoid degenerative tissue without lining epithelium. Here we present this case of a ganglion cyst that appeared to be associated with facet joint instability.

Key Words: *Ganglion cysts; Synovial cyst; Spine*

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THE CASE: SEVERE RIGHT THIGH PAIN AND NUMBNESS AFTER ADJOINED LAMINAR FRACTURE

A 56-year-old man was admitted to the hospital because of traumatic brain injury after falling down some stairs. On admission to our emergency department, multiple bruises and laceration of the scalp were noted. On physical examination, he scored 13/15 on the Glasgow Coma Scale. A computed tomography (CT) scan showed cerebral epidural hematoma with a linear skull fracture at the right temporoparietal region. We undertook craniotomy and hematoma removal. After surgery, the patient's mental state recovered rapidly. About 1 month later, he was found to be neurologically intact. Two months later, he presented with lower back pain and right leg pain that had insidiously developed. As time passed, the patient's symptoms had become aggravated and he had difficulty walking despite analgesic medication. The pain radiated to the right L5 dermatome. The patient's capacity on a straight leg raise was diminished to 50 degrees on the right leg. Sensation was diminished in the right L5 and S1 dermatomes. Motor function was normal.

Magnetic resonance imaging (MRI) revealed a large cystic lesion on the lumbar spine (Fig. 1A, B). A CT scan showed a minimal fracture on the L4 lamina and adjoined L5 superior facet joint (Fig. 1C). The cyst was noted around the right L4-L5 facet joint, which ventrally compressed the dural sac and right-traversing L5 root. MRI revealed a well-defined, large-sized mass with variable intensity on T2-weighted images surrounding the L4-5 facet joint. The mass was enhanced after injection of gadolinium and revealed effusion in the interfacet joint, which suggested hemorrhage and contusion of the lesion.

DIAGNOSIS: GANGLION CYST ARISING FROM JOINT INSTABILITY

The patient underwent surgery through a posterior lumbar approach. A standard microsurgical hemi-partial laminectomy was performed. A large-sized, thick-walled capsulated mass was noted from the ruptured ligamentum flavum. The mass compressed adjacent muscles posteriorly and compressed the dural sac ventrally, which seemed to be connected to the facet joint capsule. The cystic mass was partially excised and cleaved by using a blade, Ronger, and Kerrison punch near the facet capsule. There was no connection to the disc or posterior longitudinal ligament. The radiating pain was alleviated immediately after the operation without neurological deficits. Photomicrographs showed thick collagenous fibrous tissue and myxoid degeneration without a synovial lining. Eight months later, the postoperative MRI scan showed remarkable regression of

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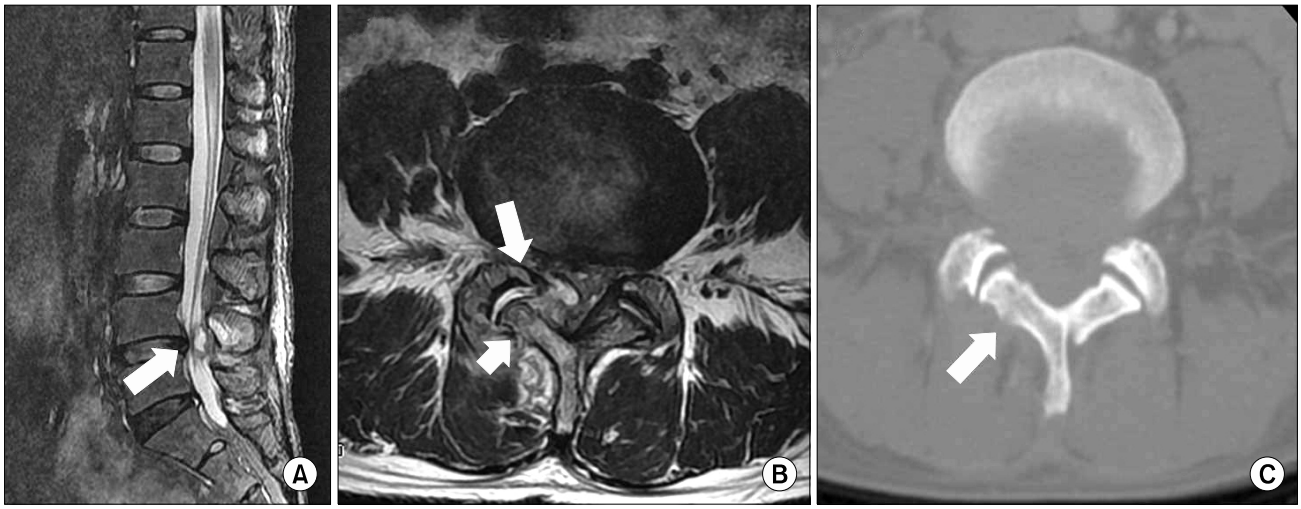

FIG. 1. Preoperative images of the lumbar spine. Preoperative sagittal (A) and axial (B) magnetic resonance images show a large, round, mass-like lesion with heterogeneous signal intensity on the T2-weighted image. The right facet joint shows fluid accumulation (B, upper arrow). Laminar fracture close to the L4-5 facet joint is also seen (B, lower arrow). A preoperative computed tomography scan of the lumbar spine at the L-5 level shows a laminar fracture close to the L4-5 facet joint on the right side (arrow).

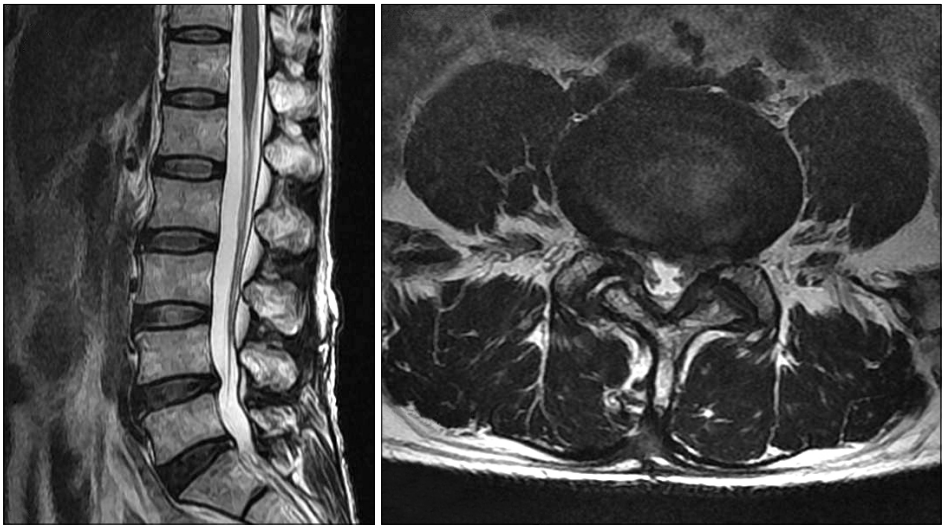

FIG. 2. Postoperative images of the lumbar spine. Eight months later, the previously noted lesion is not seen on the postoperative follow-up magnetic resonance image.

the cyst (Fig. 2).

Several terms for these cysts, including *synovial cyst*, *ganglion cyst*, and *pseudocystic lesion* have been used.[1,2] A true cyst, a so-called "synovial cyst," has a synovial lining membrane, whereas a "ganglion cyst" has no synovial lining membrane. Here we presented a case of a ganglion cyst without a synovial lining membrane that seemed to be associated with facet joint instability possibly caused by a laminar fracture close to the facet joint.

Ganglion and synovial cysts can be classified by the presence of the synovial lining and communication with the facet joint; it is difficult to differentiate them clinically. Differentiation between the two types of cysts is only of histological value, because they share similar clinical and radiological characteristics. The pathogenesis of ganglion cysts is controversial. Posttraumatic degeneration of connective tissue and inflammation have been regarded as causes of these cysts.[3] One of the causes of the formation of the ganglion cyst in this case seemed to be related to joint instability induced by laminar fracture close to the facet joint.

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