

Discal Cyst Diagnosed by Radiologic Finding

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Discal cyst is a very rare lesion that can result in refractory low back pain and leg radiating pain. Because they are so uncommon, their exact origin and pathophysiology are still unknown. A 31-year-old man visited our institute due to low back pain and severe left leg radiating pain. Magnetic resonance images (MRI) revealed spherically shaped extradural cystic lesion at L2-L3 level. Computed tomography (CT) discography demonstrated obvious communication between the intervertebral disc and the cyst. The patient underwent posterior decompression and excision of cyst. The symptoms were remarkably improved immediately after surgery.

KEY WORDS : Discal cyst · Operation · Intraspinal · Extradural.

Introduction

Several types of intraspinal cysts arising at different sites have been reported and the two most common locations being the facet joint and ligamentum flavum. Unlike these cysts, the intraspinal extradural cyst that communicates with the intervertebral disc, referred to as “discal cyst”, is extremely rare and is difficult to distinguish from other kinds of lesions^{1,4,5}. The chief clinical manifestation of discal cyst is radiculopathy resembling those of lumbar disc herniation. Surgical removal of lesion has usually been performed for the treatment of this disorder. We report a rare case of upper lumbar discal cyst with symptoms and signs resembling lumbar disc herniation.

Case Report

A 31-year-old male patient was admitted to our institute due to low back pain and severe left leg radiating pain that persisted for 4 months. On admission, he complained of low back pain and left lower extremity pain and the straight leg raising test was positive at 45° on the left side. But, all muscle strengths were normal. Previous non-operative conservative treatments such as medication, extensive physical therapy and epidural steroid injections, did not relieve symptoms. On plain lumbar radiographs, there were no signs of pathological

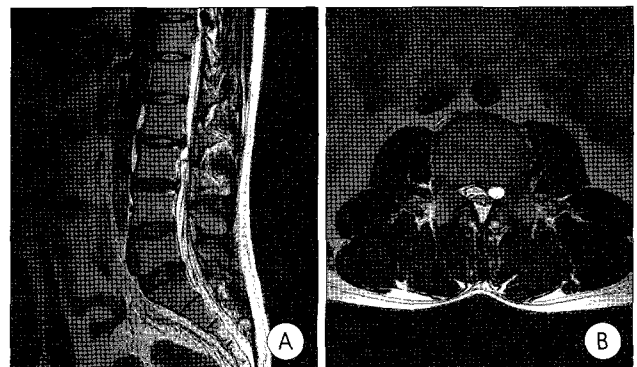


Fig. 1. A, B : T2-weighted sagittal and axial images show oval-shaped cyst with high signal intensity at L2-L3 level.

changes such as narrowing of the disc space, malalignment or spondylotic change. MRI revealed an extradural spherical cystic mass, 4 × 6 × 10 mm, with low signal intensity on T1-weighted imaging and high signal intensity on T2-weighted imaging in the L2-L3 level (Fig. 1). CT discography showed clear communication between the intervertebral disc and cyst (Fig. 2). After ordinary bilateral laminectomy of L2, dark blue colored cyst compressing the L3 root was visualized over the ventrolateral aspect of the thecal sac. A connection between the cyst and the L2-L3 intervertebral disc was identified and the cyst was removed at the base of the connection by dissecting the adhesion. Although the corresponding

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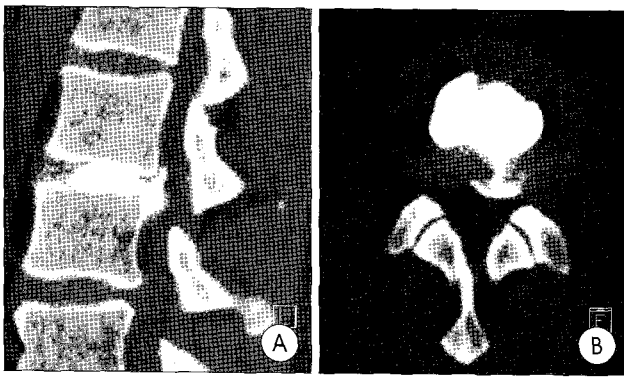


Fig. 2. A, B : Computed tomographic discogram revealing the cyst with connection to the L2–L3 intervertebral disc.

intervertebral disc didn't appear to compress the nerve roots, we performed intraoperative low dose chemonucleolysis because of mild disc bulging and an apparent connection between the cyst and intervertebral disc. Low back pain and left leg radiating pain improved remarkably immediately after surgery and he was discharged without any neurologic sequelae.

Discussion

Intraspinial cysts originating from the facet joint and ligamentum flavum have been frequently reported^{7,9,10}. However, intraspinal extradural cysts that communicate with intervertebral disc, referred to as “discal cysts” are very rare and are difficult to distinguish from other kinds of lesions². The clinical symptoms and signs of discal cysts resemble those found in patients with lumbar disc herniation, which makes distinguishing between the pathological entities difficult. Neuroimaging investigations such as MR imaging can be used to accurately identify discal cysts. Discal cysts will have a low signal intensity on T1-weighted images and a high signal intensity on T2-weighted images. In addition, the surrounding rim and the contents of the cyst may show enhancement with the addition of Gd-DTPA. These MR imaging characteristics are helpful to differentiating discal cysts from lumbar disc herniation. A connecting channel between the cyst and the corresponding disc—further diagnostic evidence of a discal cyst—can be demonstrated on discography and CT discography. Discography is an invasive procedure, but it is possible to differentiate discal cysts from lumbar disc herniation or other intraspinal cysts using other methods.

The origin of discal cysts remains unknown. Several causes of these cysts have been postulated. Kono et al. have stated that the pathogenesis of discal cysts is similar to that of meniscal cysts of the knee and synovial cysts of the facet joint. These authors have also posited that discal cysts are the result of focal degeneration of the intervertebral disc producing a herniated disc with subsequent spilling of fluid from the herniated disc

material⁸. The extruded fluid provokes an inflammatory response leading to reactive pseudomembrane formation and the development of a discal cyst. Jeong and Bendo have argued that the underlying pathological mechanism of discal cysts was not a vascular phenomenon but a subsequent change in a herniated disc⁶. Chiba et al. proposed that discal cysts arise first from an underlying intervertebral disc injury that causes an annulus fibrosis fissure in the posterior intervertebral disc². Hemorrhaging from the peridural venous plexus with a rich blood flow occurs in the space between the peridural membrane and the vertebral body (even without the presence of a prolapsed disc) because of the mechanical force transmitted by the annular fissure. We agree with Chiba's hypothesis regarding the possible causes of discal cysts. Whatever the pathogenesis may be, not intervertebral disc herniation but the intraspinal cyst itself are responsible for the development of the symptoms.

The exact natural history of discal cysts is still unknown. There is only one case report on spontaneous regression of discal cyst³. Therefore, a therapeutic strategy for discal cysts remains to be established. However, we believe that the operative indications for discal cyst are likely to be similar to those of lumbar disc herniation. In the present patient, the symptoms were aggravated in spite of extensive nonoperative conservative care such as medication, physical therapy and nerve blocks. Because there have been no reports of cyst recurrence, we recommend surgical excision as the best treatment for discal cysts in patients with persistent and refractory neurological symptoms and leg pain. However, it is not always clear whether the disc should be excised. To provide a more definitive answer to the question of which is the best treatment for discal cysts, additional cases of discal cysts accompanied by careful analysis and long-term follow up are required.

Conclusion

Discal cysts may manifest symptoms and signs resembling those of lumbar disc herniation. Although it is a rare disease, it should be kept in mind the possibility of discal cyst.

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