ISCAL cysts were recently defined as a clinical entity by Chiba et al. in 2001. These authors described this pathological entity as a cystic lesion near an intervertebral disc with a connection between the cyst and the corresponding intervertebral disc. They further described these cysts as round–oval lesions with low T_1- and high T_2-weighted signal intensity on MR imaging—findings consistent with a cyst but not with disc herniation. In the original report by Chiba and colleagues, the authors described eight patients who presented with discal cysts, all of whom underwent surgery. Coscia and Broshears presented two cases of discal cysts that were also treated surgically. Koga et al. described a case of a discal cyst treated with CT-guided aspiration and steroid injection, and Ishii and colleagues reported on a patient with a discal cyst who was treated with minimally invasive surgery.

To our knowledge, this is the first reported case in North America of a discal cyst that has regressed without surgery or aspiration. The regression of this entity is demonstrated on neuroimaging, and the case history of the patient is presented.

Case Report

History and Examination. This 35-year-old man presented with back pain. Ten days later he noticed that the pain was mainly radiating down his right leg, and the back pain had disappeared. He denied having any weakness or bowel or bladder changes, and on neurological examination he had no deficit. He was started on a course of nonsteroidal antiinflammatory medication, and this helped the pain somewhat. Because the pain persisted 5 months after his initial presentation, an MR imaging result was obtained that demonstrated a large right-sided discal cyst extending from L-5 to S-1 and measuring 12 × 10 × 13 mm (Fig. 1). After Gd administration there was enhancement of a focal annular tear but no enhancement of the cyst itself (Fig. 2).

Treatment and Posttreatment Course. The patient was treated conservatively for this lesion. After the MR imaging results were obtained, an epidural injection was performed, and the patient experienced minimal symptom relief. Two weeks later, a right-sided S-1 selective nerve
root block was performed, which provided substantial pain relief. Both injections contained local anesthetic and steroid agents. Afterwards, he underwent physical therapy and continued on a course of nonsteroidal antiinflammatory medication taken on an as-needed basis. He was able to continue working as an attorney during this time.

Five months after the initial MR imaging study, the patient reported that he continued to have pain, although it was significantly less than before. At this stage MR imaging demonstrated a significant reduction in the size of the discal cyst to $\frac{5}{2} \times 3 \times 2$ mm (Fig. 3). The patient continued to undergo conservative treatment consisting of as-needed medication and avoidance of strenuous physical activity. One year after his initial presentation, he is able to work full time and has minimal pain.

**Discussion**

Discal cysts were initially described in 2001 by Chiba et al. in their report on eight patients in Japan who underwent open surgical treatment. The authors described these cysts according to clinical presentation, diagnostic imaging features, and histopathological findings. They found that the clinical presentation was essentially indistinguishable from that of a lumbar disc herniation. All the cysts were in the lumbar spine. Chiba and colleagues could not clearly identify the origin of these discal cysts, but hypothesized that they may have arisen from mucoid degeneration, disc collapse–induced hematoma, or disc herniation resorption. On histological examination, they found that the capsule was composed of dense fibrous connective tissue without specific cell lining layers. The only finding apart from the fibrous capsule was hemosiderosis and mucous degeneration.

On diagnostic imaging, Chiba et al. found that myelography and CT myelography revealed similar findings to those seen in cases of lumbar disc herniation. A dural displacement and nerve root defect were seen, and no specific characteristic related to the cyst was demonstrated. On discography, they found that the initial injection pressure was similar to that of a normal disc; however, the contrast medium subsequently flowed into the cyst and caused severe radicular pain. Because our patient’s symptoms improved after the selective nerve root block, we chose not to obtain a discogram because of its invasive nature. Magnetic resonance imaging demonstrated low signal intensity on T$_1$-weighted images and high signal intensity on T$_2$-weighted images. A high T$_2$-weighted signal is more consistent with a cyst than with a herniated disc. After Gd administration, MR imaging demonstrated peripheral enhancement. Histopathological examination of these cysts showed dense fibrous connective tissue without specific cell lining layers. Surprisingly, Chiba and colleagues found no disc material in their specimens.

Demaerel et al. provided a brief description in 2001 of a patient in Belgium who presented with a disc cyst. Although they did not call it a “discal” cyst, the neuroimaging appearance is consistent with that of a discal cyst. The symptoms in their patient resolved within 3 weeks, and 4 months later, the cyst was no longer apparent on neuroimaging. Unfortunately, the exact intervention performed, if any, was not detailed in their report.

In 2002, Coscia and Broshears published two cases of surgically treated discal cysts. Jeong and Bendo published a case of a disc cyst treated with open surgery in 2003. All three patients described in these reports were...
treated with standard open surgery, and this type of lesion did not appear to be limited to a specific ethnic group.

Koga et al. presented in 2003 a case of a right-sided L5–S1 discal cyst treated with percutaneous CT-guided aspiration and steroid injection. When the authors performed discography, contrast dye was found tracking into the discal cyst itself, confirming Chiba and coworkers’ description of this entity’s characterization during discography. Koga and colleagues performed a CT-guided fine-needle puncture, aspirated the cyst, and then injected a long-acting steroid. This procedure resulted in symptomatic relief and imaging-documented regression at 2 weeks and 6 months. Finally, in 2005 Ishii et al. reported on a patient with a discal cyst treated with minimally invasive surgery.

Discal cysts are very rare, and the literature on this entity consists only of case reports; the natural history of this lesion is unknown. Nearly all reported discal cysts have been treated surgically or with some direct intervention such as CT-guided aspiration and steroid injection. Demaerel and coworkers reported a case of imaging-documented regression and symptomatic relief without surgery. Unfortunately, their report does not document whether any type of injection, medication, or other intervention was administered. Moreover, the history provided does not fully document the patient’s postoperative course or follow up. In the images in Demaerel and colleagues’ report there does appear to be near-complete resolution of the cyst (which they refer to as a “disc” cyst and not a “discal” cyst), notably on the T2-weighted MR image. This is similar to our finding of a dramatic regression of the cyst on MR imaging.

The present report represents the first documented case of discal cyst regression without surgery or direct aspiration observed at the 1-year follow-up examination. In addition to the patient’s symptom relief, the dramatic regression on MR imaging is quite impressive. In our patient, an epidural injection and a selective nerve root block were both performed. The patient experienced symptomatic relief from the selective nerve root block but not from the epidural injection. Although both injections contained steroid agents, it is not clear whether the drug contributed to the cyst regression. Based on the standard placement of selective nerve root blocks, it is unlikely that the needle itself pierced the cyst; rather, the steroids could certainly have diffused toward the cyst and caused regression. Nonetheless, there was neither an intentional direct aspiration nor a direct intracyst steroid injection, as was the case in the patient treated by Koga and colleagues. It is important to consider that even though the steroids were not injected directly into the discal cyst itself, they nonetheless could have contributed to its regression. Because

![Fig. 2. Sagittal (A) and axial (B and C) Gd-enhanced T1-weighted MR images demonstrating enhancement of the focal annular tear (arrows). There was no enhancement of the cyst, but it can be seen compressing and displacing the right S-1 root medially and posteriorly (asterisks).](image-url)
discal cysts are extremely rare and their natural history remains unknown, knowledge that potential spontaneous regression of a discal cyst may occur can be helpful when evaluating patients with this problem.

Conclusions

As we have shown, regression of a discal cyst can occur without surgical intervention; a dramatic reduction in size was seen in our patient on MR imaging. It is unclear whether steroid injection contributes to the regression of a discal cyst.

References


Manuscript received March 2, 2006. Accepted in final form August 28, 2006.

Address reprint requests to: Dean Chou, M.D., Department of Neurological Surgery, University of California, San Francisco, 505 Parnassus Avenue, Room M779, San Francisco, California 94143-0112. email: choud@neurosurg.ucsf.edu.