Letter to the Editor

Asymptomatic postoperative discal pseudocyst and its spontaneous regression after percutaneous endoscopic interlaminar discectomy: a case description

Xin Bai[1]^, Hao Sun[1,2]

[1]Department of Radiology, State Key Laboratory of Complex Severe and Rare Disease, Peking Union Medical College Hospital, Peking Union Medical College, Chinese Academy of Medical Sciences, Beijing, China; [2]National Center for Quality Control of Radiology, Beijing, China

Correspondence to: Hao Sun, MD, MPH. Department of Radiology, State Key Laboratory of Complex Severe and Rare Disease, Peking Union Medical College Hospital, Peking Union Medical College, Chinese Academy of Medical Sciences, Shuaifuyuan No. 1, Wangfujing Street, Dongcheng District, Beijing 100730, China. Email: sunhao_robert@126.com.

Submitted Feb 16, 2023. Accepted for publication May 15, 2023. Published online May 19, 2023.
doi: 10.21037/qims-23-192
View this article at: https://dx.doi.org/10.21037/qims-23-192

Introduction

Lumbar discectomy is one of the most common types of spinal surgery. Recurrent disc herniation may be suspected when patients present with recurrent symptoms after the surgery. However, postoperative disc pseudocyst (PDP), as one of the possible causes, may be overlooked by surgeons.

PDP is an uncommon complication with an incidence rate of approximately 1%, more common with minimally invasive lumbar discectomy (percutaneous endoscopic discectomy, microdiscectomy and microendoscopic discectomy) (1). Young *et al.* (2) first reported the phenomenon in 2009, and they hypothesized that the phenomenon occurs may be due to the removal of the disc herniation. The potential cavity communicating with the disc annulus does not disappear but fills with fluid, eventually causing similar symptoms to recurrent disc herniation.

Case presentation

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee(s) and with the Helsinki Declaration (as revised in 2013). Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the editorial office of this journal.

A 25-year-old woman presented with chronic low back pain for 1 year, radiating pain for 8 months, and numbness in both lower limbs for 4 months. A specialist physical examination suggested lameness and limited lumbar flexion and extension. The patient presented with tenderness and percussion pain in the L5/S1 interspinous and bilateral paraspinous regions, with a normal range of motion of the hip. The left straight leg raise test was positive at 30° and the right straight leg raise test was negative at 70°. The left knee jerk reflex and the left Achilles tendon reflex were weak. The strength of the extensor hallucis longus of the left foot was grade 4, and the remaining muscles of the lower extremities were normal. There were no obvious abnormalities in perineal and sellar skin sensation. The bilateral femoral nerve stretch test was negative and the bilateral Babinski signs were negative. The visual analogue scale (VAS) score was 5 points. The patient was previously healthy and denied a history of surgery.

Computer tomography (CT) and magnetic resonance imaging (MRI) of the lumbar spine confirmed central disc herniation at L5/S1 (*Figure 1A*). After conservative treatment failed, the patient underwent L5/S1 percutaneous endoscopic interlaminar discectomy (PEID), and the

^ ORCID: 0000-0002-3815-0878.

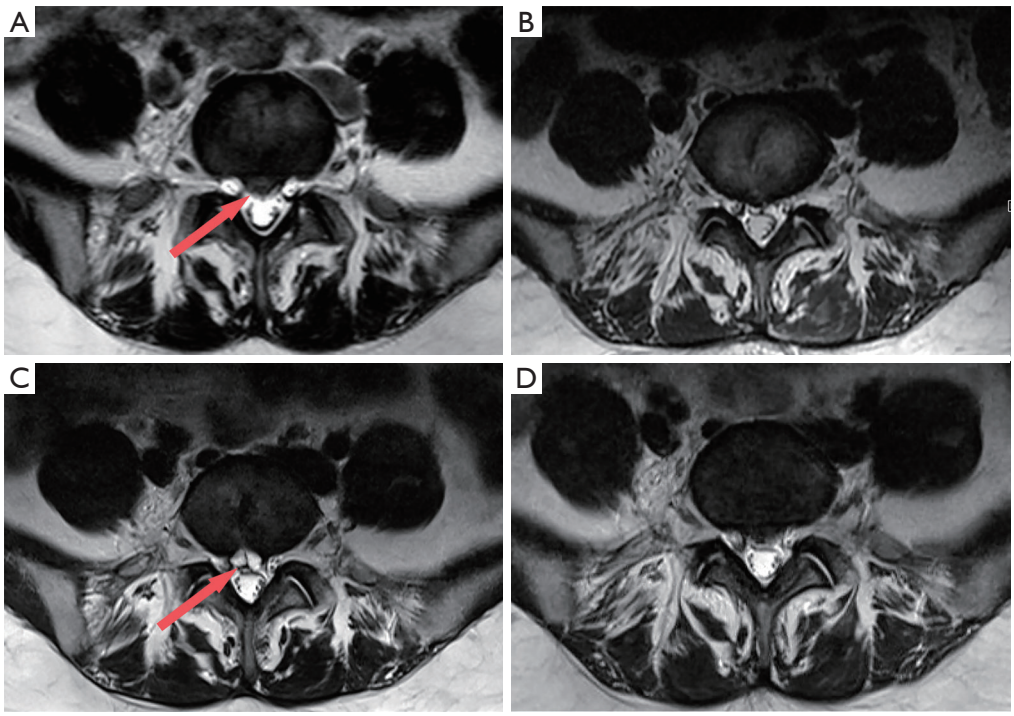

Figure 1 MRI images in a 25-year-old woman who presented with a 1-year history of chronic low back pain, 8 months of radiating pain, and 4 months of numbness in both lower limbs. (A) Preoperative lumbar MRI showed L5/S1 disc herniation (red arrow). (B) MRI on the first postoperative day revealed no disc herniation. (C) A routine follow-up MRI 4 months after surgery suggested postoperative discal pseudocyst (red arrow). (D) MRI displayed the cyst disappeared at 7 months after the surgery. MRI, magnetic resonance imaging.

symptoms of numbness and pain in both lower limbs were relieved immediately after the surgery and the VAS score was 1.

A MRI of the lumbar spine performed within 24 hours after surgery showed that the disc herniation had been removed (*Figure 1B*). Three days after the surgery, the patient was discharged. Four months after the surgery, a follow-up MRI of the lumbar spine revealed a cystic lesion of hypointense on the T1-weighted image (T1WI) and hyperintense on the T2-weighted image (T2WI) (same intensity as cerebrospinal fluid) at the discectomy site but the patient did not have recurrent radiculopathy (*Figure 1C*). At 7 months after the surgery, MRI displayed the cyst disappeared (*Figure 1D*).

Discussion

PDP occurs predominantly in physically active young Asian men and consists of dense fibrous connective tissue without an epithelial lining for the cyst wall and contents, suggesting that PDP and discal cyst have the same pathogenesis (3). PDP should be differentiating from the discal cyst with the same signal on MRI. Although some cases of spontaneous regression of disc cysts have been reported in the literature (4-6), Chung *et al.* proposed that PDP forms in a less inflammatory environment than other epidural pseudocysts (such as disc cysts) due to irrigation and removal of granulation tissue during the discectomy. They speculated that PDP is susceptible to the phagocytic immune response that underlies spontaneous regression, making it possible to treat PDP conservatively more successfully (7). For patients who have failed conservative treatment for pseudocysts, percutaneous endoscopic lumbar discectomy (PELD) combined with indwelling drainage is recommended for the treatment of PDP (8).

To date, there are few articles on PDP in the English literature and most of them are case reports. The case report describes the whole process from the appearance to the disappearance of PDP after L5/S1 endoscopic discectomy in a young woman, providing more information about PDP. In the future, more studies need to be implemented to figure out the phenomenon.

Conclusions

In conclusion, a high signal on the T2WI MRI image of a patient after discectomy should be considered PDP. Patients should be treated conservatively initially and new surgery should be considered only if it fails. Revision PELD is necessary to be performed if the patient has recurrent radiculopathy and persistently not improving. For asymptomatic PDP patients, follow-up observation is sufficient because of its spontaneous regression.

Acknowledgments

Funding: This work was supported by National High-Level Hospital Clinical Research Funding (No. 2022-PUMCH-A-033 to Hao Sun).

Footnote

Conflicts of Interest: Both authors have completed the ICMJE uniform disclosure form (available at https://qims.amegroups.com/article/view/10.21037/qims-23-192/coif). The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee(s) and with the Helsinki Declaration (as revised in 2013). Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the editorial office of this journal.

Cite this article as: Bai X, Sun H. Asymptomatic postoperative discal pseudocyst and its spontaneous regression after percutaneous endoscopic interlaminar discectomy: a case description. Quant Imaging Med Surg 2023;13(8):5385-5387. doi: 10.21037/qims-23-192

References

1. Wang H, Wang S, Yu H, Chen Y, Zheng L, Ma J. Surgical treatment of recurrent postoperative discal pseudocyst: A case report and literature review. Medicine (Baltimore) 2022;101:e31756.
2. Young PM, Fenton DS, Czervionke LF. Postoperative annular pseudocyst: report of two cases with an unusual complication after microdiscectomy, and successful treatment by percutaneous aspiration and steroid injection. Spine J 2009;9:e9-e15.
3. Fu CF, Tian ZS, Yao LY, Yao JH, Jin YZ, Liu Y, Wang YY. Postoperative discal pseudocyst and its similarities to discal cyst: A case report. World J Clin Cases 2021;9:1439-45.
4. Demaerel P, Eerens I, Goffin J, Wilms G. Spontaneous regression of an intraspinal disc cyst. Eur Radiol 2001;11:2317-8.
5. Chou D, Smith JS, Chin CT. Spontaneous regression of a discal cyst. Case report. J Neurosurg Spine 2007;6:81-4.
6. Aydin S, Abuzayed B, Yildirim H, Bozkus H, Vural M. Discal cysts of the lumbar spine: report of five cases and review of the literature. Eur Spine J 2010;19:1621-6.
7. Chung D, Cho DC, Sung JK, Choi E, Bae KJ, Park SY. Retrospective report of symptomatic postoperative discal pseudocyst after lumbar discectomy. Acta Neurochir (Wien) 2012;154:715-22.
8. Wang S, Yang Y, Yu X, Chang Z. Postoperative discal pseudocyst after percutaneous endoscopic transforaminal discectomy treated by drainage: Case report. Medicine (Baltimore) 2022;101:e30204.

