



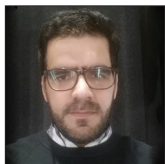
Case Report

A postoperative complication of lumbar discectomy: A discal/annular cyst

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Received : 13 October 2022
Accepted : 22 November 2022
Published : 09 December 2022

DOI
10.25259/SNI_947_2022

Quick Response Code:



ABSTRACT

Background: A postoperative discal/annular cyst following lumbar discectomy may reproduce the symptoms/signs of a recurrent lumbar disc herniation (i.e., back pain and radiculopathy).

Case Description: A 21-year-old rugby player developed leg pain after an uncomplicated lumbar microdiscectomy. The repeat lumbar magnetic resonance imaging confirmed a postoperative lumbar annular/discal cyst, for which he underwent repeat surgery. The diagnosis was further confirmed histopathologically at surgery.

Conclusion: Although rare, postoperative discal/annular cysts may be potential causes of recurrent postoperative pain and lumbar radiculopathy mimicking recurrent disc herniations.

Keywords: Annular cyst, Back pain, Disc herniation, Discal cyst, Radiculopathy

INTRODUCTION

Postoperative annular cysts may reproduce symptoms and signs (i.e., low back pain and radiculopathy) similar to recurrent disc herniations.^[3-6] They are typically unilateral lesions and only rarely bilateral.^[11] Magnetic resonance imaging studies generally show spherical extradural masses with low signal intensities on T1-weighted images and high signal intensities on T2-weighted studies. The optimal management is often repeated surgical intervention for their resection.

CASE PRESENTATION

A 21-year-old rugby player underwent an uncomplicated discectomy at the L4/5 level [Figure 1]. Two weeks later, he returned with recurrent left-sided radicular symptoms/signs. The repeat MR showed an annular cyst at the site of his previous discectomy [Figure 2]. Six weeks after the original surgery, he underwent a second operation for resection of the histologically confirmed discal/annular cyst. After the second surgery, the patient was asymptomatic and joined a rugby training camp 2 weeks later.

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Literature review

From 2007 to 2021, we found 20 reports involving 37 patients with similar postoperative discal cysts [Table 1]. These discal

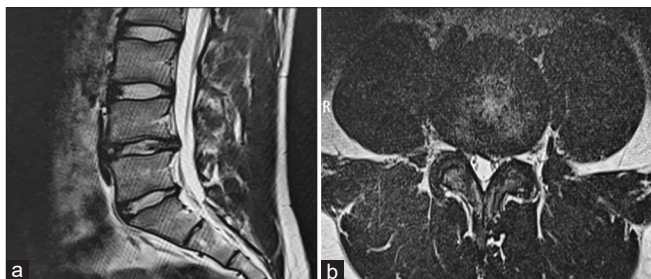


Figure 1: (a) Preoperative magnetic resonance imaging (MRI) spine T2-weighted images showing L4–L5 intervertebral disc protrusion, sagittal T2 image (a). (b) Preoperative MRI spine T2-weighted images showing L4–L5 intervertebral disc protrusion, axial T2, image (b).

cysts likely developed secondary to an iatrogenic annular injury occurring in the course of the original discectomy.^[2] Accompanying histological and epidemiological aspects for this case were comparable to those found in other series.

DISCUSSION

Discal cysts, known as a pre-membranous hematomas, are extremely rare lesions. Notably, they are directly related to synovial cysts, ganglion cysts, and Tarlov perineural cysts.^[8,11] Discal cysts are frequently misdiagnosed as recurrent postoperative disc herniations.^[10] On MR, these lesions have a low T1 signal and high T2 signal and typically demonstrate a direct connection between the cyst and the corresponding intervertebral disc. Operative findings document intralésional bloody-to-clear serous fluid within a fibrous cyst wall. Postoperatively, patients' radicular symptoms/signs typically markedly improve.^[9]

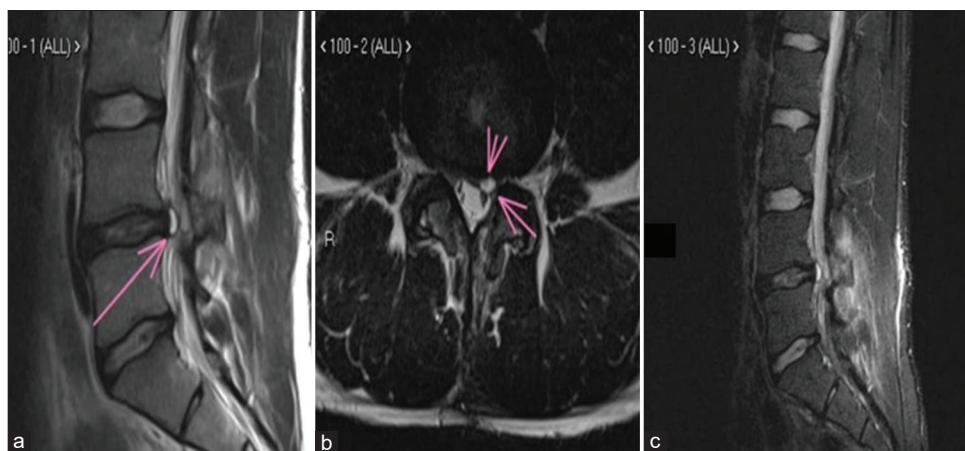


Figure 2: Magnetic resonance imaging spine T2-weighted images show discal cyst at L4–L5 level, (a) sagittal images show discal cyst (see arrow) at L4-5 level, (b) coronal images show discal cyst (see arrow) at L4-5 level, and (c) sagittal images.

Table 1: Summary of case studies.

Reference	Type	No	Discal communication	Previous surgery at same level	Country	Conclusion	Follow-up
Singleton <i>et al.</i> , ^[11] 2013	Case report	1	Unknown	No	Pittsburgh	Although discal cyst is typically treated surgically, percutaneous treatment may be an option in selected patients.	12 days
Kobayashi <i>et al.</i> , ^[6] 2010	Case report	2	Yes	No	Japan	Microsurgical excision of the discal cyst considered to be the best surgical option for facilitating the early return to normal activities of daily living.	18–24 months
Park <i>et al.</i> , ^[9] 2019	Retrospective clinical review	27	Unknown	No	Korea	Microsurgical cyst resection without excision of the corresponding disc is an effective	Unknown

(Contd...)

Table 1: (Continued).

Reference	Type	No	Discal communication	Previous surgery at same level	Country	Conclusion	Follow-up
Fu et al., ^[2] 2021	Case report	1	Yes	Yes	China	surgical treatment that is associated with a low recurrence rate. Post discectomy pseudocyst case who underwent conservative treatment, and revealed excellent outcome.	Spontaneous regression in 6 months
Murata et al., ^[8] 2007	Case report	1	Yes	No	Japan	Discal cysts should be considered in the differential diagnosis of low back pain and lower limb weakness.	2.5 years/ Symptoms resolved with occasional low back pain
Hwang et al., ^[3] 2008	Case report	1	Yes	No	Korea	Surgical resection is recommended for the management of lumbar discal cysts with severe pain or persistent neurological symptoms and signs.	6 months/ symptoms resolved
Kim et al., ^[5] 2009	Case report	2	Yes	No	South korea	discal cysts could be removed by a percutaneous endoscopic transforaminal approach in properly selected cases.	unknown unknown
Aydin et al., ^[1] 2010	Case report	5	Yes	No	Turkey	Systemic review of the literature performed by the authors was helpful in gaining more accurate general information about the epidemiology, the natural history and the management options of these lesions.	unknown
Hyung-Jun et al., ^[4] 2011	Case report	1	Unknown	No	Korea	A discal cyst may cross the midline, resulting in bilateral radiculopathy and NIC. Surgical excision of the cyst offered immediate symptomatic improvement, which was sustained at the 2-year follow-up.	14 months, no recurrence
Simao et al., ^[10] 2012	Case study	5	Yes	2 cases	USA	Magnetic resonance imaging can easily depict an epidural cyst.	unknown
Kwon et al., ^[7] 2013	Case study	2	yes	Yes-	Korea	Intraoperative discography can be useful for the intraoperative detection of discal cysts and for confirming whether a cystic lesion has been totally removed or if it has been entered during surgery.	unknown unknown
Zhu and He, ^[12] 2021	Retrospective study	3	Unknown	No	China	TPED is the standard treatment of gassy discal cysts.	1–3 years

Treatment of discal/annular cysts

Multiple modalities have been utilized to treat the symptoms/signs of discal/annular cysts.^[7] Medical therapy often includes the use of anti-inflammatory agents or corticosteroids. CT-guided aspiration of cysts is frequently attempted and often unsuccessful. Surgery may include

microsurgical/endoscopic excision of the cyst and partial hemilaminectomy with microscopic cyst excision (69.6 %) (i.e., direct resection resulting in good clinical outcomes and minimizing risk of recurrence).^[1,12] In our case, the patient underwent the latter procedure, and within 2 weeks resumed rugby without further sequelae.

CONCLUSION

Postoperative discal cysts can present with the classical signs and symptoms of recurrent lumbar disc herniation. Optimal management typically includes direct surgical resection rather than often reported failed attempts at cyst aspiration.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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How to cite this article: Saleemi M, Abrar S, Dherijha MS, George KJ. A postoperative complication of lumbar discectomy: A discal/annular cyst. *Surg Neurol Int* 2022;13:572.

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