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Case Report

A challenging recurrent thoracic disc herniation

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Received : 09 February 2023
Accepted : 09 March 2023
Published : 24 March 2023

DOI
10.25259/SNI_139_2023

Quick Response Code:

ABSTRACT

Background: Thoracic disc herniations are rare and occur at the rate of 1/1,000,000/year. Surgical approach must be individually tailored to the size, location, and consistency of the herniated disc. Notably, here, we report the unusual recurrence of a thoracic herniated disc.

Case Description: In 2014, a 53-year-old female presented with thoracic back pain, and paraparesis, attributed to an magnetic resonance imaging/computed tomography (CT)-documented left paramedian T8–T9 calcific disc herniation. She underwent a left hemilaminectomy/costotrasversectomy following which she experienced complete regression of her symptoms. Notably, the postoperative radiological studies at that time demonstrated some residual although asymptomatic calcific disc herniation. Eight years later, she again presented, but now with the chief complaint of difficulty breathing. The new CT scan showed a new calcified herniated disc fragment superimposed on the previously documented residual disc. Through a posterolateral transfacet approach, she underwent resection of the disc complex. An intraoperative CT scan confirmed complete removal of the recurrent calcified disc herniation. Following the second surgery, the patient fully recovered and remains asymptomatic.

Conclusion: A 53-year-old female first presented with a left-sided T8/T9 thoracic calcified disc herniation that was initially partially resected). When another larger fragment appeared 8 years later, superimposed on the previously documented residual disc, it was successfully removed through a posterolateral transfacet approach completed with CT guidance and neuronavigation.

Keywords: Thoracic herniation recurrence, Residual thoracic hernia, Thoracic disc herniation, Thoracic myelopathy

INTRODUCTION

Surgery for thoracic disc herniations (TDH) accounts for only 0.15–4% of all procedures performed for herniated discs and occurs at the rate of 1/1 million/year. They are most common in adults aged 30–50, who typically present with magnetic resonance (MR) documented cord compression and myelopathy.[2,4] Thoracic disc resection surgical approaches must be individually tailored to the specific location, consistency and type of TDH.[1,7] Here, a 53-year-old female first had a partial resection of a T8/T9 calcified TDH. Eight years later, she presented with myelopathy and a new calcified disc superimposed on the prior residual disc fragment. She underwent a successful secondary posterolateral "gross total" disc removal.

CASE REPORT

A 53-year-old female presented in 2014 with thoracic back pain, and paraparesis (Nurick grade 1). The MR (i.e., hyperintense on the T2-weighted images) and CT studies showed a left paramedian

T8–T9 calcific disc herniation compressing the spinal cord [Figure 1]. She underwent partial posterolateral resection of the calcified disc (i.e., Left T8-T9 hemilaminectomy, costotrasversectomy, left T9 pediculectomy and partial T8-T9 corpectomy, under somatosensory evoked [SSEP] and motor evoked potential [MEP] monitoring). As attempts to remove the residual disc fragment that was adherent to the dura resulted in recurrent transient MEP loss in the lower extremities, only a partial resection was performed. Postoperatively, the patient was neurologically intact. Nevertheless, the postoperative CT scan documented a residual calcified disc herniation [Figures 2 and 3].

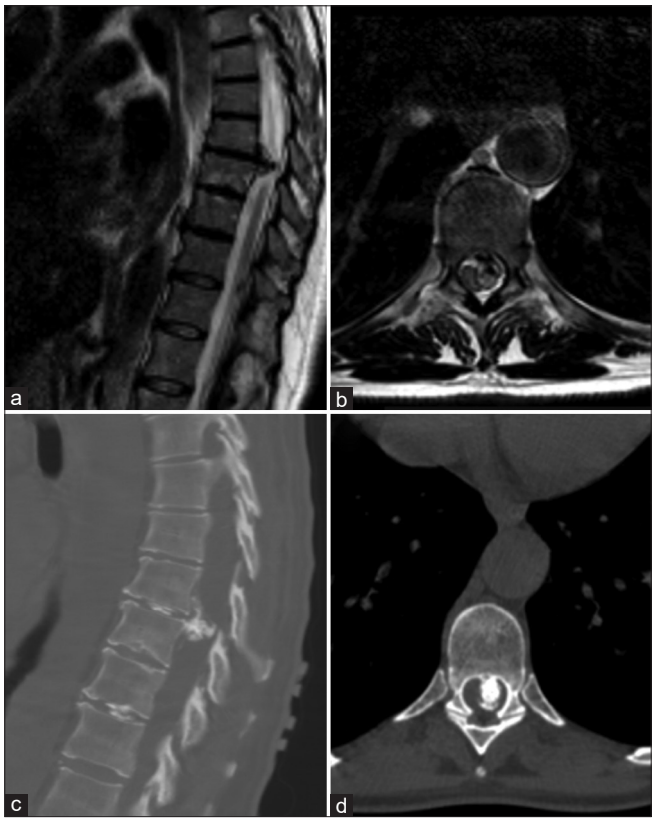

Figure 1: 2014 preoperative magnetic resonance imaging, median sagittal T2-weighted sequence (a) and T8–T9 axial T2 weighted sequence (b), and preoperative computed tomography scan, median sagittal (c), and T8–T9 axial (d) planes, demonstrating a left paramedian T8–T9 calcific disc herniation. There was dural compression, right dislocation of the spinal cord, and an hyperintense signal, standing for myelopathy.

Eight years later, she presented with a myelopathy attributed to a CT-documented new calcified disc fragment at T8–T9 superimposed on the previously noted residual left calcific disc at the same level [Figure 4]. A secondary posterior-lateral transfacet approach to the T8–T9 level was performed utilizing intraoperative CT neuronavigation (BrainLab). She underwent extension of the previous left T8 and T9 hemilaminectomy, and more extended removal of the T9 superior endplate. The recurrent left lateral calcific herniation was removed with a combination of Kerrison punches, the ultrasonic bone curette (Misonix), and high-speed drill. Total discal resection was confirmed on the intraoperative CT [Figure 5].

Intraoperative iatrogenic and recurrent postoperative dural fistula

Intraoperatively, an iatrogenic dural fistula was repaired with 4-0 silk sutures. Notably, this repair should have been performed with much smaller 7-0-Gore-Tex sutures (i.e., needle is also smaller than the suture). She developed a postoperative cerebrospinal fluid (CSF) fistula several days later that we managed with "compressive dressings" alone. As the leak was clearly persistent on the MR obtained 1 month later, we now recognize that the "postoperative"

Figure 2: 2014 postoperative computed tomography scan (a) median sagittal, (b) T8–T9 axial, and (c) left paramedian sagittal planes. It was appreciable the residual shell of the calcified disc herniation (white rings in a and b) and the surgical wedge (white arrow in c) created by partial corpectomy of the T8–T9 vertebral bodies.

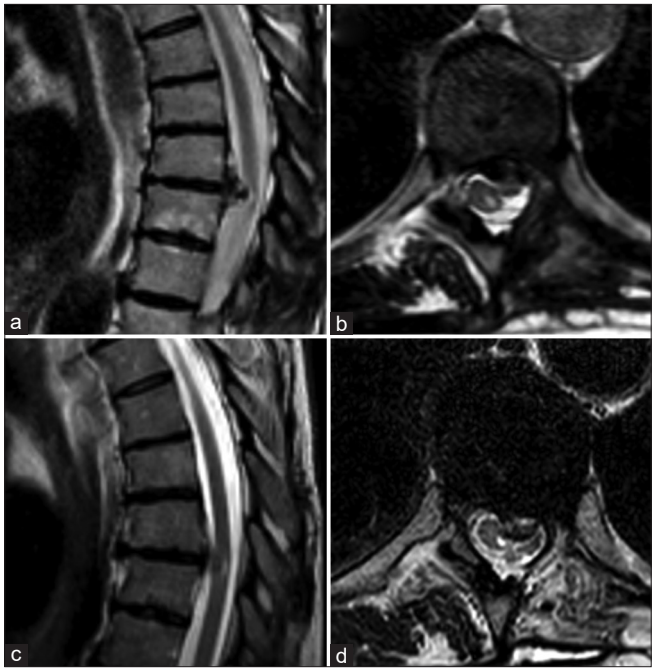

Figure 3: (a) 2015 Thoracic column magnetic resonance imaging (MRI) in median sagittal T2-weighted sequence, (b) T8–T9 axial T2-weighted sequence, (c) 2017 Thoracic column MRI in median sagittal T2-weighted sequence, and (d) T8–T9 axial T2-weighted sequence. Follow-up MRI scans demonstrated the stability of the residual calcific disc herniation in time.

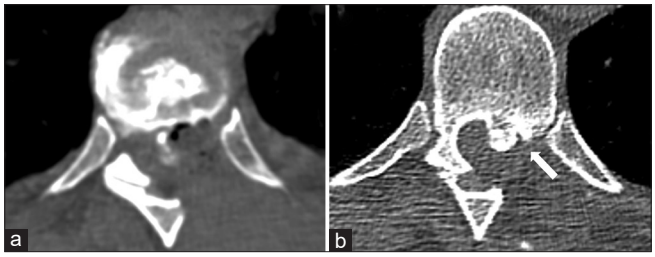

Figure 4: (a) 2014 postoperative computed tomography (CT) scan in T8–T9 axial plane and (b) 2022 CT scan in T8–T9 plane. The comparison between the 2014 postoperative CT scan and the 2022 control CT scan at the same level confirmed the presence of the residual calcific disc at the T8–T9 level, with a new calcified herniated fragment on the left (white arrow in b).

leak should have been operatively addressed [Figure 6]. Notably, the patient is still neurologically intact at 1-year follow-up.

DISCUSSION

The rate of recurrent TDH in the literature varies from 0.5% to 25%. Butenschoen *et al.* described a patient who had undergone a left lateral TDH at the T11–T12 level and later had to remove a discal recurrence.[3] In the past decades, the two most common causes of reoperation included: incorrect localization of the symptomatic level; and inadequate

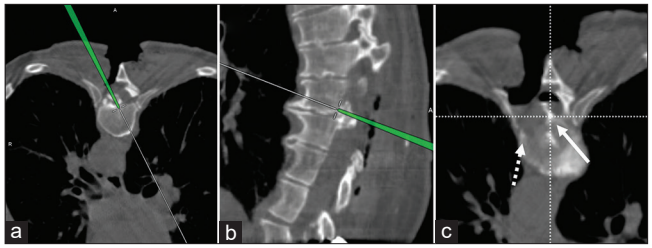

Figure 5: (a) Intraoperative T8–T9 axial computed tomography (CT) scan with navigation probe, (b) intraoperative left paramedian sagittal CT scan with navigation probe (green line), and (c) intraoperative T8–T9 axial CT scan showing the known small median calcific residual tightly attached to the dura (white arrow) and the complete removal of the recurrent herniated disc (white dotted arrow).

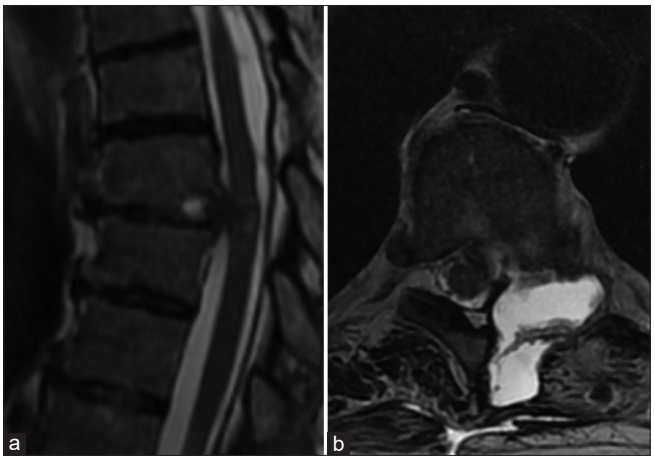

Figure 6: (a) Thoracic column magnetic resonance imaging (MRI), midline sagittal T2-weighted sequence and (b) thoracic column MRI, T8–T9 axial T2-weighted sequence. One-month postoperative MRI scan evidenced the presence of the median residual, a left paramedian liquor collection, and the removal of the recurrent thoracic disc herniation.

surgical visualization due to an inappropriate approach.[5] In 2020, Dützmann *et al.*[6] reported 21 patients reoperated for residual TDH; and only one had wrong-level surgery. In our case, we opted for a posterior-lateral transfacet approach, considering the paramedian left-sided position of the thoracic calcific herniation. This approach allowed facilitated access to the ventral cord despite being requiring more bony dissection/removal.[1,7-10]

CONCLUSION

A 53-year-old female initially presented with a calcified T8–T9 left-sided TDH that was partially resected through a complex posterolateral approach. Eight years later, she presented with a new calcified T8–T9 disc superimposed on the residual fragment that was successfully removed through an additional posterolateral procedure.

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: Capece M, Corazzelli G, Pizzuti V, Leonetti S, Innocenzi G. A challenging recurrent thoracic disc herniation. Surg Neurol Int 2023;14:101.