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Case Report

Case of anterolateral migration of herniated cervical disc fragment mimicking a spinal meningioma

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ABSTRACT

Background: Before the introduction of high-resolution MR, few disc fragments were misdiagnosed as meningiomas.

Case Description: A 63-year-old female presented with a 6-month history of mild to moderate pain in the left arm, weakness 4/5 in the left arm C5-C6 distribution, and a loss of the left biceps reflex response. Although the MR study was read as showing a C5-C6 level probable spinal meningioma, this proved to be a sequestrated disc fragment at surgery.

Conclusion: Rarely, cervical disc herniations may be misdiagnosed on MR studies as spinal meningiomas.

Keywords: Cervical spine, Discal herniation, Discal migration, Extradural tumor, Spinal meningioma

INTRODUCTION

Spinal meningiomas represent 7.8% of all meningiomas, and 35% are found in the cervical spine.[7] Here, we present a patient with an extramedullary/extradural sequestrated cervical disc herniation which on MR was misdiagnosed as a C5-C6 cervical spinal meningioma.

CASE REPORT

A 63-year-old female presented with mild/moderate pain left arm pain, 4/5 weakness in the left C5-C6 distributions, and a decreased biceps reflex. The original MR was interpreted as a C5-C6 cervical meningioma (i.e. including the classical "dural tail" sign) [Figure 1]. Utilizing a microscopic tubular approach, a left C5 hemilaminectomy with foraminotomy were performed, revealing a left-sided C5-C6 disc herniation that was then removed [Figure 2]. Within 2 postoperative days, by the time of discharge, she had experienced immediate improvement in

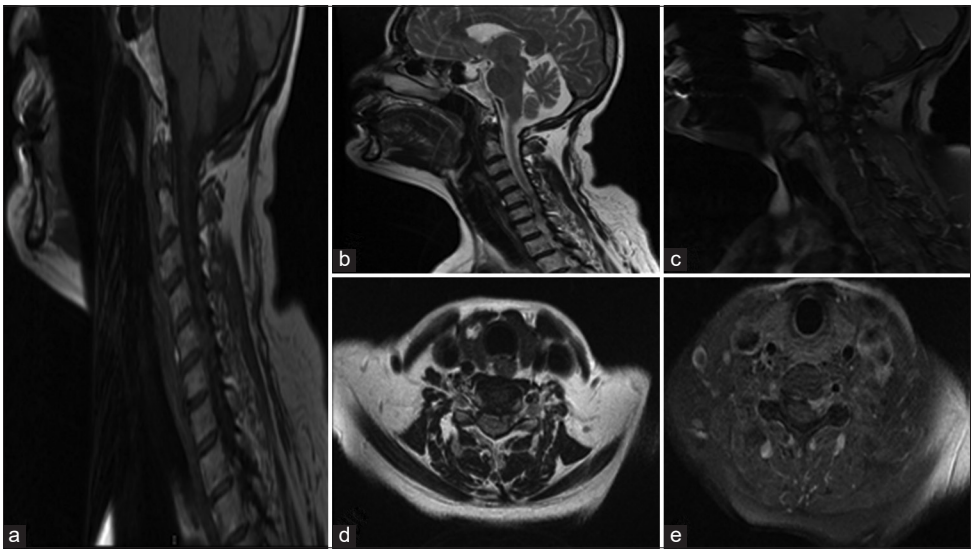

Figure 1: (a) Sagittal T1 MR; hypo-isointense C5-C6 lesion (b) Sagittal T2 sequence hyperintense lesion intraspinal, extramedullary, extradural lesion. (c) Heterogeneous enhancement with "dural tail" sign. D. axial T2 hyperintense lesion projects toward left neuroforamen, compressing left C5 root. E. Contrast axial section, a poorly defined lesion is seen. Suspicion of spinal meningioma.

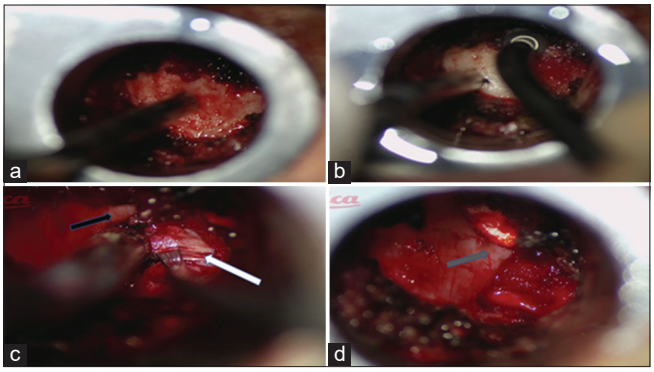

Figure 2: (a) Left C5 lamina identified with minimally invasive tubular approach. (b) Left C5 hemilaminectomy performed. With diamond burr. (c) Black arrow, Spinal root of C5 separated with a hook. White arrow, showed axilla of C5 root compressed by soft, vascularized, gray/whitish lesion. (d) Spinal root C5 released (Gray arrow).

her symptoms/signs. The histopathology was consistent with an intervertebral disc herniation, and definitively ruled out a meningioma. The postoperative contrasted CT obtained immediately postsurgery, confirmed full lesion resection [Figure 3].

DISCUSSION

Migration of epidural herniated cervical disc fragments is rare and must be differentiated in some instances from spinal meningiomas.[2] In this case, as typical for others as well, the sequestrated disc fragments appeared hypointense on T1- and hyperintense on T2-weighted images (i.e., present in 80% of cases).[3]

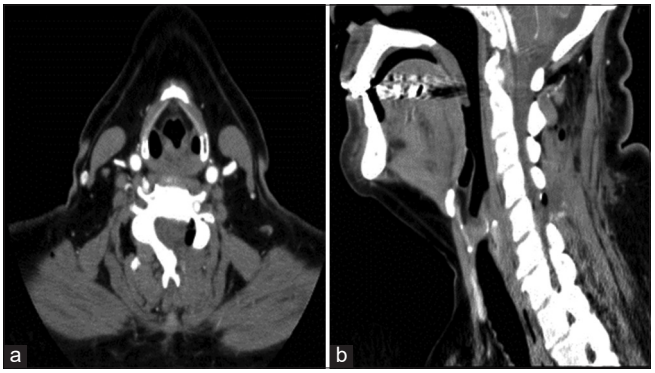

Figure 3: (a) On the postoperative CT, the C5 the left C5 hemilaminectomy was demonstrated; with contrast removal of the lesion is confirmed. (b) Sagittal cervical contrast CT documenting resection of the C5-C6 lesion/disc herniation.

Further, on occasion, contrast-enhanced MR studies of sequestrated disc fragments may demonstrate peripheral/diffuse enhancement that mimics the "dural tail sign" seen with extradural meningiomas classical for meningiomas.[5]

Literature on sequestrated cervical discs

In multiple studies, sequestrated extradural/extramedullary cervical disc fragments may closely resemble spinal meningiomas.[4] In 2011, Srinivasan *et al*. suggested that sequestered epidural discs are rare and found only ten cases in the literature.[6] When Babashahi, *et al*. (2015) evaluated 52 cases of sequestered disc fragments imitating other pathologies; only six were located in the cervical spine, with 13 MR images

Table 1: Cases reported so far of cervical hernia mimicking other pathologies.

Author (year)	# of cases	Cervical level.	MRI	Symptoms	Initial diagnosis	Definitive diagnosis	Surgical treatment
Srinivasan, *et al.* (2011)	2	2 cases - C5-C6	2-T1. Hypo 2-T2. Hyper 2-T1-CE	1-NP 2-NP	2-ID	2-ID	Case 1: PA Case 2: NS
Joaquim, *et al.* (2010)	1	C7-T1	T1. Iso T2. Hyper T1-CE	Myelo	T versus EDH	1-ID	LAM
Tezer, *et al.* (2006)	1	C3-C4	T1. Hypo T2. Hypo T1. CE/RE	NP/W	1-ID	Bruc	AA C3-C4
Stavrinou, *et al.* (2009)	1	C5-C6	T1-CE	NP/W	NST	1-ID/EDH	NS
Nazareno, *et al.* (2009)	1	C6-C7	T1. Hypo T2. Hyper T1-CE/RE	C7 Rad	1-T	1-ID	HL
Babashahi, *et al.* (2016)	1	C5-C6	T2. Iso/ Hyper T1-RE	C6 Rad	1-T/M	1-ID	HL
Rosenberg, *et al.* (1991)	2	2-Cases-C2	1-T1-Hypo 2-RE	1-P 2-NP	2-T	2-ID	Case 1. LAM C1-C2 Case 2. C0-C3 Lam
Ashizawa, *et al.* (1999)	1	C4-C5	T1. Hyper T2. Hyper T1-CE/RE	P	T	1-1-ID/C	AA C4-C5
Tofuko, *et al.* (2007)	1	C7	T1. Iso T2. Hyper T1-CE/RE	P	EDH/T	1-ID	LAM

Lam: Laminectomy, HL: Hemilaminectomy, C0: Suboccipital, AA: Anterior approach, PA: Posterior approach, #: Number, NP: Neck pain, Myel: Myelopathy, Rad: Radiculopathy, W: Weakness, P: Paresthesias, ID: Intervertebral disc, EDH: Epidural hematoma, C: Calcified, T: Extradural tumor, M: Metastasis, NST: Nerve sheath tumor, NS: No Surgery, Bruc: Brucellosis, Hypo: Hypointense, Hyper: Hyperintense, CE: Contrast enhancement, Iso: Isointense, RE: Ring enhancement

resembling those found in the case we presented (i.e. especially on the T1 sequence) [Table 1].[1]

CONCLUSION

On occasion, sequestrated epidural cervical disc herniations may migrate and imitate intra-spinal meningiomas or other tumors on MR studies performed with/without contrast. Here, surgical intervention readily differentiated between a cervical disc herniation versus meningioma/other neoplasm.

Declaration of patient consent

Patient's consent not required as patients identity is not disclosed or compromised.

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Conflicts of interest

There are no conflicts of interest.

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