SNI

SURGICAL NEUROLOGY INTERNATIONAL

SNI: Spine, a supplement to *Surgical Neurology International*

OPEN ACCESS

For entire Editorial Board visit : http://www.surgicalneurologyint.com

Editor: **Nancy E. Epstein,** MD Winthrop University Hospital, Mineola, NY, USA

Case Report

Long standing lumbosacral dermoid tumor and intracranial fat droplet dissemination: A case report

Ali Babashahi, Morteza Taheri, Arash Fattahi

Department of Neurosurgery, University of Medical Sciences, Rasool Akram Hospital, Tehran, Iran

E-mail: Ali Babashahi - alibabashahi7@gmail.com; *Morteza Taheri - drtaheri38@yahoo.com; Arash Fattahi - arashmedicine@yahoo.com
*Corresponding author

Received: 24 June 16 Accepted: 15 August 16 Published: 21 November 16

Abstract

Background: Dermoid tumors are slow growing, benign CNS lesions.

Case Description: This case study concerns a 29-year-old female with a 6-year history of lower extremity paresthesias attributed to magnetic resonance (MR)/computed tomography (CT) documented intradural dermoid tumor that extended from L1 to S1. On MR, it was hypointense on T1, hyperintense on T2, and did not enhance with gadolinium. CT showed hyperdensity at the L1-L2 levels. The craniocervical MR imaging showed small hyperintense foci in the cisternal space favoring "fat dissemination." L1-S2 laminectomy revealed an intradural lesion characterized by "a solid and firm component compatible with fat tissue adherent to the conus medullaris and a solid-soft component within the cauda equina;" there were also "multiple fragments of white-creamy soft tissue with hair." Following tumor resection, the brain CT scan demonstrated fat dissemination within the intraventricular and cisternal space. Histopathologic examination confirmed the diagnosis of a dermoid tumor.

Conclusion: Dermoid tumors should be considered among the differential diagnosis of intradural lesions in young patients even without any other congenital abnormality.

Key Words: Dermoid tumor, fat droplet dissemination, intraspinal tumor

Access this article online

Website: www.surgicalneurologyint.com

DOI: 10.4103/2152-7806.194516

Quick Response Code:

INTRODUCTION

Dermoid tumors, attributed to superficial ectoderm dysembriogenesis occurring during the gastrulation phase of fetal development, are slow growing, benign tumors occasionally found within the nervous system.[5,6] They constitute only 0.7–1.1% of all spinal tumors.[3] Here, we present a 29-year-old patient with an L1-S2 intradural dermoid tumor.

CASE DESCRIPTION

A 29-year-old female complained of low back pain and lower limbs paresthesias for 6 years; symptoms had exacerbated for the last 1.5 years. She also had urinary urge incontinence, sacral hypoesthesia, and 4/5 lower extremity weakness. The lumbosacral magnetic resonance (MR) imaging showed an intradural lesion filling the canal from L1 to S1; it was hypointense on T1,

How to cite this article: Babashahi A, Taheri M, Fattahi A. Long standing lumbosacral dermoid tumor and intracranial fat droplet dissemination: A case report. Surg Neurol Int 2016;7:S905-7.
http://surgicalneurologyint.com/Long-standing-lumbosacral-dermoid-tumor-and-intracranial-fat-droplet-dissemination:-A-case-report/

hyperintense on T1, and showed no enhancement with gadolinium injection [Figure 1]. The spinal computed tomography (CT) scan showed only a small focus of hyperdensity within the spinal canal. The craniocervical MR showed small foci of hyperintensity in the cisterns consistent with diffuse fat dissemination.

Surgery

The L1-S2 laminectomy revealed an intradural lesion that filled the spinal canal. There were fragments of white-to-creamy soft tissue with tufts of hair [Figure 2], accompanied by a solid-firm component consistent with fat adherent to the conus medullaris and cauda equina. The fat could only be subtotally resected due to adherence to neural structures, while the remainder of the lesion was fully excised. Postoperatively, the patient was intact except for increased urinary incontinence. When she complained of headache, a brain CT scan showed increased fat dissemination in the intraventricular space

Table 1: Demographic and clinical features of some studies

Study	Year	No of patients	Sex#	Age	Level	Symptom	Ph/E	Macroscopic examination	Duration of symptoms	MRI features
Gun, *et al*.[3]	2004	1	M	19	L2-L5	Low back pain	No abnormality	Hair-like, white-colored filaments, gelatinous fluid and fatty tissue	3 years	Homogeneous high signal intensity on T2
Cha, *et al*.[2]	2006	1	M	44	L3-L5	Voiding difficulty	Left S2 radiating pain and hyperesthesia	NR	10 years	Hyperintense on T1 and T2
Hakan, *et al*.[4]	2006	1	M	24	Conus medullaris	Headache and vision problems	NR	NR	Acute symptom of chemical meningitis	Heterogeneous on T1 and T2 with hyperintense regions within it on T1
Asdrubal, *et al*.[1]	2009	1	F	35	L3-S1	Low back pain and left ciatalgia	Left leg hypoesthesia and dorsiflexion weakness and Lasègue sign	Brown-yellowish tumor	Chronic	Hypersignal on T2 and iso to hyposignal on T
Sharma, *et al*.[8]	2009	1	M	30	T11-L2	Right lower limb pain/Difficulty in passing urine	Saddle anesthesia/ Left limb weakness	NR	1 year/3 months	Hyperintense on both T1W and T2W
Hui, *et al*.[5]	2012	11	4 F 7 M	33*	Variable (maximum 4 levels)	Pain was the most common symptom	Neurological deficit alone occurred in 5 patients	NR	28.5 months**	NR
Peter, *et al*.[7]	2012	1	F	67	Conus medullaris (L1-L2)	Progressive back pain with lower extremity weakness/ Bowel and bladder dysfunction	Left clubbing toes and diminished sensation of the sacral dermatomes and pallesthesia in both feet, and weakness of the left toe flexors and extensors	Fat with expansion of the conus, and an abundance of surface vessels.	18 years	Hyperintense on T1 and hypointense on T2
Mrudang, *et al*.[6]	2015	1	F	12	T6-T10	Slipping of footwearBack pain	NR	White cheesy with hair inside	5 years/4 days	Hyperintense on T2/ hypointense on
Our study	2016	1	F	29	L1-S1	Lower limbs pain and paresthesia and urinary urge incontinence	Hypoesthesia and lower limb weakness	Fragments of white to creamy soft tissue with tufts of hair	6 years	Hypointense on T1 and hyperintense on T2

*The mean age of patients. **The mean duration of symptoms. #F: Female and M: Male. NR: Not reported. Ph/E: Physical examination.

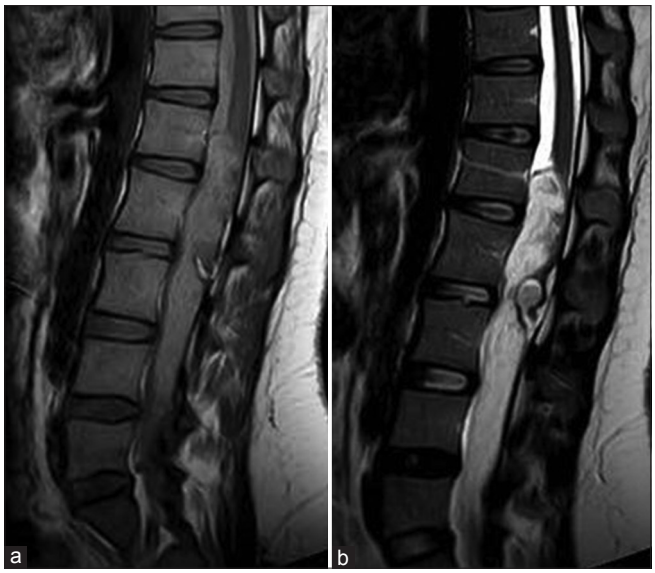

Figure 1: Magnetic resonance imaging sequences: (a) T1 and (b) T2 images sequences

consistent with postoperative chemical meningitis; this was successfully treated with corticosteroid. The patient's histopathologic examination confirmed the diagnosis of a dermoid tumor.

DISCUSSION

Dermoid tumors are rare benign tumors that are more common in the brain than the spine.[3] Intradural dermoid tumors most commonly involve the lumbosacral region, and are typically associated with the other congenital anomalies (e.g., bone abnormalities, meningocele, and dermal sinus tracts).[2,5] They have two distinct components, consisting of fat or a solid or liquid element, containing ectodermal or mesodermal tissues (e.g., hair, bone, and teeth).[2] Because they are slow growing, they become symptomatic in the second and third decade of life.[7] Symptoms are caused by compression of the spinal cord, conus medullaris, and cauda equina.[7] Two major complications may include chemical meningitis or obstructive hydrocephalus attributed to cephalad migration of fat droplets into the ventricular system and

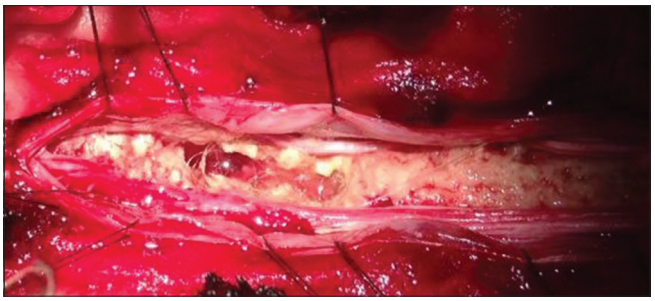

Figure 2: Intraoperative photography of the tumor

cisternal spaces.[6] Table 1 presents demographic and clinical finding of some studies reporting dermoid tumor.

CONCLUSION

Dermoid tumors should be considered amongst the differential diagnoses of intradural spinal lesions in younger patients even without accompanying congenital abnormalities.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

REFERENCES

1. Asdrubal F, Orlando R, Alisson R. Concomitant dermoid cysts of conus medullaris and cauda equine. Arq Neuropsiquiatr 2009;67:293-6.
2. Cha JG, Paik SH, Park JS, Park SJ, Kim DH, Lee HK. Ruptured spinal dermoid cyst with disseminated intracranial fat droplets. Br J Radiol 2006;79:167-9.
3. Gun WW, Kim SJ, Cho DS, Seo EK. Multiple Lumbar Intradural Dermoid Cysts without Spinal Dysraphism. J Korean Neurosurg Soc 2004; 36: 505-7.
4. Hakan A, Ömer K, Cem Ç, Nilgün Y. A spinal dermoid tumor that ruptured into the subarachnoidal space and syrinx cavity. Diagn Interv Radiol 2006;12:171-3.
5. Hui L, Jian-Ning Z, Tao Z. Microsurgical treatment of spinal epidermoid and dermoid cysts in the lumbosacral region. J Clin Neurosci 2012;19:712-7.
6. Mrudang R, Sunita P, Vineet M, Tanay S. Ruptured thoracic intraspinal dermoid cyst in a patient with skeletal abnormalities of thoracic spine- A case report. Egyptian J Radiol Nuclear Med 2015;46:435-9.
7. Peter ND, David JM, Tim RK, Abhijit G. Spinal Conus Dermoid Cyst with Lipid Dissemination. Radiographics 2012;32:1215-21.
8. Sharma NC, Tushar C, Anshu S, Manish B, Ravinder K. Long-segment intramedullary spinal dermoid. Indian J Radiol Imaging 2009;19:148-50.