

Dumbbell Shaped Thoracic Spine Cavernous Hemangioma: A Case Report and Review of the Literature

J Gonzalez-Cruz, A Nanda

Citation

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Abstract

The differential diagnosis of dumbbell shaped foraminal masses include neurogenic tumors (schwannoma, neurofibroma) and meningiomas. Vascular lesions such as cavernous hemangiomas (which typically present in the vertebral body) can also present as dumbbell shaped lesions in extremely rare occasions with only nine cases presented so far in the literature. We describe the case of a 41 year-old female with chronic mid thoracic back pain. A magnetic resonance imaging of her spine revealed a non-enhancing mass at the T11-T12 foramen. A thoracic laminectomy with resection of this lesion was performed with the resulting diagnosis of cavernous hemangioma. A discussion on this unexpected diagnosis is presented.

INTRODUCTION

Thoracic cavernous hemangiomas are hamartomatous vascular malformations usually located in the vertebral bodies. Dumbbell shaped lesions are quite rare with only 9 cases reported so far in the literature. We present the case of a patient with this unusual lesion and discuss its clinical presentation, surgical management and pathologic characteristics.

CASE REPORT

The patient is a 41 year old female who presented with mid to lower back pain for the past five years. She described no radicular symptoms, had no focal neurological findings and no bowel or bladder incontinence. Her past medical and surgical history was unremarkable except for a previous hysterectomy. She had an MRI of the thoracic and lumbar spine (Figures 1, 2, 3, 4).

Figure 1

Figures 1 and 2: Sagittal T1W with contrast and T2W images of the thoracic and lumbar spine show a non enhancing lesion at the T11 / T12 foramen.

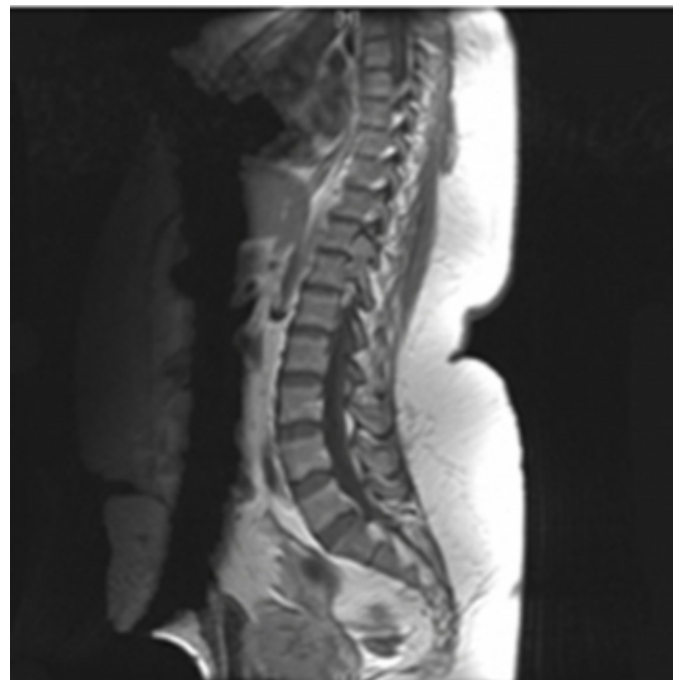


Figure 2



Figure 3

Figures 3 and 4: Axial T1W with contrast and axial T2W images showing a dumbbell shaped lesion at the T11/ T12 foramen.

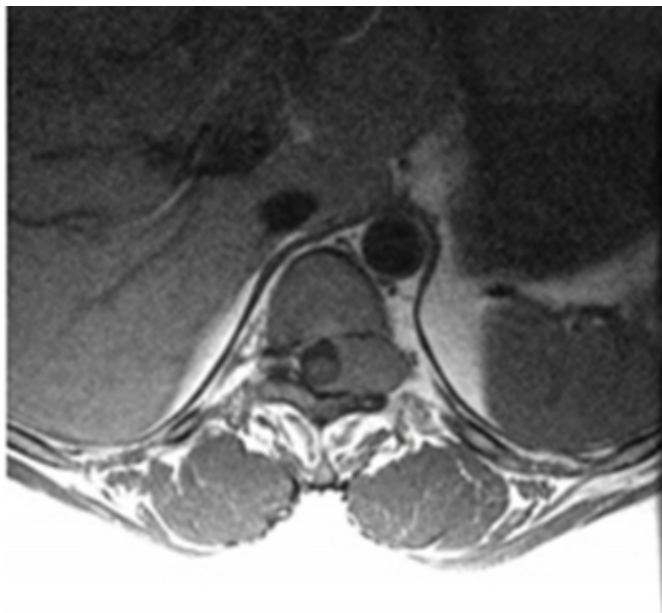
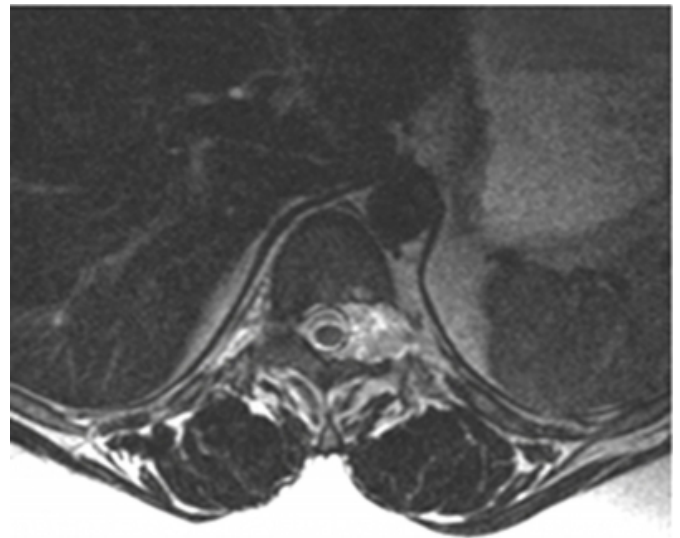


Figure 4



Due to the unknown nature of this lesion the patient agreed to undergo surgical intervention for biopsy /resection.

INTRAOPERATIVE FINDINGS AND CLINICAL COURSE

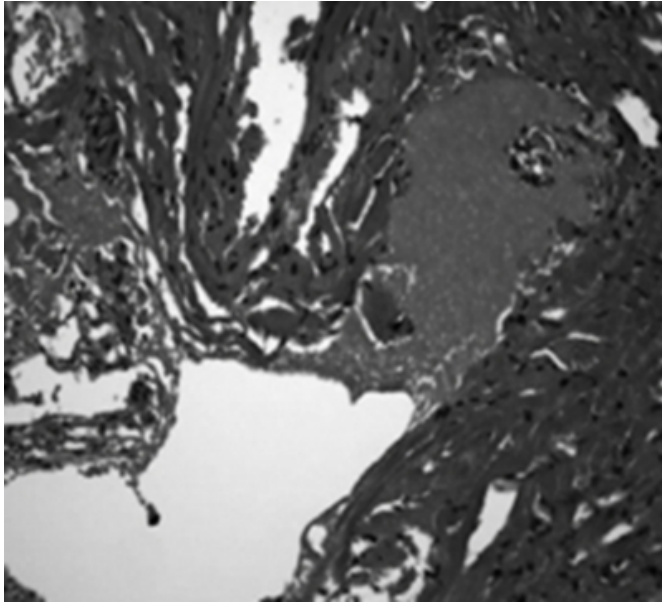
A thoracic laminectomy with transpedicular approach was used.

Intraoperatively, a violaceous lobulated lesion was visualized immediately after our laminectomy. The dura had a fibrotic layer on top which had to be peeled off in order to resect the lesion. The thecal sac was opened to assess the presence of any lesions intradurally but none were found. An in-bloc resection was performed without complications.

The patient had significant relief of her back pain postoperatively. She was discharged home on postoperative day 4. The final pathology was cavernous hemangiomas (Figure 5).

Figure 5

Figure 5: Histo-pathology of Cavernous hemangioma



DISCUSSION

Spinal cavernous hemangiomas occur in approximately 7 to 12% of all autopsies (1). They are typically lesions of the vertebral bodies. Purely epidural lesions are extremely rare; only less than 60 cases have been reported (2,3,4,5,6,7). A dumbbell configuration (with transforaminal extension) is rare, with only 9 cases described in the literature (8,9,10,11,12,13,14,15,16).

The differential diagnosis of dumbbell shaped spinal masses includes neurogenic tumors (schwannoma, neurofibroma) and meningiomas. Even though these lesions typically cause foraminal enlargement, hemangiomas have also been shown to cause this (8).

Cavernous hemangiomas are considered hamartomatous vascular malformations. They have a benign behavior, although they may grow and cause symptoms due to repeated hemorrhage or thrombosis and recanalization (17). As mentioned above, they are relatively common lesions in the vertebral body. Their presence in the epidural space is thought to occur due to extension of bony lesions.

Clinically they present mostly with back pain and/or symptoms of spinal cord compression. Radicular symptoms have also been described (18).

Magnetic Resonance Imaging (MRI) evaluation can give diagnostic clues to these lesions. On T1- weighted sequences they appear isointense; on T2-weighted sequences they have

mixed density or appear hyperintense. When intravenous contrast is given they show heterogenous enhancement. They usually lack the hypointense ring present in intramedullary lesions, perhaps because of the rapid removal of hemosiderin outside the confinement of the blood brain barrier (4, 19). It is important to emphasize that these findings are non specific and there can be some variations (as in the present case where the lesion showed no enhancement).

When the decision is made to proceed with surgical intervention, complete resection should be the goal, since incomplete lesion removal may lead to recurrence of symptoms.

CONCLUSION

Cavernous hemangiomas are relatively common lesions in the vertebral body. Their presence in the epidural space is unusual but it has been described. They should also be considered in the differential diagnosis of dumbbell shaped foraminal spinal lesions (together with meningiomas, schwannomas and neurofibromas). These tumors have benign behavior biologically. Complete surgical resection should be the goal of treatment.

CORRESPONDENCE TO

Anil Nanda MD, FACS Professor and Chairman Department of Neurosurgery Louisiana State Health Sciences Center in Shreveport 1501 Kings Highway, PO Box 33932 Shreveport, Louisiana 71130-3932 Phone: 318-675-7352 Fax: 318-675-7111 Email: sswamy@lsuhsc.edu; ananda@lsuhsc.edu

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Author Information

Jorge Gonzalez-Cruz, M.D.

Department of Neurosurgery, Louisiana State University Health Sciences Center in Shreveport

Anil Nanda, MD, FACS

Department of Neurosurgery, Louisiana State University Health Sciences Center in Shreveport