

# EPIDURAL HEMANGIOMA MIMICKING AS NERVE SHEATH TUMOR: REPORT OF A RARE CASE

Ranam Akhtar, Laiba Masood, Madiha Saeed Wahla, Khurram Khaliq Bhinder

Department of Radiology, Shifa International Hospital, Islamabad, Pakistan.

PJR April - June 2024; 34(2): 108-111

## ABSTRACT

An epidural hemangioma is a rare lesion, representing only 4% of epidural lesions, cavernous subtype being the most common. The lesion is located in the posterior region of the spine in up to 93% of cases and the dorsal spine is affected in 80% of cases. Spinal nerve sheath tumors are the most common intradural extramedullary masses. In this case report we discuss an unusual imaging presentation of epidural hemangioma which initially was reported as nerve sheath tumor but proven on biopsy as hemangioma. It is important to throw light on the fact that an epidural hemangioma can mimic nerve sheath tumor on imaging as its consideration in our reports will help the surgeon intraoperatively to be careful about the bleeding resulting from the manipulation of the former.

**Keywords:** Hemangioma, nerve sheath tumor, dorsal spine.

## Introduction

Spinal hemangiomas are frequent, asymptomatic vascular lesions that affect the bone component of the vertebral bodies.<sup>1</sup> Extradural hemangiomas are uncommon and only appear occasionally without osseous involvement.<sup>2,3,4</sup> A nerve sheath tumor is a noncancerous development among the myelin and connective tissue cells that wrap and insulate nerve fibers. Neurofibromatosis type 1 or 2 affects 35-45% of individuals with nerve sheath tumors.<sup>5</sup> The majority of nerve sheath cancers develop from the dorsal sensory roots. 70% of the lesions are intradural extramedullary, 15% are solely extradural, and 15% include both intradural and extradural components ("dumbbell" lesions). Only around 1% are intramedullary.<sup>5</sup> We discuss a case with imaging findings comparable to a nerve sheath tumor that was subsequently determined to be a hemangioma.

## Case Presentation

A 78 years old male presented to radiology department of Shifa international hospital with 2 days history of quadriparesis along with back pain. MRI dorsal spine with contrast was performed on same day which showed an abnormal T1 hypointense and T2 hyperintense lobulated enhancing mass arising from the left neural foramen of T6 vertebral body resulting in its widening along with extension into the spinal canal, however no obvious focal osseous destruction or cortical erosion was seen. There was no intramedullary signal abnormality at this level. A nerve sheath tumor was top most differential.

CT chest abdomen pelvis with contrast was performed two days later which showed a lobulated enhancing mass in left neural foramina at T6 level, compressing and displacing the spinal cord towards right causing pressure deossification of adjacent bone.

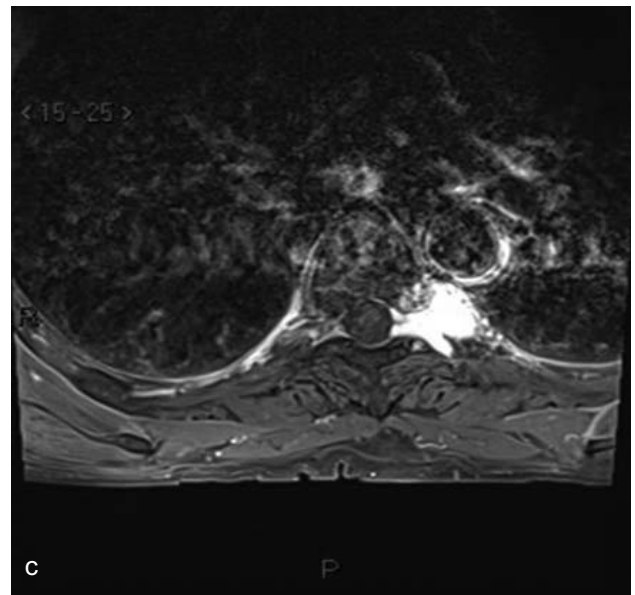
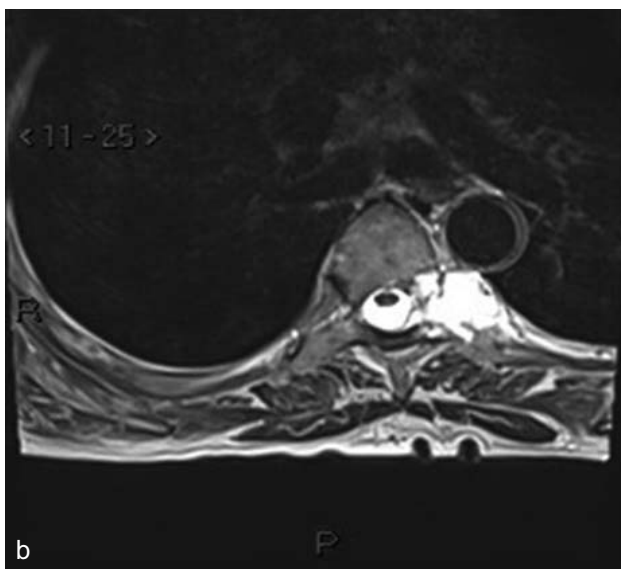
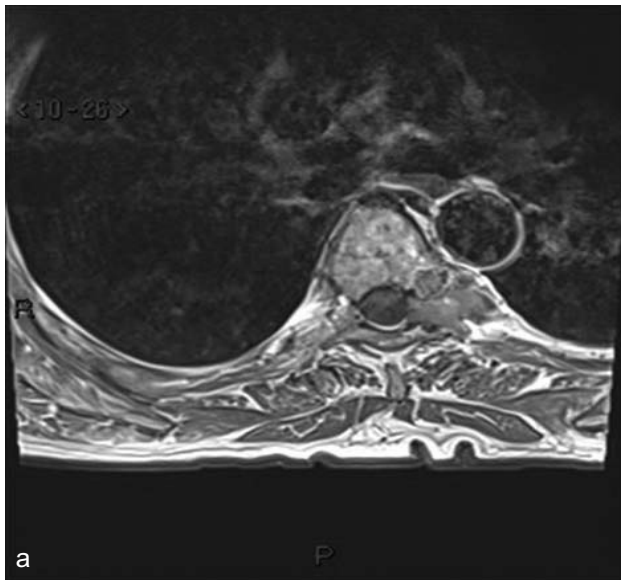
**Correspondence :** Dr. Ranam Akhtar  
Department of Radiology,  
Shifa International Hospital,  
Islamabad, Pakistan.  
Email: ranamakhtar786@gmail.com

Submitted 15 March 2024, Accepted 30 March 2024

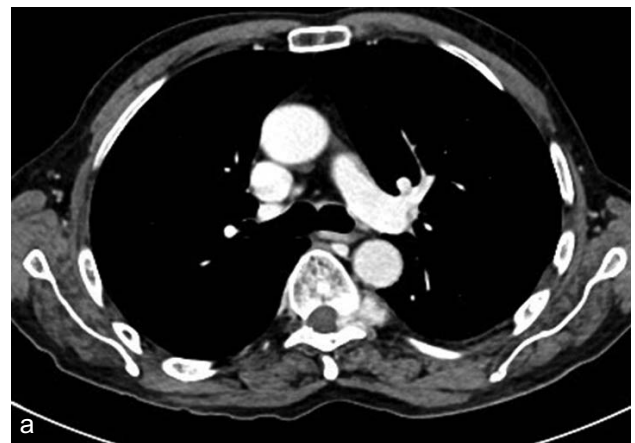
Surgery was performed three days later the initial presentation in hospital. Lateral approach thoracotomy was done. 6<sup>th</sup> rib was removed on left, costotransversectomy was done and T6 nerve was exposed, tumor identified and sent for frozen section which confirmed neoplastic cells. Liga clips were applied before and after the mass which was removed and sent for histopathology.

Post op MRI showed post surgical changes at T6 vertebral body with edema/stranding, enhancement without obvious residual mass.

Final verified histopathology report confirmed a benign vascular neoplasm with morphology most suggestive of hemangioma and was negative for malignancy.



**Figure 1a,b,c:** T1, T2 and post contrast MRI sequences showing a lobulated T1 hypo- T2 hyper intense mass with significant post contrast enhancement.



**Figure 2a,b:** CT Post contrast images, soft tissue and bone windows.

## Discussion

Spinal epidural hemangioma can have a variety of MR imaging features according to its different histopathologic backgrounds.<sup>6</sup> On MRI it most commonly appears as epidural mass displaying an isointense signal to cord on T1, high signal on T2 and STIR without diffusion restriction, containing small signal void serpiginous vascular structures with vivid enhancement on post contrast sequences.<sup>6,7</sup> Nerve sheath tumors present as a hypo to slightly hyperdense paraspinous soft tissue mass, causing expansion of neural exit foramina, bone erosion, and vertebral body scalloping on CT. On MRI, the majority of patients with nerve sheath tumors are isointense on T1, hyperintense on T2, and have significant post-contrast enhancement.<sup>5</sup>

Depending on the type of magnetic resonance imaging, the differential diagnosis of epidural hemangioma may include nerve sheath tumor, herniated disks, synovial cysts, granulomatous infections, neurogenic tumors, lymphomas, meningiomas, angioliopoma, pure epidural hematoma, and epidural extramedullary hematopoiesis.<sup>3,8,9,10,11</sup>

Hemangiomas have a high degree of vascularization, which can lead to unexpected intraoperative bleeding and incomplete resection, both of which can prolong clinical symptoms or recurrence.<sup>6</sup> Therefore, hemangioma should be considered in differentials when an epidural mass is encountered, so that the surgeon is extremely cautious about intraoperative hemorrhage, although it is an uncommon location.

In our case the imaging features were identical to nerve sheath tumor, however on biopsy, it turned out to be hemangioma.

## Conclusion

Extradural hemangioma can mimic nerve sheath tumor on imaging and should be considered in differentials of epidural spinal masses, so that the surgeon is extremely cautious about intraoperative hemorrhage, however it is a rare manifestation.

## References

1. Huang KT, McAvoy M, Helgager J, Vasudeva V, Chi JH. Spinal hemangioma mimicking a dumbbell-shaped schwannoma: Case report and review of the literature. *Journal of Clinical Neuroscience*. Apr 2018; **50**: 160-2.
2. Badinand B, Morel C, Kopp N, Tran Min VA, Cotton F. Dumbbell-shaped epidural capillary hemangioma. *AJNR Am J Neuroradiol*. 2003; **24**: 190-23. G.R. Hodges, C.E. Degener, W.G. Barnes.
3. Minh NH. Cervicothoracic spinal epidural cavernous hemangioma: Case report and review of the literature. *Surg Neurol*. 2005; **64**: 83-5.
4. Weiss SW, Goldblum JR. *Weiss's Soft Tissue Tumors*. 4th ed. St Louis: Mosby; 2001. Benign tumors and tumor-like lesions of blood vessels; pp. 837-90.
5. Osborn AG. *Diagnostic neuroradiology*. Mosby Inc. (1994) ISBN:0801674867
6. Lee JW, Cho EY, Hong SH, Chung HW, Kim JH, Chang KH, Choi JY, Yeom JS, Kang HS. Spinal epidural hemangiomas: various types of MR imaging features with histopathologic correlation. *American journal of neuroradiology*. Aug 2007; **28(7)**: 1242-8.
7. Martins M, Francisco F, de Paula R, Parente D. Epidural Cavernous Hemangioma of the Spine: Magnetic Resonance Imaging Findings. *Radiol Bras*. 2015; **48(1)**: 62-3.
8. Shin JH, Lee HK, Rhim SC, et al. Spinal epidural cavernous hemangioma: MR findings. *J Comput Assist Tomogr* 2001; **25**: 257-6.
9. Zevgaridis D, Buttner A, Weis S, et al. Spinal epidural cavernous hemangiomas. Report of three cases and review of the literature. *J Neurosurg* 1998; **88**: 903-08.
10. Provenzale JM, McLendon RE. Spinal angio-

---

lipomas: MR features. *AJNR Am J Neuroradiol* 1996; **17**: 713-19.

11. Dibbern DA Jr, Loevner LA, Lieberman AP, et al. MR of thoracic cord compression caused by epidural extramedullary hematopoiesis in myelodysplastic syndrome. *AJNR Am J Neuroradiol* 1997; **18**: 363-6.