Case Report

Acute spinal cord compression caused by atypical vertebral hemangioma

ABSTRACT
Vertebral hemangioma is common, benign lesion that occurs mostly in the body of vertebral bones and is mostly asymptomatic although they may occasionally extend into the posterior elements. An isolated location in the neural arch of vertebrae is extremely rare. An acute spinal cord compression by an exceptional hemangioma involving spinous process of the seventh thoracic vertebra and respecting vertebral body in a 40-year-old woman is reported. On magnetic resonance imaging of the spine, the lesion was hypointense on T1-weighted image, hyperintense on T2-weighted image, and enhancing avidly, causing compression of spinal cord. Our case is exceptional by the rapidly character of symptom installation and by atypical and elective involvement of spinous process.

Keywords: Cavernous hemangioma, cord compression, neural arch, spine, spinous process, thoracic vertebra, vascular malformation

INTRODUCTION
Vertebral hemangioma (VH) is common lesion that usually occurs in the body of vertebral bones. Most VHs are latent, and do not require specific treatment; only 1% of VHs become symptomatic and may become aggressive leading to neurologic deficit.[1] Aggressive VH extend more often from the vertebral body to epidural space and/or posterior arch. To the best of our knowledge, VH involving spinous process without vertebral body participation is a very rare medical situation. We report this atypical location causing rapidly progressive myelopathy.

CASE REPORT
A 40-year-old woman, without any medical history, was admitted with 1 week of dorsal pain associated to weakness and numbness in her lower limbs. Physical examination revealed paraparesis (Grade 3/5). Hypalgesia was present below the midchest. She had upgoing toes bilaterally and hyperreflexia at the bilateral patellar tendons.

Emergent magnetic resonance imaging (MRI) of the total spine demonstrated a T7 expansile osseous mass involving spinous process that was tissular, well circumscribed, with lobular margin. The lesion demonstrated low-signal intensity on T1-weighted images (WIs), and heterogeneous high signal on T2-WI and short T1 inversion recovery, with multiple low-signal intensity septations. The mass avidly enhanced on postcontrast images, which extended into epidural fat and laminae, causing spinal cord narrowing [Figure 1].

Differential considerations of plasmocytoma, metastasis, and atypical hemangioma were entertained.

The patient underwent surgery by a posterior approach. On opening, the lesion presented a huge vascularization, which was well controlled, and the process was totally removed.

Salah Bellasri, Jamal Fatihi1, Abderrahim Elktaibi2, Abad Cherif El Asri3
Departments of Medical Imaging, 1Internal Medicine and 3Neurosurgery, Military Hospital, University Mohammed V, Rabat, 2Department of Histopathology, Military Hospital, University Cadi Ayyad, 40010 Marrakech, Morocco

Address for correspondence: Dr. Salah Bellasri, 5th Military Hospital, Guelmim, Morocco. E-mail: belasri.salah@gmail.com

How to cite this article: Bellasri S, Fathi J, Elktaibi A, El Asri AC. Acute spinal cord compression caused by atypical vertebral hemangioma. J Craniovert Jun Spine 2017;8:275-7.

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

For reprints contact: reprints@medknow.com
Bellasri, et al.: Acute spinal cord compression caused by atypical VH

Histologic finding demonstrated a large number of thin walled vascular channels in collagenous connective tissue, lined by a single layer of endothelial cells [Figure 2]. A diagnosis of cavernous hemangioma was made.

Postoperatively, patient’s weakness and pain resolved within 1 week after surgery. After 4 weeks of functional reeducation exercises, the patient was walking with a normal posture. Follow-up MRI 2 months after surgery showed significant spinal cord decompression [Figure 3].

DISCUSSION

VHs are vascular malformations and are generally benign in nature. Rarely, aggressive VHs can expand the vertebral body and extend into posterior elements, possibly leading neurologic deficit. [2] VHs occur most frequently in the thoracic spine, followed by the lumbar spine. [3]

Boriani et al. proposed four categories: Type I, latent (st. 1), mild bony destruction with no symptoms; Type II, active (st. 2), bony destruction with pain; Type III, aggressive (st. 3), asymptomatic lesion with epidural and/or soft tissue extension; and Type IV, aggressive (st. 4), neurologic deficit with epidural and/or soft-tissue extension. [4] Our case was graded Type IV.

Neurologic deficit may be caused by bony compression resulting “ballooning” of the cortex; soft tissue compression resulting from extension of VH into the epidural and foraminal space; less often by fracture and hematoma. [5-6] In our case, bony compression was the cause of neurologic deficit.

Hemangiomas in vertebrae cause rarefaction and vertical striations or a coarse honeycomb appearance. Computed tomography shows “polka-dot” appearance representing a cross section of reinforced trabeculae. [7] On MRI, the presence of high signal intensity on T1- and T2-WI is related to the amount of adipocytes or vessels and interstitial edema, respectively. [8] Fatty VHs may represent benign forms of this lesion, whereas low signal intensity at T1-WI may indicate a more aggressive lesion. [9] In our case, we observed low-intensity signal in T1-WI which may reflect a low-fat content of the lesion, with signal voids and hyper vascularized patterns.

VH lesions can mimic more sinister pathologies when located in the posterior arch it may be misdiagnosed as metastatic disease, myeloma, and primary bony malignancy.

Although the treatment strategy for aggressive VH with neurologic deficits has improved, it remains controversial. [10,11] Treatment has involved surgery, vertebroplasty, direct ethanol injection, radiotherapy, embolization of the feeding arteries, and a combination of these modalities. Bandiera et al. [12] stated that treatment should only focus on the symptoms. Surgery of most aggressive hemangioma of the thoracic vertebral body is still fraught with risks of bleeding. [13] Whereas we believe that total removing of spinous process hemangioma, although rare, appears to be less dangerous. In our case, surgery was the unique treatment with successful outcome.
The prognosis of VH lesions remains unclear. We believe that isolated spinous process involvement is a fact of good prognosis. Even possible, total excision leads to complete remission with low risks of recurrence.

In summary, acute spinal cord compression caused by spinous process hemangioma is exceptional. MRI is the best diagnosis tool, showing aggressive patterns of hemangiomas. Given this posterior location of VH, we believe that surgery is a safety and effective treatment with good prognosis.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

REFERENCES

1. Jiang L, Liu XG, Yuan HS, Yang SM, Li J, Wei F, et al. Diagnosis and treatment of vertebral hemangiomas with neurologic deficit: A report of 29 cases and literature review. Spine J 2014;14:944-54.
2. Doppman JL, Oldfield EH, Heiss JD. Symptomatic vertebral hemangiomas: Treatment by means of direct intralesional injection of ethanol. Radiology 2000;214:341-8.
3. Laredo JD, Reizine D, Bard M, Merland JJ. Vertebral hemangiomas: Radiologic evaluation. Radiology 1986;161:183-9.
4. Boriani S, Weinstein JN, Biagini R. Primary bone tumors of the spine. Terminology and surgical staging. Spine (Phila Pa 1976) 1997;22:1036-44.
5. Cross JJ, Antoun NM, Laing RJ, Xuereb J. Imaging of compressive vertebral haemangiomas. Eur Radiol 2000;10:997-1002.
6. Fox MW, Onofrio BM. The natural history and management of symptomatic and asymptomatic vertebral hemangiomas. J Neurosurg 1993;78:36-45.
7. Rodallec MH, Feydy A, Larousserie F, Annact P, Campagna R, Babinet A, et al. Diagnostic imaging of solitary tumors of the spine: What to do and say. Radiographics 2008;28:1019-41.
8. Baudrez V, Galant C, Vande Berg BC. Benign vertebral hemangioma: MR-histological correlation. Skelet Radiol 2001;30:442-6.
9. Laredo JD, Assouline E, Gelbert F, Wybier M, Merland JJ, Tubiana JM. Vertebral hemangiomas: Fat content as a sign of aggressiveness. Radiology 1990;177:467-72.
10. Krueger EG, Sobel GL, Weinstein C. Vertebral hemangioma with compression of spinal cord. J Neurosurg 1961;18:331-8.
11. Templin CR, Stambough JB, Stambough JL. Acute spinal cord compression caused by vertebral hemangioma. Spine J 2004;4:595-600.
12. Bandiera S, Gasbarrini A, De Iure F, Cappuccio M, Picci P, Boriani S. Symptomatic vertebral hemangioma: The treatment of 23 cases and a review of the literature. Chir Organi Mov 2002;87:1-15.
13. Hao YJ, Yu L, Zhang Y, Wang LM, Li JZ. Surgical treatment of cervical vertebral hemangioma associated with adjacent cervical spondylotic myelopathy. Spine J 2013;13:1774-9.