Epidural Capillary Hemangioma of the Thoracic Spine

Hemangioma capilar extradural da coluna torácica

Eberval Gadelha Figueiredo¹ Anderson Rodrigo Souza¹ Gabriel Reis Sakaya¹ 
Daniella Brito Rodrigues² Raul Marino Jr.³

¹Department of Neurological Surgery, Institute of Neurological Diseases of São Paulo, São Paulo, SP, Brazil
²School of Medicine, Universidade do Estado do Pará, Belém, PA, Brazil
³Department of Neurological Surgery, Institute of Neurological Diseases of São Paulo, Beneficência Portuguesa Hospital, São Paulo, SP, Brazil

Address for correspondence Eberval G. Figueiredo, MD, PhD, Maestro Cardim 808, São Paulo, SP, Brazil 01323-001 (e-mail: ebgadelha@yahoo.com).


Abstract

Background  Hemangiomas are congenital vascular malformations pathologically considered as harmatomas and classified as capillary, cavernous, arteriovenous or venous, and usually located at soft tissue or bone, mainly in the spinal column. Pure epidural capillary hemangiomas are extremely rare lesions that should be included in the differential diagnosis of spinal epidural lesions; only three patients with epidural capillary hemangiomas have been reported to date.

Case Report  We report a case of a 57-year-old man that complained of dorsal and back pain. The neurological examination revealed back tenderness and crural paraparesis. His reflexes were exaggerated and Babinski sign was present on both sides. A magnetic resonance imaging showed an epidural lesion at the level of T10–12 that demonstrated extension with intense postgadolinium enhancement. These lesions were different from more common lesions, mainly schwannomas, mainly due to the foraminal extension, which sets them apart from cavernous hemangiomas. The surgical resection was performed. After laminectomy, a reddish epidural mass that extended into the right T11–12 foramina was revealed. The feeding vessels had to be identified and divided. In such cases, the surgeon must carefully dissect the lesion circumferentially away from the dura and employ judicious hemostasis. The patient’s histopathological examination revealed a vascular tumor composed of vessels of several calibers. The imagery obtained from the exams led to the diagnosis of a capillary hemangioma.

Conclusions  Pure epidural capillary hemangiomas should be included in the differential diagnosis of spinal epidural lesions, mainly schwannomas, especially due to the foraminal extension, which may differentiates them from cavernous hemangiomas. Surgical excision is mandatory and intervertebral foraminal extension may preclude gross total resection.

Keywords
► hemangiomas
► spinal cord
► capillary hemangioma
► neurilemmoma

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Introduction

Capillary hemangioma, also known as “Infantile hemangioma,” appears as a raised red lumpy lesion occurring anywhere on the body, although 83% are located in the head or neck area. Most of the epidural hemangiomas described in the literature were cavernous hemangiomas. Epidural capillary hemangiomas are exceedingly rare lesions. Thus far, only three cases have been reported. We describe an additional case of a purely epidural capillary hemangioma and discuss its clinical, radiological, therapeutic, and prognostic features.

Case Report

A 57-year-old man complained of dorsal and back pain. Two months prior, he had noticed progressive difficulty walking and numbness in his legs. Neurological examination revealed back tenderness and crural paraparesis. His reflexes were exaggerated and Babinski sign was present on both sides. Urine and stool incontinence were absent.

A magnetic resonance imaging (MRI) of the thoracolumbar spine showed an epidural lesion at the level of T7–8 that extended into the right neuroforamina, as well as intense postgadolinium enhancement (Fig. 1 and 2). Signal flow voids could be seen on T2, indicating that the lesion was probably highly vascular (Fig. 2). There was significant cord compression; however, the cord signal was normal.

Fig. 1 Magnetic resonance images. Axial view. An epidural mass with foraminal extension is depicted compressing the spinal cord. Significant gadolinium enhancement can be seen.
He underwent a T6–8 laminectomy, bilaterally. Radio-
scopy was used to identify the level to be approached.
Electrophysiological monitoring was employed to minimize
the risks of neurological worsening. After laminectomy, a
reddish epidural mass that extended into the right T7–8
foramina was revealed. We noticed two feeding vessels in its
superolateral aspect, which we dissected and coagulated.
They were soft upon manipulation and we completely re-
sected after circumferential dissection. Then, we removed
the foraminal extension. The postoperative period was un-
eventful and the patient was discharged with no additional
neurological deficits.

Histopathological examination revealed a vascular tumor
composed of vessels of several calibers. Endothelium lined
the walls. We did not observe smooth muscles and saw
fibrous septa between the vessels. This image diagnosed a
capillary hemangioma (► Fig. 3).

**Discussion**

Hemangiomas are congenital vascular malformations path-
ologically considered as hamartomas and classified as capil-
lar, cavernous, arteriovenous or venous, and usually located
at soft tissue or bone, mainly in the spinal column.²,³,⁷–⁹
Vertebral hemangiomas are common, however purely ep-
dural hemangiomas constitute rare findings.¹⁰,¹¹ Although
cases of purely epidural cavernous hemangiomas have been
described, thus far, only three patients with epidural capil-
lar hemangiomas have been reported.²,⁴,⁵

Differential diagnosis of epidural lesions includes nerve
sheath tumors, meningiomas, hemangiopericytomas, he-
mangioblastosomas, cavernous hemangiomas, and lympho-
mas.⁷,¹¹–¹³ A constant feature of the previously reported
cases is intervertebral foraminal extension, which is uncom-
mon for a non-nerve sheath tumor.¹⁴,¹⁵ Therefore, schwann-
nomas and capillary hemangiomas constitute the most
frequent differential diagnosis. There are reports of spinal
capillary hemangiomas in other locations, mainly the intra-
dural and intramedullary spaces.⁷–⁹

The natural history of hemangiomas is poorly understood
due to the scarcity of cases.⁷ All four cases presented with
progressive myelopathy and pain.²,⁴ Myelopathy is thought
to be related to the direct compression of the spinal cord or
vascular steal phenomena. The cases of epidural capillary
hemangioma did not present any signs of hemorrhage.

In all cases, the lesion was located at the thoracic spine.
Radiological features were identical in every case reported
thus far. MRI findings include an isointense lesion in
T1-weighted images, with high signal in T2 and significant
enhancement after gadolinium injection. We observed low
density rim in two cases.²,⁴,⁵ Foraminal extension was
radiologically appreciated in all cases, as well it was during
surgical procedure. Such foraminal extension may be respon-
sible for partial resection, even though no recurrence has
been described thus far.²,⁴,⁵

Surgical resection should always be indicated, regardless
of the clinical presentation, due to the risk of spinal cord
compression.³,¹⁵ Laminectomy or laminotomy are the most
used approaches. At surgery, the lesion presents as a reddish
epidural mass with arterial feeders surrounding it. The
surgeon must identify and divide the feeding vessels. It is
important to carefully dissect the lesion itself circumferen-
tially away from the dura and exercise judicious hemostasis.
Total surgical resection is feasible, although intervertebral
foraminal extension may preclude it.

Most epidural hemangiomas are cavernous, constitut-
ing an important histological differential diagnosis.¹,³,⁶

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**Fig. 2** Magnetic resonance images. Sagital view. An epidural lesion at
the level of T7–8 presented intense postgadolinium enhancement.
Signal flow voids may be noticed, indicating that the lesion was
probably highly vascular.

**Fig. 3** Hematoxylin and eosin stain (x 32) shows a vascular tumor
composed of vessels with various calibers. The walls of the vessels are
lined with endothelium; there are no smooth muscles lining them.

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Cavernous hemangiomas are comprised of a large number of sinusoidal channels in collagenous tissue, whereas the capillary hemangioma are composed of thin irregular capillary-sized vessels in a fibrotic stroma, determining a lobular architecture. Basal lamina is continuous and of low mitotic activity presenting no atypia. Capillary hemangiomas stain positively for CD 31 and CD 34; however, their reaction for S100 and epithelial membrane antigen is negative.

**Conclusion**

Pure epidural capillary hemangiomas are extremely rare lesions that should be included in the differential diagnosis of spinal epidural lesions. They differ from more common lesions, mainly schwannomas, primarily due to their foraminal extension, which also may differentiate them from cavernous hemangiomas. Surgical excision is mandatory and intervertebral foraminal extension may preclude gross total resection.

**Conflicts of Interest**

The authors received no funds in support of this work. No benefits in any form have been or will be received from a commercial entity with financial interests related directly or indirectly to the subject of this manuscript.

**References**