

Case Report

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Medullary and Foraminal Stenosis by Lumbar Vertebral Hemangioma: Case Report

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ABSTRACT

Vertebral hemangiomas can be defined as benign vascular bone tumors, accounting for only about 3% of spinal tumors. In general, they may demonstrate an asymptomatic clinical presentation, being found accidentally on imaging tests. They have an incidence of about 2.0-27% in the general population and do not require intervention in incidental cases. However, there are a number of atypical vertebral hemangiomas, seen on imaging with a higher vascular content and lower adipose mass, cases often associated with aggressive hemangiomas, which may be symptomatic, with nerve compression, vertebral lytic erosions and infiltrative character. The case described here is a female patient with a history of progressive low back pain and claudication due to a vertebral hemangioma in the topography of the 3rd lumbar vertebra, associated with canal stenosis, and infiltration of the pedicle and facet joint. In view of this condition, the patient underwent embolization and decompression of the spinal canal, followed by lumbar arthrodesis.

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Introduction

Vertebral hemangiomas and their correlation with neurological alterations were first described by Bailey and Bucy, although the details of this condition were already pointed out in 1926 by Perman, E [1,2]. Hemangiomas are vascular tumors, associated with congenital endothelial alterations, which may present early, such as infantile hemangiomas, or they may have later evolution, being identified in adulthood, and may affect different systems of the body [3]. These lesions represent the most common benign bone tumors of the spine [4]. The most common location of this type of lesion is thoracic and lumbar and is usually asymptomatic and is identified accidentally on imaging tests. However, depending on the location, extent and active characteristics of expansion and generate symptoms, especially compressive ones. Regarding the management of these patients, in cases of incidental findings and asymptomatic patients, conservative therapies and follow-up should be instituted. However, the challenge involves the treatment of complicated injuries, which can evolve with vertebral fractures and nerve compressions. Among the current therapies available, the best choice of treatment varies according to the patient's case, and can be managed conservatively with optimization of medication for chronic pain, as well as indications for radiotherapy, vertebroplasty, embolization, among others. The present case reports the management of a patient in whom arterial embolization, spinal canal decompression, and lumbar arthrodesis were necessary to resolve the pain [5].

Case Report

Female patient, 53 years old, progressive axial low back pain, neurogenic claudication, 10/10 visual analogue scale (VAS) pain, associated with L3 and L4 sciatic pain on the left. Patient initially underwent embolization of L3 vertebral hemangioma with slight improvement of axial pain but persisted with VAS 8/10 after embolization. Due to compression of spinal cord canal at L3 level and presence of lesion with foraminal compression of left L3 due to infiltrated pedicle and facet of L3 / L4 and thickened by vertebral hemangioma, it was decided to perform posterior decompression (laminectomy) and foraminal (foraminotomy) to the left. Preoperative embolization decreased bleeding allowing adequate decompression of the spine and foramen. Even with embolization, the patient lost 1.5 liters of blood, but uneventful due to blood transfusion. Spinal cord decompression, foraminotomy and arthrodesis were performed. The patient is currently without pain.



Figure 1: (a) Preoperative Left, Sagittal (b) and Axial Cut MRI

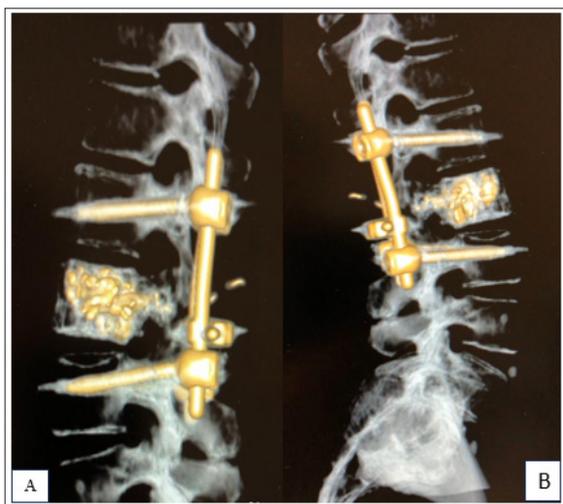


Figure 2: (a) Left, Sagittal (b) Right, Sagittal Post Embolization and Surgical Procedure with Lumbar Fixation.

Discussion

Vertebral hemangiomas are a pathology that, in most cases, presents with asymptomatic conditions. This lesion represents for only about 3% of spinal tumors and have an incidence of about 1.9-27% in the general population [6]. In these cases, the diagnosis is made accidentally through imaging methods that are used to search for other clinical conditions [7].

From a histopathological point of view, vertebral hemangiomas are benign tumors of the vascular system, presenting macroscopically as a soft, darkened and well-demarcated tissue. Due to the sclerosis of the affected bone trabecula, there is the formation of a honeycomb appearance in the region [8,9]. They are characterized on imaging as areas of circular hypodensities (computed tomography (CT)) that preferentially occupy the region of the vertebral body, being composed of regions of edema, high vascularization and adipocytes interspersed with the lesion [4]. Microscopically, it presents as a thin-walled, blood-filled capillary and cavernous composition, being lined with a single layer of endothelial cells arranged anarchically in the stroma [10].

Through an image analysis of vertebral hemangiomas, we can classify them into three subgroups: typical, atypical, and aggressive. Typical patients show radiological reduction in bone density, with a denser bone trabecula, sometimes with a honeycomb appearance. Atypical ones have a smaller fat layer and a greater presence of vascular tangles. On the other hand, aggressive lesions, which usually have an atypical histological presentation, often present without abnormalities or with non-specific findings, are characterized by complications and presentation of symptoms, secondary to osteoporosis, vertebral collapse and pedicle erosions generated [5].

The vast majority of vertebral hemangiomas will be asymptomatic, and the management in these cases is conservative, only follow-up of the lesion. In symptomatic cases, the management should be guided according to the clinical presentation of the patient, with the three main approaches: surgery, embolization, and radiosurgery [11]. The first method used in the treatment of vertebral hemangiomas was open surgery, often related to the need for spinal cord decompression, with a moderate success rate, but with very frequent complications, especially when intraoperative hemorrhages occur [12].

In view of this, the use of embolization adjuvant to surgery began, reducing the rates of complications due to intraoperative hemorrhages [13]. In addition, other alternative approaches are vertebroplasty, in which part of the vertebra is sectioned to relieve pressure at the site due to the expansive process of the hemangioma, and radiotherapy [14].

With the advancement of knowledge about this pathology, the approach can be individualized according to the patient's clinical condition. According to Acosta et al, in patients where the clinical picture is restricted to pain, without other imaging findings, the approach of choice should be percutaneous vertebroplasty or embolization [15]. On the other hand, in those patients who present a neurological deficit and lesion only of the vertebral body, the association between embolism and decompressive laminectomy should be chosen. Finally, in asymptomatic patients with extraosseous imaging findings, embolization, vertebrectomy, and reconstruction of the affected vertebra should be pursued.

Conclusion

The present report describes the case of a patient with a symptomatic picture of vertebral hemangioma, in which an endovascular approach, with previous embolization of the vascular lesion, and a surgical approach to the case was necessary. In view of this, we can note the complexity and multiple possibilities of approaching these types of lesions, a condition with a wide spectrum of presentations, which can be treated conservatively, with monitoring of the lesion, to the need for radiotherapy indication to control the progression and symptoms. The description of case management such as the one described has its importance in detailing the techniques for approaching complex cases of vertebral hemangiomas, aiding decision-making for future cases and facilitating the indication of treatments with better outcomes for patients.

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