Symptomatic benign vascular tumors of the bone are rare. Vertebral hemangiomas are rare detectable spinal tumors. Those presenting with neurological deficits are extremely rare. Early diagnosis and complete excision of the lesion with decompression of the cord is the definitive management in such cases. Delay in treatment may cause irreversible damage to the cord and may leave patient with lifelong neurological deficit. Here, we report a similar case of a thoracic vertebral hemangioma causing spinal cord compression in a child.

**Keywords:** Compression, hemangioma, spinal cord, vertebral

### INTRODUCTION

Vertebral hemangiomas represent 2%–3% of all detectable spinal tumors radiologically.[1] Most of these benign vascular tumors are incidental radiographic findings and are clinically silent. Symptomatic vertebral hemangiomas represent less than 1% of all hemangiomas and less than 10% of the spinal hemangiomas.[2] Vertebral hemangiomas may cause acute- or delayed-onset of progressive neurological symptoms, such as radiculopathy, myelopathy, and even paralysis.[3] Magnetic resonance imaging (MRI) is the investigation of choice in these cases, whereas computed tomography (CT) scan is carried out for the evaluation of the bony details. The complete excision of the lesion with decompression of the cord is the definitive management in cases presenting with spinal cord compression. We will discuss the diagnosis, management, and outcome in one such case.

### CASE REPORT

A 10-year-old boy presented with backache over mid-dorsal region for 4 months. He had progressive weakness of both lower limbs and difficulty in walking for 3 months. His speed of walking was reduced and he was unable to clear ground while walking. Both his lower limbs were stiff. Occasionally, he noticed sharp shooting pain at mid-thoracic level radiating anteriorly on both sides. His bowel and bladder functions were normal. On examination, no evidence of swelling was observed over the back but it was tender on palpation. Tone was increased and the power was 4/5 in both lower limbs as per Medical Research Council scale. Abdominal superficial reflexes were reduced in all quadrants. His knee and ankle reflexes were exaggerated and Babinski sign was positive bilaterally. There was decrease in all sensations below the chest and in both the lower limbs. Bulbocavernous reflex, anal tone, and perianal sensations were normal.

MRI of the spine showed abnormal marrow signal in D6 vertebral body as well as the right pedicle, lamina, and spinous process. It appeared hypointense on T1 and hyperintense on T2 short tau inversion recovery images. Moderate-sized dorsal epidural soft tissue was extending between D5 and D6 vertebral levels, causing significant compression of the underlying cord, which appeared displaced anteriorly. Myelopathic signal changes were seen in the compressed cord parenchyma. These features were suggestive of vertebral hemangioma with associated dorsal epidural soft tissue [Figure 1].

The preoperative workup was carried out and the patient was taken up for surgery. D5 and D6 level was confirmed on fluoroscopy. D5 and D6 laminectomy...
was performed. A fibrous and hematogenous soft tissue of extradural mass extending from adjacent vertebral pedicle and lamina along with small tortuous vessels was found, which was compressing the thecal sac anteriorly [Figure 2A]. The safe excision of the mass was carried out under microscopic vision. Profuse bleeding was present initially but it was controlled with bipolar cautery and Surgicel [Figure 2B and C]. The pulsations were noted in the thecal sac, which were indicative of an adequate decompression of the cord. Histopathological examination showed pieces of tumor with fibroadipose tissue and bony tissue. The tumor was composed of small, capillary-sized vessels with plump endothelial lining. These features confirmed hemangioma [Figure 3].

During postoperative period, the patient showed marked improvement in his symptoms. The backache was resolved, power in both lower limbs was normalized, and improvement in walking was observed. No pain was noticed at thoracic level. The lower limb tone and reflexes were normalized. Improvement was seen in all sensations below the level of lesion.

**DISCUSSION**

The word “hemangio” means blood vessels and “oma” means tumor with active cell division. Vertebral hemangiomas are solitary lesions localized in the vertebral body. These occur in the cervical and lumbar spine but more common in the thoracic region in children.[9] Frequently an incidental finding on routine radiography, these inactive lesions are managed conservatively. Sometimes, they may present acutely with neurological deficits. The children usually show decreased performance in playing activities and competitive sports. The neurological deficits such as paraparesis, pain, gait disturbance, balance difficulties, and bowel and bladder dysfunctions are mostly due to spinal cord compression. The most frequent symptom is pain. Symptomatic vertebral hemangiomas with spinal cord or nerve root compression are seen very rarely.[2]

These lesions are diagnosed by MRI showing honeycomb appearance.[1,3] CT scan can show compression fractures, the thickened vertical trabeculae causing axial cuts, which are called polka dot. The symptomatic vertebral hemangiomas are extremely hyperintense on the T2 sequence, which helps to distinguish them from lymphoma and other highly cellular neoplasms.[6,7] Involvement of the posterior elements and the whole vertebral body is more in keeping with the symptomatic
vertebral hemangioma with less marked pathological compression of the whole vertebral body as compared to that of metastatic disease. According to Friedman,[7] aggressive hemangioma should be considered with the following characteristics: female patient, marked T2 hyperintensity, intraosseous signal voids or mottled appearance, mid-thoracic region, and enlarged paraspinal vessels. Hemangiomas are of two types: capillary and cavernous. Capillary hemangiomas are more common and are seen in the skin, subcutaneous tissue, and mucous membrane of oral cavity and lips. They are bright red to blue, from few millimeters to several centimeters in diameter.[8] Cavernous hemangiomas are usually larger, less well circumscribed, and more frequently involved with deeper structures such as bone. Grossly they appear as a red–blue, soft, spongy mass of 1–2 cm in diameter.[8] The incidentally detected tumors should be followed up periodically and conservative management should be carried out. Symptomatic cases should be managed on emergency basis. The best treatment in such cases is early surgical intervention and complete excision of the lesion with decompression of the cord. An alternate form of treatment such as radiotherapy and embolization can be carried out if the patient is in good clinical status where neurological deficit is minimum. Patients show marked symptomatic improvement postoperatively, as observed in our case.

**Conclusion**

Vertebral hemangioma presenting with spinal cord compression is an extremely rare entity. It should always be considered as a differential diagnosis in extradural lesions of the spinal cord. These incidentally detected tumors should be followed up periodically and an early intervention should be carried out in symptomatic cases. The best optimal treatment in such case is early diagnosis and complete excision of the lesion with decompression of the cord. The overall outcome of the patient is good with early return to their routine activities.

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**Conflicts of interest**

There are no conflicts of interest.

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