

## CASE REPORT

# Dorsal spine osteoblastoma

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## ABSTRACT

Benign osteoblastoma is a rare primary neoplasm comprising less than 1% of primary bone tumors.<sup>[1]</sup> We report a case of a 20-year-old female patient presenting with progressive paraparesis over one year and back pain over the dorsal spine gradually increasing in severity over a year. Computerised tomomography (CT) of the spine revealed a well-defined 3.5 × 3.0 cm mass heterodense expansile bony lesion arising from the lamina of the D12 vertebra, having lytic and sclerotic component and causing compromise of the bony spinal canal. D12 laminectomy and total excision of the tumor was done.

**Key words:** Dorsal, female, spine, osteoblastoma

## Introduction

Osteoblastoma of the spine are rare benign tumors.<sup>[1]</sup> They need to be differentiated primarily from osteoid osteoma. Prognosis is usually good after surgical resection.

## Case Report

A 20-year-old female presented with the complaints of gradual onset, progressive weakness of both lower limbs, left more than right and dull pain over the dorsal spine region for one year. On examination, there was spasticity in both lower limbs, knee jerk and ankle jerk was 3+ on both sides, knee and ankle clonus was present on the left side. Power in the right lower limb was 4+/5, and 2/5 on the left. There was no bladder bowel involvement. There was no sensory deficit. CT [Figures 1-3] and MRI [Figures 4-6] of the spine revealed a well-defined heterodense expansile bony lesion arising from the lamina of the D12 vertebra, having lytic and sclerotic components and causing luminal compromise of the bony spinal canal. It was associated with the complete destruction of the right lamina and partial destruction of

the left lamina. There was significant compression of thecal sac and spinal cord.

Patient was taken up for surgery in the prone position under general anesthesia. A D12 laminectomy and total excision of the tumor was done. The tumor was 3.5 × 3.0 cm, bony hard solid in consistency, difficult to excise with bone nibbler; therefore, high-speed drill was used to excise it. Histopathology showed well-separated, irregularly serrated osteoid and woven bone trabeculae. Stroma which was composed of loose spindle cells and prominent capillaries without any mitosis suggestive of benign osteoblastoma was observed. Patient's power in the left lower limb improved from 2/5 to 4/5 in 10 days. Pain was also relieved. At 1-year follow-up, power improved to 4+/5. Patient was ambulatory and independent.

## Discussion

Osteoblastoma is a rare primary neoplasm of bone, categorized as a benign bone tumor. It was first described as a distinct entity by Jaffe and Lichtenstein in 1956.<sup>[2]</sup> However, an aggressive type of osteoblastoma has been described that has characteristics similar to those of osteosarcoma. Osteoblastoma needs to be distinguished from osteoid osteoma, the former grows more than 2 cm and the latter does not.<sup>[1,3]</sup> Osteoblastoma is larger, tends to be more aggressive, and can undergo malignant transformation, whereas osteoid osteoma is small, benign, and self-limited.<sup>[2]</sup> It is more common in males than females.<sup>[4]</sup> Forty percent of all osteoblastomas are seen in spine.<sup>[5]</sup> Osteoblastoma usually presents in the second decade of life.<sup>[6]</sup> The primary symptom is pain, and patients often characterize it as a dull ache. Unlike the pain of osteoid osteoma, the pain of osteoblastoma is more generalized, and less likely to be relieved by salicylates.<sup>[7]</sup>

Common differential diagnosis include osteoid

Access this article online	
Quick Response Code:	Website: www.asianjns.org
	DOI: 10.4103/1793-5482.177661

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Figure 1: Sagittal and AP CT images

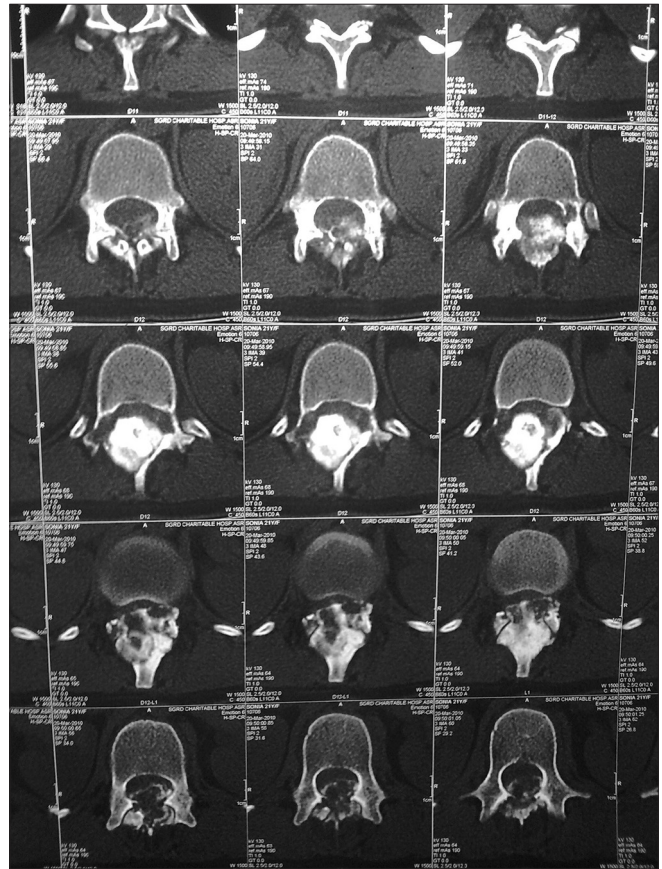


Figure 2: Axial CT scan images

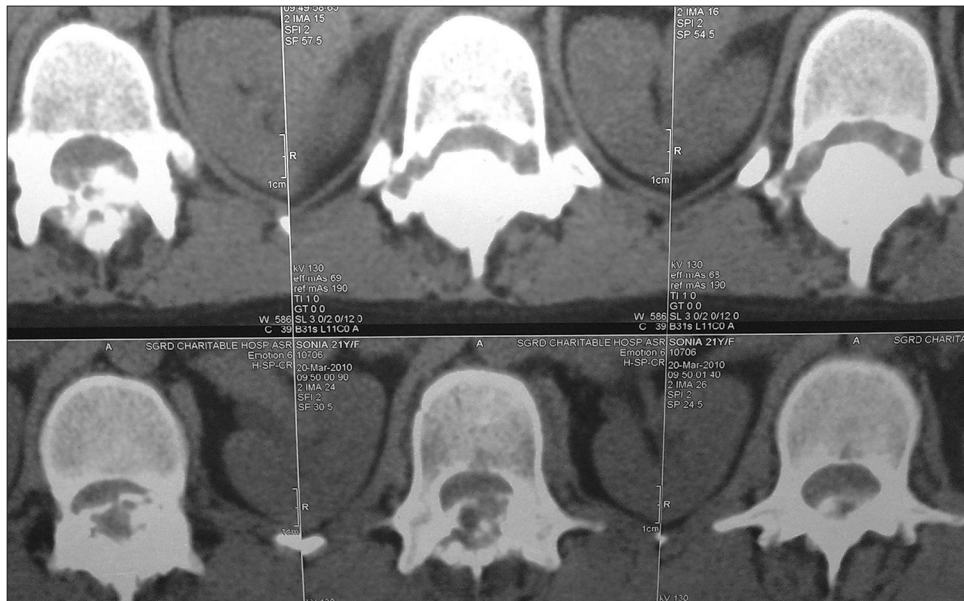


Figure 3: Magnified axial CT film

osteoma, aggressive conditions like giant cell tumor or osteosarcoma.<sup>[8,9]</sup>

Osteoblastoma is a bone-forming lesion. It may be found within the cortex, medullary canal, or periosteal tissues. Multicentric foci within a single bone have also been described. There is a slight predominance of metaphyseal over diaphyseal lesions,

with very few lesions reported in an epiphyseal location.<sup>[10]</sup> In the largest series reported, the size of osteoblastomas ranged from 1 to 11 cm, with a mean of 3.2 cm.<sup>[7]</sup>

Osteoblastoma may affect any bone, but it most frequently arises within the vertebral column and long tubular bones. In the spine, it affects the posterior elements and may present



Figure 4: Sagittal T2W MRI image

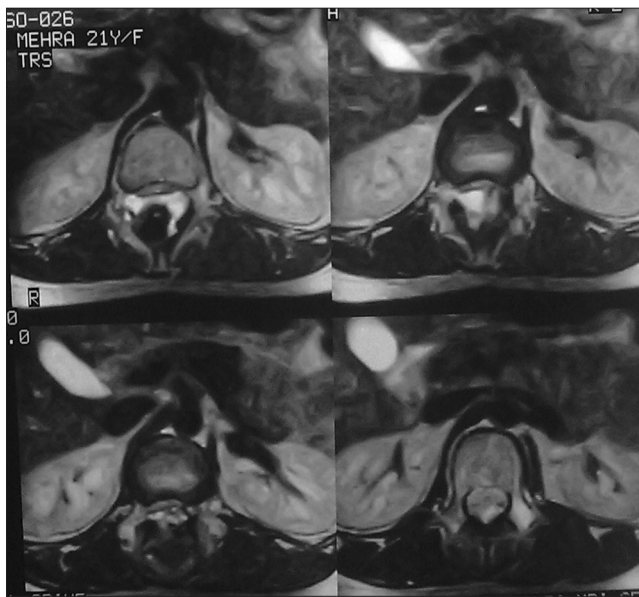


Figure 5: Axial T1 W MRI image

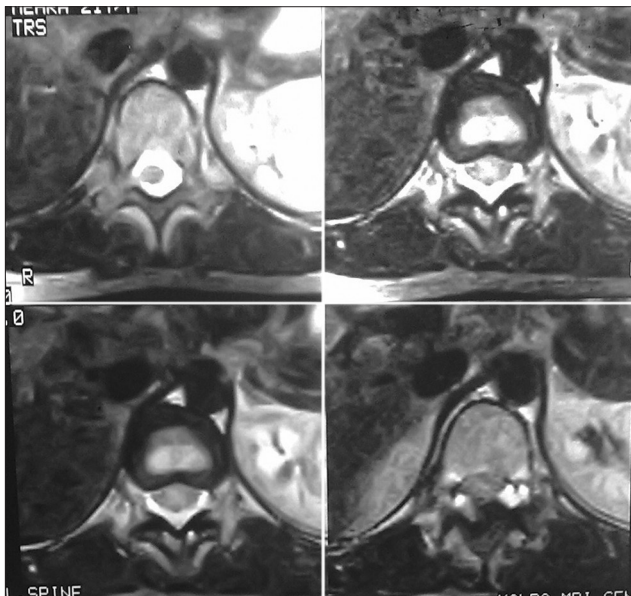


Figure 6: Axial T2 W MRI image

with neurologic symptoms as a result of spinal cord or nerve root compression.<sup>[11]</sup>

Histologically, osteoblastoma are composed of numerous osteoblasts that produce osteoid and woven bone. They are locally expansive and destructive. The outer rim of the tumor is always covered by periosteum and a thin rim of reactive bone.<sup>[9]</sup>

Treatment is based on the Musculoskeletal Society Tumor Staging System, divides benign tumors into latent (stage 1), active (stage 2), and aggressive (stage 3) tumors.<sup>[9]</sup> For stage 1 and 2 lesions, the recommended treatment is extensive intralesional curettage. A high-speed drill may be used to remove the tumor and a margin around it which results in curative resection. For stage 3 lesions, wide resection is recommended to ensure removal of all tumor-bearing tissue.<sup>[12]</sup> The reported rate of recurrence in literature is approximately 10%.<sup>[13]</sup> Role of radiation therapy in the management of osteoblastoma is controversial.<sup>[14]</sup>

## Conclusions

Vertebral osteoblastoma is a rare benign tumor primarily of the posterior elements. It is curable by resection and has a good prognosis.

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**How to cite this article:** Bhargava P, Singh R, Garg BB. Dorsal spine osteoblastoma. *Asian J Neurosurg* 2016;11:180.

**Source of Support:** Nil, **Conflict of Interest:** None declared.