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Article

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# Chondroblastoma of thoracic vertebra in young adult causing paraparesis

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**Abstract**: Chondroblastoma of spine is very rare condition. To best of our knowledge, fewer than 30 cases have been reported in the world literature. Almost all of them involved both anterior & posterior component of vertebra. There are only few reports with isolated posterior element involvement. Clinical presentation of paraparesis because of vertebral chondroblastoma is very rare. This case report presents 17 yr old male with chondroblastoma involving posterior thoracic vertebra presenting with quadriparesis which improved after successful treatment. Early diagnosis and complete excision with periodic follow up is necessary for treatment of this disease.
**Key words**: Bone tumors, Chondroblastoma, Thoracic spine.

## Introduction

Chondroblastoma is benign bone tumor arising most often in the epiphyses of long bones. The most common sites are the proximal tibia, proximal & distal femur, and proximal humerus (9). It was first described by Ewing (8) and Codman (6), but it was not until 1942 that Jaffe and Lichtenstein (12) were first to confirm its chondromatous nature and rightfully named it chondroblastoma. The occurance of chondroblastoma in vertebral column is rare with approximately 30 cases reported in whole spine (2). Herein we report 17 year old male with chondroblastoma arising from D6/D7 vertebra compressing spinal cord and causing paraparesis.

## Case report

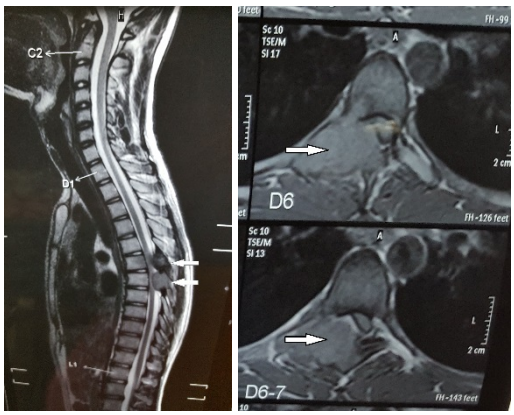
### *History & clinical examination*

17 year old male presented with 4 to 5 month history of back pain which was intermittent and aggravated during last month. His pain increased on walking and was relieved with rest. He started having weakness in both lower limbs since last 2 months. He had gait disturbance and eventually needed support while walking. He started feeling numbness below waist since last 2 months, however he had no bowel/bladder complaints. On physical examination he had tenderness over back in thoracic region and there was no deformity. A neurological examination revealed MRC grade 3 power in lower limbs both proximally and distally. There was

decreased sensation for pain, temperature, vibration & proprioception below 8th thoracic vertebra. The deep tendon reflexes of the lower limbs was exaggerated and Babinski sign was present bilaterally.

***Radiological examination***

Plain X-ray shows osteolytic lesion involving right side of D6/D7 vertebrae & posterior part of 6th/7th rib. M.R.I. thoracic spine revealed space occupying lesion involving right transverse process, spinous process and right posterior body of D6/D7 thoracic vertebrae causing compression of spinal cord and signal change in the cord (Figures 1 & 2).




**Figures 1 & 2** - White arrows show tumor compressing on spinal cord at D6 & D7 level

***Surgery***

He underwent D6 & D7 laminectomy with complete decompression of spinal cord. Laminectomy was performed at level of D6 & D7. The spinal cord appeared to be pushed to left side and it did not pulsate. The tumor was greyish yellow and vascular. It was located in epidural space and there was no breach in dura. After tumor debulking spinal cord returned to normal position and began to pulsate. Near total excision of tumor was achieved. (figure 3)

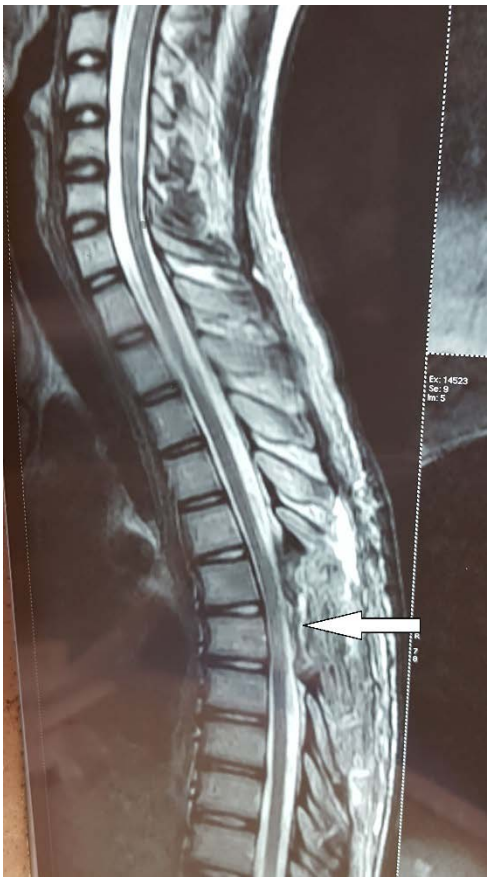


**Figure 3** - Postoperative image showing complete decompression of spinal cord with space around

***Post-operative course***

Postoperatively patient was given thoracolumbar brace and gradually mobilized. There was gradual improvement in lower limb power and patient regained his normal power. There was no postoperative complication.

***Histopathology***

On histological examination specimen shown multiple polygonal cells arranged in

loosely cohesive sheets with centrally placed nucleus & scanty cytoplasm. Osteoclastic giant cells were also visible along with areas of eosinophilic chondroid matrix. These histopathological findings are consistent with chondroblastoma. (figure 4)

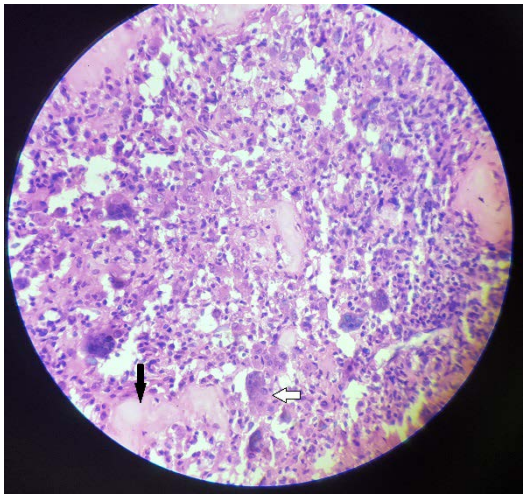


**Figure 4** - Histological image showing multinucleated giant cells (white arrow), eosinophilic chondroid matrix (black arrow) with loosely cohesive sheets of polygonal cells suggestive of chondroblastoma

## Discussion

Chondroblastoma is benign cartilaginous neoplasm that generally affects the appendicular skeleton and occurs in the second decade of life (1). It is much more common in men than in women with male to female ratio of 2:1(3, 5). It accounts for for about 1% of primary bone tumors and is considered to be benign with good prognosis in majority of cases (7). Although chondroblastoma occur most often in the epiphysis of the major bones this tumor can appear in secondary ossification center which is present in vertebra. Occurrence of vertebral chondroblastoma causing neurodeficit is very rare. According to Vialle et al, who recently reviewed 26 cases of spinal chondroblastoma reported in the past 50 years, 9 were found in cervical vertebrae, 9 in the thoracic vertebrae, 6 in the lumbar vertebrae and 2 in the sacrum (15). The clinical findings are nonspecific and differ depending on tumor extent and involved level. Local pain is most common presenting complaint in extradural spinal tumors (13).

In most instances the radiological appearances may be quite characteristic allowing an early diagnosis of chondroblastoma. It manifests as a well circumscribed oval translucent area with a sclerotic rim which rarely causes bone expansion. X ray shows presence of spot like calcification which helps to differentiate this lesion from giant cell tumor of the bone (14). Bloem and Mulder (1) reported that radiological diagnosis had a sensitivity of 75% and specificity of 99%. The diagnosis is usually confirmed by the histological feature of rounded or polygonal chondroblast like cells, cartilaginous intercellular matrix, multinucleated giant cells and the focal calcification.

Chondroblastoma is benign tumor hence it is usually treated by local curettage with or without bone grafting or cryosurgery. Local recurrence is common problem. Huvos and Marcone (11) reported that the 3 years recurrence rates were 24% for chondroblastoma and 100% for chondroblastoma associated with aneurysmal bone cyst. Resection is advocated with a

margin of surrounding normal tissue when this can be accomplished without great loss of function (4). Irradiation is usually reserved for complicated cases because of risk of radiation induced malignant transformation (10).

## Conclusion

Although rare neoplasm, vertebral chondroblastoma should be included in the differential diagnosis when encountered with destructive lesion of spine. Complete surgical excision as for as possible should be achieved but neurodeficit should be avoided. Patient needs close long term follow up & may need repeated surgeries.

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