

Giant cell tumour of dorsal spine presenting with mediastinal mass: a rare case report

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Abstract

Incidence of giant cell tumour (GCT) of spine above sacrum is rare. Moreover, involvement of posterior elements of spine is a rare entity. Furthermore, primary GCT arising at thoracic spine presenting as a huge mediastinal mass is extremely rare. Here, we are presenting a case of GCT presenting with posterior mediastinal mass. The case came to Orthopaedics outpatient department (OPD) with long-standing pain at the dorsal spine with features of depression. When chest X-ray was done, a posterior mediastinal mass at the level of D10 vertebra was detected. Magnetic resonance imaging (MRI) of the dorsal spine revealed a GCT involving body, left transverse process, and pedicle of the D10 vertebra. Computed tomography (CT)-guided biopsy from the posterior mediastinal mass and D10 vertebra was suggestive of GCT of dorsal spine.

Keywords: Mediastinal mass, giant cell tumour, Spine, thoracic spine.

Introduction

Long bones are the commonest predilection of giant cell tumour (GCT) of bone. Of the skeleton, spine is the fourth leading location of GCT of bone where majority of these arise from the sacrum [1]. In several large series, only 1% to 2 % of GCTs occurred in the thoracic spine [1-3]. GCT of the spine sometimes extend into the paraspinal soft tissue, [4] but a primary thoracic spinal GCT simulating a huge mediastinal neoplasm is extremely rare which is evident in our case. This neoplasm usually affects young adults; about two thirds of patients are between ages 20 to 40 of which 80% bellow 30 years [5]. Considering age, anatomical location and mode of presentation the case is a rare entity in literature.

Case Report

A 36 years old male patient was first seen at the

Orthopaedics outpatient department (OPD), complaining of pain over the upper back of the spine that developed gradually over a period of about two

years and six months. This was not associated with stiffness of the neck. The pain did not respond to medications and increased gradually, more constant and more severe. There was no antecedent history of trauma or of acute infection, loss of weight, or variation in the severity of the symptoms with change of weather. The patient also complained of itching of both palms which was treated with antifungal medications and recovered. Clinical examination revealed tenderness over the D9 to D11 spine, and stiffness of the paraspinal muscles of that part and diminution of range of movement of dorsal spine. Routine examination of blood was normal, except low haemoglobin and high erythrocyte sedimentation rate (ESR); normal random blood sugar (RBS), liver and renal function tests, serum protein electrophoresis, thyroid profile, and human immunodeficiency virus (HIV)-1 and 2; and antinuclear

Manuscript received: 08th May 2015
Reviewed: 20th May 2015
Author Corrected: 02nd June 2015
Accepted for Publication: 13th June 2015

antibody (ANA) and anti-cyclic citrullinated peptide (anti-CCP) antibodies were not detected. Ultrasonography of whole abdomen revealed mild hepatomegaly. Plain chest x-ray demonstrated a dense well-defined homogeneous opacity in the left paravertebral region at the level of D10 vertebra, silhouetting the margin of the vertebra, suggestive of posterior mediastinal mass at the level of D9-D11 vertebrae (Figure 1). Magnetic resonance imaging (MRI) of thoracic spine revealed a predominantly T2 hypointense lesion with hyperintense foci involving the D10 vertebral body, its left pedicle, and base of the transverse process, with exophytic left pre- and paravertebral components, suggestive of neoplastic lesion (Figures 2). Computed tomography (CT)-guided fine needle aspiration cytology (FNAC) from the mass and D10 vertebra confirmed it to be GCT. The histologic appearance of GCT is a uniform distribution of multinucleated giant cells against a background of round to spindle-shaped mononuclear stroma cells, as shown in figures 3 and 4.



Figure 1: Plain chest x-ray demonstrated a dense well-defined homogeneous opacity in the left paravertebral region at the level of D10 vertebra silhouetting the margin of the vertebra suggestive of posterior mediastinal mass.



Figures 2: Magnetic resonance imaging (MRI) revealed a predominantly T2 hypointense lesion with hyperintense foci involving the D10 vertebral body, its

left pedicle, and base of the transverse process with exophytic left pre- and paravertebral components, suggestive of neoplastic lesion.

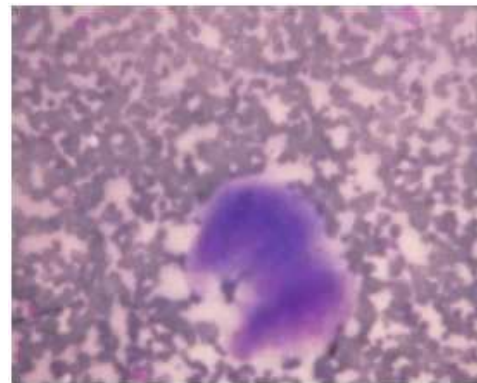


Figure 3: Microscopic examination of biopsy obtained from D10 vertebra shows ill-defined mononuclear cells along with multinucleated giant cell (magnification 10X).

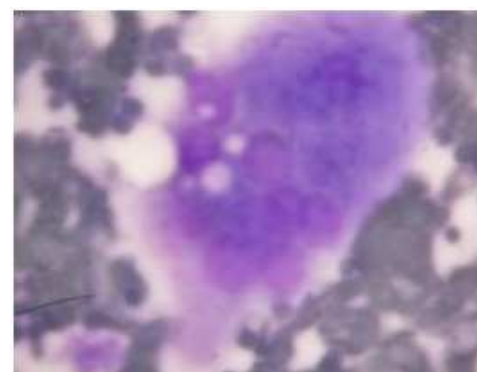


Figure 4: Microscopic examination of biopsy obtained from D10 vertebra shows distinct mononuclear cells having round to oval nuclei with a multinucleated giant cell, suggesting giant cell tumour (magnification 40X).

Discussion

As evident in several large series, incidence of thoracic origin of GCT is one to two per cent. [1-3] In our case, GCT involves the D10 thoracic spine. GCT of spine occasionally extends into the paraspinal soft tissue, but a primary GCT arising at thoracic spine, simulating a huge mediastinal mass is extremely rare [4] But in our case, radiologically GCT presented with mediastinal mass.

In cases of spinal GCTs, there is usually an expansile lesion with bone destruction that affects the vertebral body, as opposed to the posterior elements observed with other spinal bone tumors, such as aneurysmal bone

cyst, osteoid osteoma, and osteoblastoma. [4] But in contrast, in our case, the lesion has extended into left sided transverse process and pedicle. This report provides some important information regarding diagnostic imaging in a case of GCT of thoracic spine, simulating a posterior mediastinal mass. For the differential diagnosis between primary vertebral tumour and primary mediastinal tumour, we diagnosed this tumour as a primary vertebral tumour because destruction of D10 vertebral body along with left transverse process and pedicle was apparent on the MRI.

Conclusion

Considering the discussion, it can be concluded that the patient with GCT of D10 vertebra involving left pedicle and transverse process extending to paraspinal soft tissue is an extremely rare presentation of spinal GCT.

Funding: Nil,

Conflict of interest: None.

Permission of IRB: Yes

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How to cite this article?

Kalita LK, Kalita C, Sonowal TN, Sarma UC. Giant cell tumour of dorsal spine presenting with mediastinal mass: a rare case report. *Int J Med Res Rev* 2016;4(1): 137-139. doi: 10.17511/ijmrr.2016.i01.023.

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