A Case Of Giant Cell Tumour of Dorsal Vertebrae

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Abstract

Posterior element spinal giant cell tumors are rare entities. Total en bloc excision offers the best chance for curing these potentially locally aggressive lesions. We report the management of a patient presenting with chronic middorsal backache with a benign giant cell tumor of the T-4 vertebrae lamina with en bloc excision and post op adjuvant radio therapy with no signs of recurrence at 1 year followup.

Key Words : giant cell tumor, en bloc excision, thoracic spine, posterior element

Introduction

Primary tumours of vertebral column are relatively rare, with overall prevalence of 2.5 to 8.5 cases per 100,000 persons per year.

Vertebral tumours demonstrate a specific anatomic predilection. Osseous tumours of the anterior vertebral body are most likely metastatic lesions, multiple myeloma, histiocytosis, chordoma and hemangioma. The most common vertebral tumours involving the posterior elements are, aneurysmal bone cyst ,osteoblastoma and osteoid osteoma.[7]

Giant-cell tumour of the bone accounts for 4-5% of primary bone tumours and ~20% of benign bone tumours. Giant cell tumour rarely arises in the spine. The incidence of vertebral localization (excluding sacrum) is only 2.65%. This neoplasm usually develops in the vertebral body. It is slightly more common in females, has a predilection for the epiphyseal/metaphyseal region of long bones,and generally occurs in the third to fourth decade.

Case report

A 35 years old male patient presented with chronic mid dorsal continuous backpainsince two years, radiating to right sided chest with night cries with no aggravating or relieving factors without constitutional symptoms. On examination neurology was normal with spine movements full and free. Local examination failed to reveal any obvious swelling, inflammatory signs and spinous process were central in position

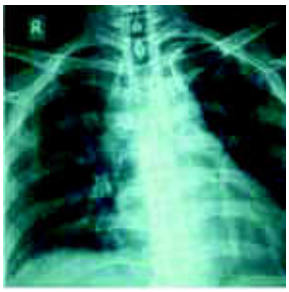

Figure.1 : An Osteolytic lesion involving Right side of D4 Vertebral lamina and pedicle in anteroposterior view.

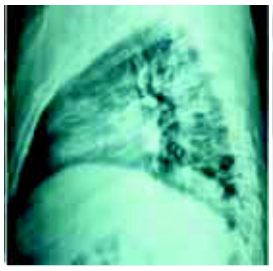

Figure.2: No remarkable findings were found in lateral view

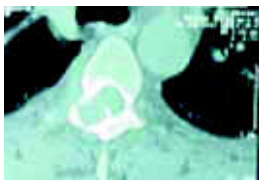

Figure. 3 : CT scan of dorsal spine showed lytic lesion lesion involving pedicle and lamina, with intact vertebral body.

Plain radiographs(Fig 1 and Fig 2)revealedexpansile lesion involving right sided pedicle of fourth dorsal vertebrae. MRI(Fig 4 , Fig 5) showed expansile lesion involving right lamina and indentation on pedicle with bone odema of D4 vertebrae, soft tissue thickening in posterior epidural space compressing theca is noticed. Spinal cord was unremarkable. We went for 3 dimensional CTscan(Fig3.) which showed 15

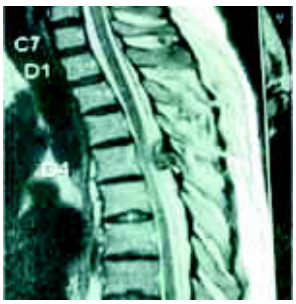

Figure.4:sagittal view of dorsal spine

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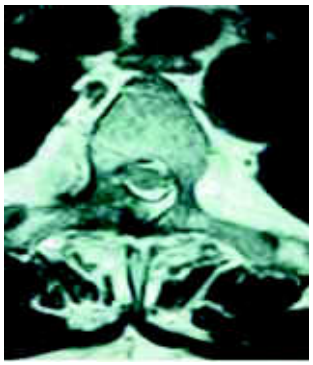

Figure. 5 : Axial view of dorsal spine showing involvement of lamina.

We went for excisional biopsy, which on table showed pedicle and laminal involvement of dorsal vertebra and surrounding soft tissue along with spinal cord were free from lesion.

The mass was removed En bloc without any violation of spinal cord or surrounding neurovascular structures. We have gone for complete surgical excision with lamina and pedicle without damaging the opposite pedicle and lamina of vertebrae.Postoperative history was uneventful and immediate relief of pain was observed.

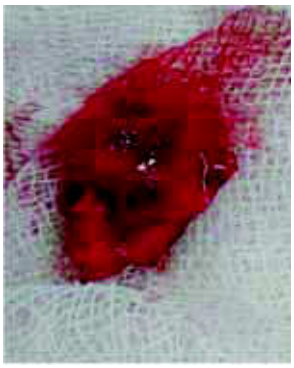

Figure. 6 : Gross anatomy of the excised specimen with tannish brown nidus.

Grossly specimen was brownish in colour(Fig 6). Histological examination confirmed Giant Cell tumour without any malignant changes.

We advised the patient, local radiotherapy and follow up every six monthly for detection of recurrence if any. At 1 year follow up patient had no fresh complaints and x rays showedno sign of recurrence.

Considering the clinical and radiological evidence, osteoblastoma was suspected but operative and histopathlogy confirmed the diagnosis of Giant cell tumour although Osteoblastoma is more common in posterior element of spine as compared to GCTOB. A final diagnosis of giant cell tumour was made.

Discussion

Giant cell tumour of bone (GCT) is a rare(1 per million annually), aggressive non-cancerous (benign) tumour. It generally occurs in adults between the ages of 20 and 40 years usually involving long bones. Spinal involvement accounts for less than 3 % of which vertebral body is common site of origin with posterior element being rarely involved.

Most common presenting symptom is pain in the area of the tumour. Gross pathologic appearance of the tumour is soft, friable, and fleshy, with a variable presence of areas of fibrosis (white), hemorrhage (red to brown depending on chronicity), and xanthomatous regions (yellow).At histologic analysis, GCTs contain a prominent and diffuse osteoclastic giant cell component and have been referred to in the past as osteoclastomas.

Giant cell tumors treated with aggressive, extended curettage followed by argon beam coagulation, which is easy to use, effective, and associated with few complications. Use of phenol or liquid nitrogen[(2)] as adjuvant treatment may be done but avoided because of potential complications, such as pathological fracture, wound healing problems, and nerve injury. Bone cement is preferred to fill the cavity because of its ease of application, immediate structural support, and ease with which local recurrence can be detected adjacent to the cement mantle.

The management of giant cell tumor of spine cannot be single staged. Dahlin et al has been pioneer of studies Giant cell tumor above sacrum. Dahlin [5] reported that 22 of 31 giant cell tumors involved the body, and nine of these involved the pedicle or vertebral arch. Computed tomography was best at defining the extent of both bone and soft-tissue involvement with particular delineation of prevertebral infiltration and encroachment of spinal canal and neural elements. Wide resection is often impossible due to the location of these lesions and a team approach involving surgeon, radiation therapist, diagnostic radiologist, and pathologist is desirable. CT would seem to be the best way to monitor these patients for recurrence .

In spine a wide resection can only be achieved at the risk of neurological deficit and spinal instability. Nevertheless, radical surgical techniques have been in use since total spondylectomy was first described by Lievere et al(l968) and popularised by Stener and Johnsen (1971). The technique requires combined anterior and posterior excision supplemented as needed by anterior and posterior fusion. Curettage with a

lesional margin, however, is still generally used to preserve neurological function. The surgical approach was dependent on the site, size, and extent of the lesion.. The use of radiation therapy remains controversial[11] because of the risk of sarcomatous change which occurs in 10% of patients.

It is usually recommended that giant-cell tumours of the spine be completely removed, but because of their location,this usually means excision with an intralesional margin. Post surgery local radiotherapy is recommended with dose under 50 Gy.

Conclusion:

Giant cell tumour being locally aggressive , various new containment measures have been tried with some benefit. Locally acting zolendronic acid cytotoxicity[9] has been promising modality. In addition to radiological investigation serum total acid phosphatase[10] assay has been helpful to detect recurrence as well as effect of treatment.

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