



GAINT CELL TUMORS OF BONE AT UNUSUAL LOCATIONS : A CASE SERIES.

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ABSTRACT

Gaint cell tumours of bone is one of the most aggressive benign tumors which can reoccur in 5% to 15% of the cases. The most common location for this tumor is the distal femur, following closely by the proximal tibia. The present case report discusses 4 cases presented to orthopaedic department, vydehi institute of medical science. The present case report discusses various treatment options employed based on the circumstances, extension of tumor as well as patients choice.

KEYWORDS : Giant cell tumor of bone, gaint cells, resection enblock

INTRODUCTION :

Giant cell tumor of bone (GCTB), first described in 1818, is a benign primary bone tumour characterized by multinuclear giant cells that has a high propensity to recur locally following therapy. It can occasionally transform into a malignant form. Tumor typically occur in patients 20 to 40 years old. Ten percent of cases are diagnosed within the second decade of life, when multicentric and spine tumors are more common. These massive cells are not true neoplastic cells, but they do promote bone resorption. The osteolytic lesion that is distinctive of this tumor is assumed to be created by multinucleated "giant cell" growth from stromal cells, which are thought to be the true neoplastic cells.¹

GCT are eccentrically located in the epiphyses of long bones and usually about the subchondral bone. Radiographically, the lesions are purely lytic. Although these tumors are benign, pulmonary metastases occur in 3% of patients. The primary lesion typically measures 2.9 x 2.6 x 2.6 centimeters.² GCTs in soft tissue have a lower local recurrence rate than GCTs in bone, but they are more likely to spread and cause mortality. In compared to other prevalent aggressive diseases, GCTB lacks any differentiating clinical or imaging features of malignancy. The prognosis for malignant GCTs of the bone has generally been poor, and it worsens when additional malignancies are present.³

The present study is a series of 4 case reports describing the unusual sites of GCT and its management.

Case Report – 1:

Giant cell tumor is a locally aggressive benign tumor arising in the epiphysis of bone. About 75-80% of GCTs occurs in long tubular bones. Flat bones involvements such as ribs, patella, sternum and clavicle are rare. We present a unusual case of GCT of the clavicle in a 16 year old male.

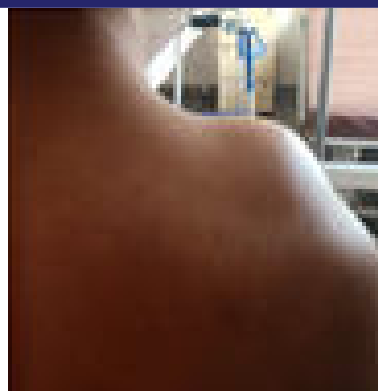


Figure 1 : Clinical Case Presentation

A 16-year-old male patient noticed enlargement of the distal aspect of the right clavicle associated with progressive restriction of movements of at shoulder. X ray findings showed lytic change and ballooning of the distal end of the right clavicle. The MRI findings showed that the tumor was fairly circumscribed hypointense on T1-weighted magnetic resonance images and showed a mixture of low- and high-intensity areas on T2-weighted images with soft tissues component and associated linear matrix internal septation. Computed tomography (CT) showed an expanded medullary cavity and thinning of the cortex with periosteal reaction.



Figure 2 : X Ray

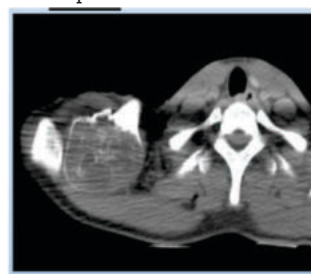


Figure 3 : CT Scan



Figure 4 : MRI

The tumour was managed by performing an osteotomy 9 to 10cm from the lateral edge of the clavicle. The tumor was resected en-bloc with near half of the clavicle. It contained a thin, fragile cortex with soft tissue.

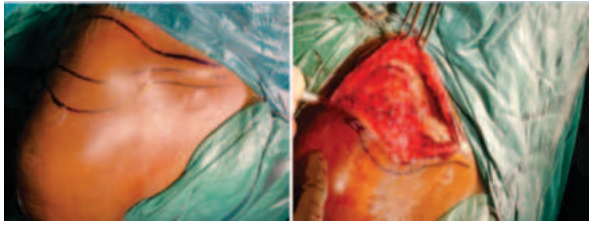


Figure 5 : Intra Operative Image



Figure 6 : Resected Tumor

The tumor was sent to biopsy. On Microscopic evaluation, Pathologically, the tumor comprised round to oval cells and spindled cells with pale eosinophilic cytoplasm mononuclear stromal cells and multinuclear giant cells, resulting in a diagnosis of a GCT of the bone.

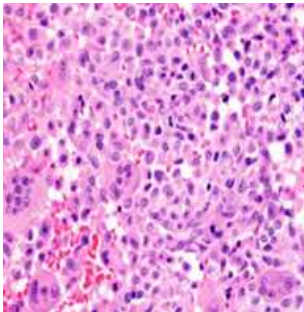


Figure 7 : Microscopic image of tumor



Figure 8 : post operative x ray and ROM

DISCUSSION :

Although curettage may be considered for such lesions (Campanacci grade II), we chose resection to minimize the chance of recurrence. The tumor was resected en-bloc with the distal half of the clavicle. No postoperative shoulder disproportion was observed, and full range of motion of the right shoulder was maintained. The patient was satisfied with the surgical outcome (Musculoskeletal Tumor Society score of 96 %). He returned to his original job as a student without any signs of recurrence for 6months after surgery.

CONCLUSIONS:

Although GCT of the bone rarely occurs in the clavicle, the typical X-ray findings demonstrated in the present case are helpful for a correct diagnosis. En-bloc resection without reconstruction is appropriate for GCTs in expendable bones.

Considering the importance of the function of the clavicle, which is to support the scapula through the acromioclavicular joint, we preserved the muscle attachments of the deltoid, trapezius, and pectoralis major. Because both the oncological and functional outcomes were satisfactory, we recommend preservation of as much of the clavicle as possible in patients with clavicular bone tumors.

Case Report – 2 :

A 22year old male complaints of pain, swelling on the distal aspect of the left leg since 1 year. X-RAY shows expansile radiolucent osteolytic lesion with narrow zone of transition within cortex involving distal end of left tibia. MRI shows expansile lesion with hyperintense signal changes seen in distal end of tibia.



Figure 9 : Pre Operative X ray

Management: Extended intralesional curettage with bone cement application was done.

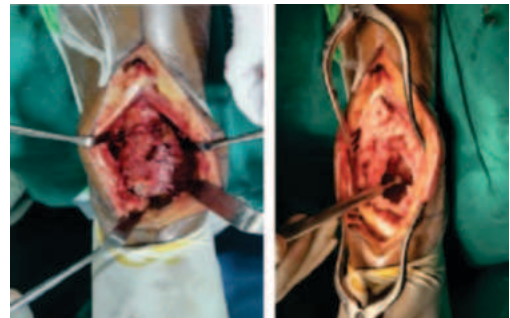


Figure 10 : Intra operative

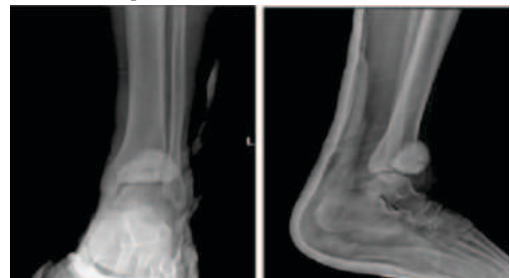


Figure 11 : post operative X ray

CONCLUSION :

GCT is very rare in distal end of tibia. Extended intralesional curettage with bone cement application is very encouraging with respect to function and absence of recurrence and is awaiting long term follow-up.

Case Report 3

A 32 year old female presented with history of pain and swelling over dorsum of hand since 1 year 4 months associated with progressive restriction of movements of index finger.



Figure 12 : pre operative x rays.

On general physical examination the swelling measured about 4*3 cm over the second metacarpal bone of the right hand. Skin over the swelling was stretched, shiny. It had a well demarcated margin, and mass was not attached to the skin structure, firm, and tender on palpation the restriction in the movement of the second metacarpophalangeal joint.

X-ray: radiological assessment showed a well defined, expansile lytic lesion with soap bubble appearance involving epiphysis, metaphysis and diaphysis of the second metacarpal bone. MRI: shows expansile lesion with hyperintense signal changes consistent of giant cell tumour.

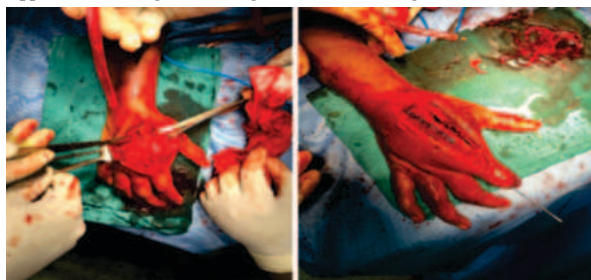


Figure 13 : Intra operative

Management

Tumour wide resection +left fibula strut bone grafting +arthrodesis of 2nd carpo-metacarpal joint+ interposition arthroplasty between 2nd metacarpophalangeal joint. The tumour tissue was sent for histopathological assessment, which showed features are suggestive of conventional giant cell tumour.

In view of good cosmetic and functional outcomes while preventing donor's foot morbidity she agreed to our procedure. Post operatively course was uneventful, rehabilitation was done with hand splint and as per standard protocols. Patient is being followed up regularly till date.



Figure 14 : post operative x ray

RESULT

1 year postoperatively, the patient was symptoms free and able to carry her fine works.

CONCLUSION :

In conclusion, this case report highlights the importance of considering gct in the differential diagnosis of metacarpal neoplasms. It was an effective treatment option for gct of the metacarpal, that provides resolution of symptoms, good cosmetic and excellent functional outcomes without donor's foot morbidity. Long-term follow-up is necessary to monitor for MCP joint arthritis & stability achieved.

Case Report – 4 :

Another case where a female patient noticed swelling in the left wrist area with gradually progressive pain presented to our department. On taking an preoperative X ray a well defined radiolucency in the left radius is noticed.



Figure 15 : Pre Operative X Ray

Tumour wide resection was performed and reconstruction was done. The tumour tissue was sent for histopathological assessment, which showed features are suggestive of conventional giant cell tumour



Figure 16 : immediate post operative x ray



Figure 17 & 18 : Radiographs at 6 months follow up, Radiographs at 2 year follow up showing fusion at the fibula-radial junction

After 2 year follow up x ray showed fusion at fibula-radial junction. Patient is satisfied with the treatment and could return to her daily routine.



Figure 19: Radiographs and Clinical pictures at 5 years. A) Antero-posterior and Lateral radiographs of wrist showing fusion at the fibula-radial junction. B) Healed scar at the operative site. C) Palmarflexion of Wrist. D) Dorsiflexion of Wrist

After 5 years the range of motion and radiographic images showed satisfactory treatment outcome.

DISCUSSION :

In case of giant cell tumour of the distal radius, rate of recurrence is comparatively higher than the other sites.

The recurrence rate of GCT primarily treated with curettage/extended curettage is relatively high when compared with that of en-bloc resection with grafting making it a reliable option for GCTs of distal radius. Most patients are of younger population with active life style, requiring a functional and acceptable wrist.

we conclude that wide excision with non-vascularised fibular graft can be excellent treatment of choice for grade 2 and 3 campanacci gct.

CONCLUSION:

The present case report presented 4 cases with GCTs at different unusual locations. The treatment modality varied depending on the case varying from curratage to enblock resection. However wide excision with reconstruction is favourable treatment of choice for grade 2 and grade 3 campanacci gct as there is higher chances of reoccurrence for GCTs.

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