

## GIANT CELL TUMOUR OF CAPITATE: A CASE REPORT

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### ABSTRACT

Giant cell tumours are one of the commonest benign tumours of the bone, constituting approximately 5% of all primary bone tumours. They typically occur in patients 20 to 40 years old, and there is a slight female predominance.<sup>[1,2]</sup> Occurrence in the hand, however, particularly in the carpal bones, is rare.

### KEYWORDS

Giant Cell Tumour (GCT), Lytic lesion Capitate, Carpal Bones.

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### INTRODUCTION

Giant cell tumours are one of the commonest benign tumours of the bone, constituting approximately 5% of all primary bone tumours. They typically occur in patients 20 to 40 years old, and there is a slight female predominance.<sup>[3,4]</sup> Occurrence in the hand, however, particularly in the carpal bones, is rare. We report a rare case of GCT of Capitate in a 28-year-old male patient.

### CASE REPORT

A 28-year-old male software engineer, presented with the history of pain in the left wrist of 4 months' duration. Pain increased in severity with movements of the wrist. There was no history of trauma or pain in other joints. On examination there was fullness and tenderness over the dorsum of the wrist with painful palmar flexion and dorsiflexion at the wrist. There was decrease in terminal 20° range of motion of the wrist joint compared to normal wrist. Radiograph of the left wrist anteroposterior and lateral view showed a lytic lesion in the capitate bone with thinned out cortex. All laboratory parameters were within normal limits. MRI of the wrist revealed a expansile lytic lesion in the left Capitate, without other carpal bone or joint involvement (Fig 2).



**Fig. 1**

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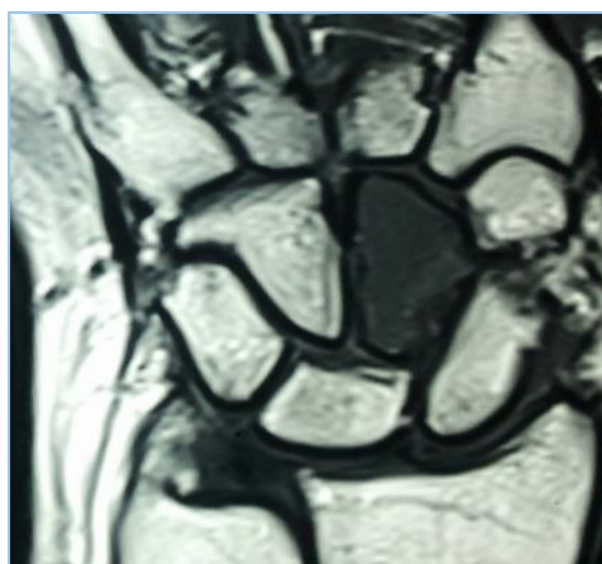
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**Fig. 2**

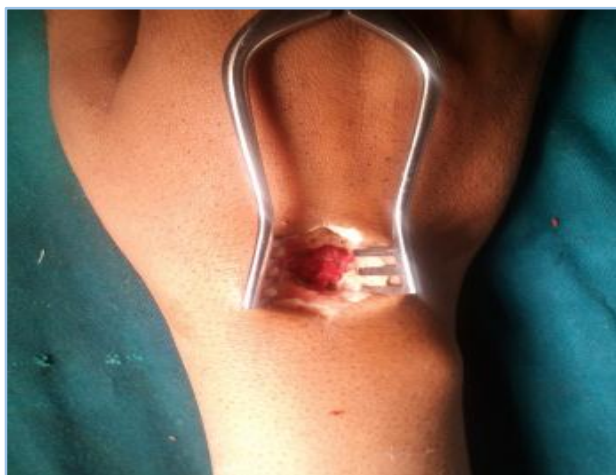
Differential diagnosis at the end of imaging study included aneurismal bone cyst (ABC), giant cell tumour (GCT). Patient underwent surgery of the left Capitate through a dorsal approach (Fig. 3). The lesion was curetted (Fig 4), followed by phenol ablation and cancellous bone grafting from the patient's iliac crest. (Fig 5).



**Fig. 3**



**Fig. 4**



**Fig. 5**



**Fig. 6**

Post-operative radiograph showing curettage and bone grafting. Histopathological examination of the specimen showed multinucleated osteoclast like giant cells and spindle cells stroma with plump nuclei consistent with the GCT. Patient was followed up clinically and radiologically at regular intervals of 6 weeks, 3 months, 6 months.

At the end of 6 months follow up, patient is symptom free and near normal range of movements and with no evidence of recurrence (Fig. 7).



**Fig. 7: Post-operative 6 Months Follow up Radiograph.**

#### DISCUSSION

Giant cell tumours usually are solitary lesions however, 1% to 2% may be multicentric.<sup>[4]</sup> Occurrence in the hand, however, particularly in the carpal bones is rare, with reports describing cases in the scaphoid,<sup>[5]</sup> capitate,<sup>[6,7]</sup> lunate,<sup>[8]</sup> hamate,<sup>[9,10,11]</sup> and trapezium.<sup>[12]</sup> Averill et al.<sup>[4]</sup> reviewed 28 giant cell tumours in the hand. 26 were in the tubular bones and only two involved in the carpal bones. Studies have noted that GCT of hand is more frequently seen in younger individuals as in our case.<sup>[13]</sup> also another difference between hand GCT and GCT in other parts of the body is its central location as oppose to eccentric location in other bones.<sup>[14,15]</sup>

Howard and Lassen.<sup>[6]</sup> reported a single case of giant cell tumour of the Capitate and reported finding only five additional cases of giant cell tumour of the carpal bones in the literature. Radiographically, giant cell tumours in the carpal bones resemble other lytic lesions of bone. The radiologic differential diagnosis of solitary lesions includes aneurysmal bone cyst, enchondroma, giant cell reparative granuloma.<sup>[16]</sup> brown tumour of hyperparathyroidism, posttraumatic cyst. Of these, brown tumour is the easiest to rule out in the absence of other changes of hyperparathyroidism. Giant cell reparative granuloma are very similar to the solid variant of aneurysmal bone cysts and may be considered non neoplastic and reactive. These appear similar on histologically and even the treatment of curettage and bone grafting is recommended for both the entities.<sup>[16,17,18]</sup>

This is probably related to the small volume in the hand bones.<sup>[15]</sup> where the lesion might begin eccentrically but by the time it is diagnosed, it is occupying a more central position in the bone. GCT of hand skeleton is more aggressive than other locations and is mostly multifocal. As these are rare tumours, there is no standard protocol for treatment of these lesions.

All kinds of procedures like intralesional, marginal or wide resection are reported for treatment of these lesions.<sup>[7,15,18]</sup> Uses of adjuvants like cryotherapy and phenol ablation are reported to be useful.<sup>[17]</sup> A high recurrence rates upto 87% was reported after curettage and bone grafting, however this may just indicate difficulty in complete curettage of the lesions in small bones and may not be an indicator of aggressiveness of these tumours.<sup>[13]</sup> We believe with proper curettage and use of adjuvant these lesions can be treated with minimal complication and good functional results.

### CONCLUSION

GCT of the Capitate is a rare lesion, however proper diagnosis and management yields good results. Although longer follow up will be required to comment on the recurrence rates. This case report emphasizes the rarity of the lesion with only few cases reported in literature.

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