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Giant Cell Tumour of Proximal Phalanx of Thumb; an Extremely Rare Case Presentation

Dr Siddharth Lamba[1], Dr Mrinal Mathur[2], Dr Indira Sarin[3]

Abstract: ***Introduction: GCT is a bone tumor involving epiphyseal area of bone abutting the subchondral bone. Commonly found in long bones like proximal tibia and distal femur. We report a case of GCT of proximal phalanx of thumb in a 42 year old male patient. Case report: A 42 years old male presented to us with a swelling in lt thumb region which was gradually progressive for last 6 months. There was no associated trauma. On examination, it was fusiform in appearance and was located over proximal phalanx. X rays showed an expansile lytic lesion involving whole of proximal phalanx with an articular breakage. We went for a surgical procedure and proximal phalanx along with whole mass was disarticulated and double arthrodesis of distal interphalangeal joints and metacarpophalangeal joints with iliac crest tricortical graft was done. Conclusion: GCT is an aggressive tumour and potentially malignant lesion. Usually it presents as a solitary lesion but when GCT occur in hand it frequently cause severe bony destruction and extend into surrounding soft tissue. When compared with GCT arising at more proximal location tumour of the hand more commonly present at advanced stage with major bony destruction and diaphyseal extension which complicates treatment. Proper investigations and histopathological examination is necessary for accurate diagnosis and further treatment planning. Early treatment helps in complete excision of tumor along with return of adequate function of the patient***

Keywords: GCT, proximal phalanx of thumb

1. Introduction

Giant cell tumor (GCT) of a phalanx of a finger is extremely rare. Only 2% of all reported GCTs are found in the hand[1].The metaphyseal region of the metacarpals and phalanges has been found to be the common site of GCTs in most of the reported cases[2-4]. Compared with giant cell tumors arising at more proximal locations, tumors of the hand more commonly present at advanced stages with major bony destruction and diaphyseal extension, which complicates treatment[1,5-7]. Though GCT is not a sarcoma, its relatively high recurrence rate[6] and is associated with local aggressiveness, even after simple curettage it often requires extensive en bloc excision. The recurrence rate of GCT of hand is higher than for other locations. Traditional procedures, such as curettage and bone grafting maintain bone stock and articular integrity; however, local recurrence rates as high as 90% have been reported[1,4,5,7]. Wide resection and reconstruction with structural bone graft, although theoretically removing the entire tumor, also has been associated with high local recurrence rates (up to 40%)[5]. In addition, structural bone grafts may not reliably heal and prolonged postoperative immobilization can result in stiffness and contractures. Single- or double ray resection for primary and recurrent tumors has been reported[1,4,5,7]. Even with these radical procedures, local tumor control has not been absolute.

2. Case Report

A 42 years old gentleman presented to our outpatient department with a 6 month history of swelling in left thumb region which was non dominant hand. It was associated with pain for last 5 months and was gradually progressive in nature. There was no associated history of preceeding trauma or fever. Blood investigations were within normal limit. Patient was advised amputation was advised by five surgeons before presenting to us.

On clinical examination, there was a fusiform swelling located on the dorsoulnar aspect of proximal phalanges of thumb (Fig.1&2). Overlying skin was mildly pigmented with small surgical scar without adherence to underlying tissue. Adjacent joint had limited range of movements. Among radiological investigations, X- rays of thumb AP & lateral views showed expansile lytic lesion involving whole of proximal phalanx (Fig.3). The articular margin seem to have a cortical breakage which was confirmed when a CT scan of the same region was done We did a histopathology of the swelling which was reported as giant cell tumor. After confirming our diagnosis, we went for a surgical intervention in form of excision biopsy. Through a dorsolateral approach over affected part, proximal phalanx along with whole mass was removed enbloc (Fig.4&5) and double arthrodesis of distal interphalangeal joints and metacarpophalangeal joints with iliac crest tricortical graft was done and fixed with 2.0mm k-wire(Fig.6&7). Postoperatively,thumbspica cast was applied for 2 months and skin condition is shown post 1month of surgery(Fig.7).

3. Discussion

GCT of the hand is extremely rare and seems to be different from conventional GCT, which occurs at other sites in the skeleton. GCTs recur more rapidly in the hand than they do in other locations[9]. Presentation of GCT arising from proximal phalanx is even more rare. Of the more than 2,400 skeletal GCTs reported in the literature, less than 50 were found to involve the phalanges of the hand[7,8].GCT is an aggressive tumour presenting as a potentially solitary malignant lesion and when GCT occur in hand it frequently cause severe bony destruction and extend into surrounding soft tissue. As compared with GCT arising at more proximal location, tumour of the hand more commonly presents at an advanced stage with major bony destruction and diaphyseal extension which complicates treatment. Giant cell tumors of the hand have been treated with curettage and cancellous bone grafting, wide resection, and structural bone grafting or ray amputation[1,4,5,7,10]. High local recurrence rates have

been reported with these treatment modalities[1,4,5,7]. Single-or double-ray amputation has not guaranteed local control and could be functionally debilitating and cosmetically mutilating. Bone grafting procedures require prolonged immobilization with the inherentrisks of nonunion, stiffness, tendon adhesion, and contractures. In addition, when cancellousbonegraft has been used to fill the tumor cavity, it has been difficult to detect local recurrence at an early stage on plain radiographs. Thus, many local recurrences following curettage and cancellousbone grafting have become quite large before being detected and have required single- or double-ray amputation in lieu of resection[11].

4. Conclusion

GCT is an aggressive tumour and potentially malignant lesion. When compared with GCT arising at more proximal location tumour of the hand more commonly present at advanced stage with major bony destruction and diaphyseal extension which complicates treatment

Thus, proper investigations and histopathological examination is a necessity to have an accurate diagnosis and to recommend further treatment planning as needed. Early diagnosis and treatment helps in complete excision of tumor along with return of adequate function of the hand in patient.

5. Clinical Message

GCT in hand is usually rare and presents in advanced stages, hence making the treatment more complex. Therefore early diagnosis is the key for management of such cases.

6. Competing Interests

The authors declare that they have no competing interests.

7. Acknowledgements and Funding

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Figures-

Figure 1

Fig.1 and 2 showing clinical photograph of swelling both dorsally and volarly

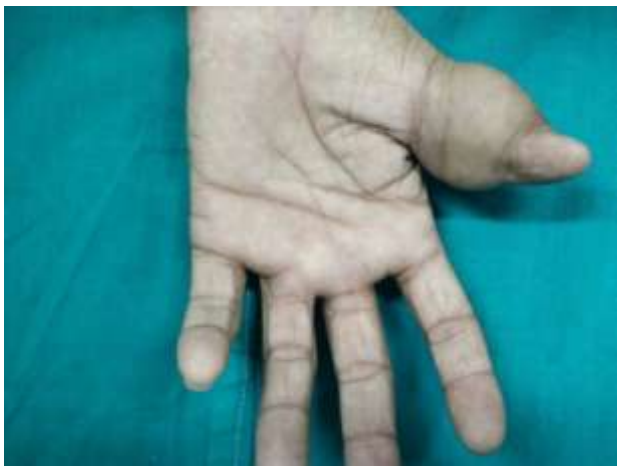

Figure 2

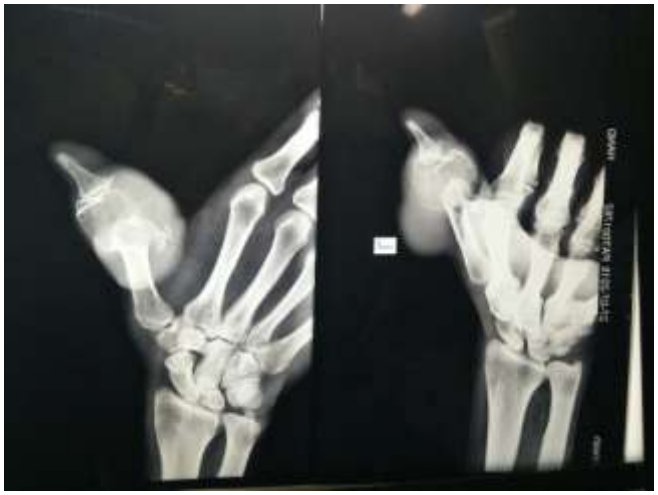

Figure 3: showing X rays of thumb with lytic lesion involving whole of proximal phalanx of thumb with involvement of articular margin and cortical breakage

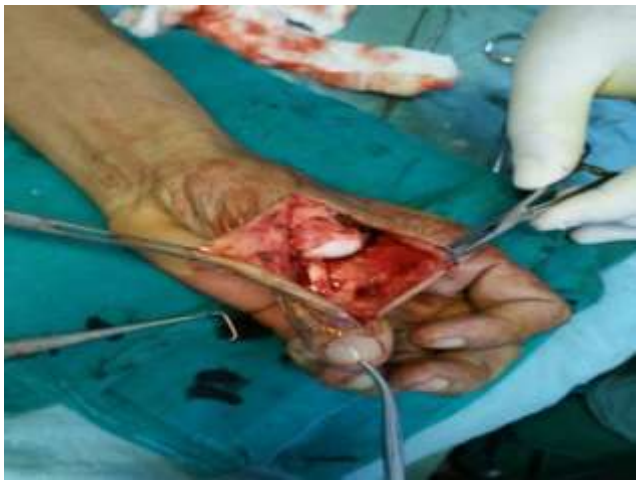

Figure 4: Showing intraoperative photo of thumb after resection of mass

Figure 5: Showing the enbloc resected mass with proximal phalanx

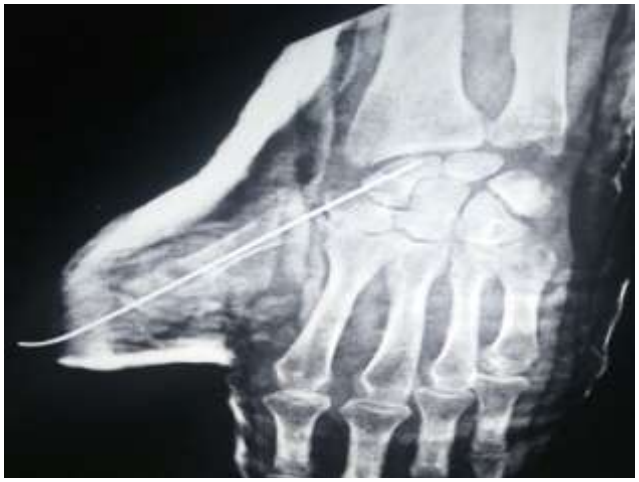

Figure 6: Showing postoperative radiograph of thumb with double arthrodesis of distal interphalangeal joints and metacarpophalangeal joints with iliac crest tricortical graft and fixation with 2.0mm k-wire.

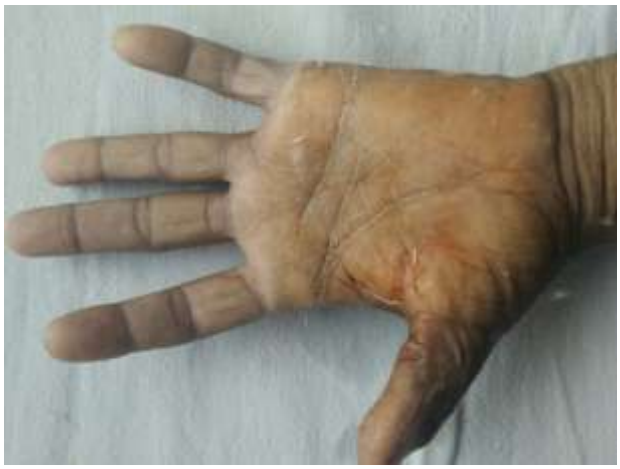

Figure 7: Showing clinical photograph of thumb after 1 month.

Author Profile

Dr Siddharth Lamba, Senior resident, SMS Medical and hospital, Jaipur(Rajasthan)