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Rare Case Of bilobular Giant Cell Tumour of Proximal Phalanx of Index Finger – A Case Report

Bhattacharyya .T.D[1],Talukdar D.J[2],Dutta N[3], Baruah S[4]
[1,2,3,4,] *Department of orthopaedics, Gauhati medical college hospital, India*

Abstract: *A variety of tumours and tumour like conditions occur in hand, which are usually benign. Malignant neoplasms in hand are rare. Giant cell tumours (GCT) in the bones of the hand comprise only less than 1% of all giant cell tumours. Though GCT of metacarpals,scaphoid, tendon sheath and soft tissue of hand have been reported[1,2,3,4,5,6],GCT of phalanges are very rare.We have come across only one or two scattered cases of GCT of the phalanges during our worldwide literature search but we got no reference of any bilobular GCT involving a phalanx.Keeping in mind the raritywe present a case ofbilobularGCT of index finger proximal phalanx treated with ray amputation.*

Keywords*:Bilobulartumour,GCT, index finger, proximal phalanx, ray amputation*

I. Introduction

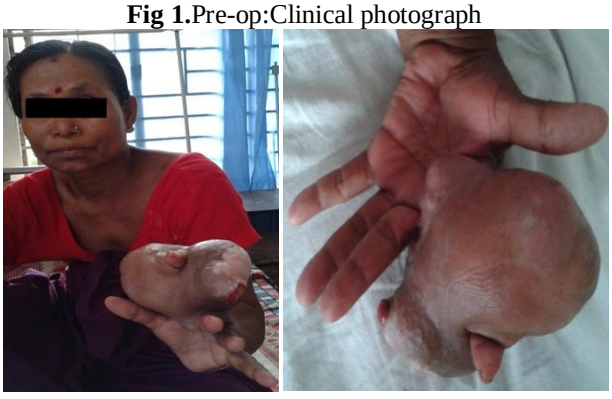
Giant cell tumour (GCT)of bone is generally benign and locally aggressive tumour. According to Mayo clinic series it represents approximately 5% of bone tumours. It generally occurs in adults between the ages of 20 and 40 years after skeletal maturity with slight female predominance. Usually, the tumour site is at the long bone meta-epiphysis area.Unni[7] reports an incidence of 1.7% in hand and 1.5% in foot and Mirra et al [8]report an incidence of less than 4% in the hand. A finger phalanx is extremely uncommon site for GCT. Though considered a locally invasive lesion, it may recur after excision, has the potential of malignant transformation, and also metastasize. We present a case of bilobularGCT ofproximal phalanx ofthe index finger,treated bysecondray amputation.

II. Case Summary

A 40 year old female presented in February 2014 with a globular swelling of twelve month duration with signs of pressure effects over the skin involving the indexfinger of her right handextendingtobothpalmer and dorsal aspect of second ray.On careful history taking and review of old records we could find that she came six months back for the same swelling which was however smaller in size . She was advised for a x-ray .On suspicion of GCT on x-ray she was advised FNAC of the swelling, but she did not report back. Over the time the swelling had increased in size and became bilobulatedwith small ulceration and surrounding hypopigmented patches over the skinoccurring due to pressure effect.Metacarpophalangeal joint and PIP joint motion were impaired. Regional lymph nodes were not palpable. Radiograph showed bilobulatedexpansile lyticlesion,withirregular sclerotic margin,cortical breach, extensive soft tissue extension, and complete destruction of the proximal phalanx of indexfinger.FNACwas suggestive of giant cell tumour. MRI showed a hypointense signal in the T1 W sequences and heterogeneously hyperintense signal in the T2 W and PD sequences with extensive soft tissue involvement.

Ultimately a diagnosis of Campanacci[9] Grade III GCT of the proximal phalanx of index finger was made. Chest radiographs and primary laboratory tests were normal including normal serum calcium, phosphorus, and alkaline phosphatase levels.

Fig 1. Pre-op:Clinical photograph



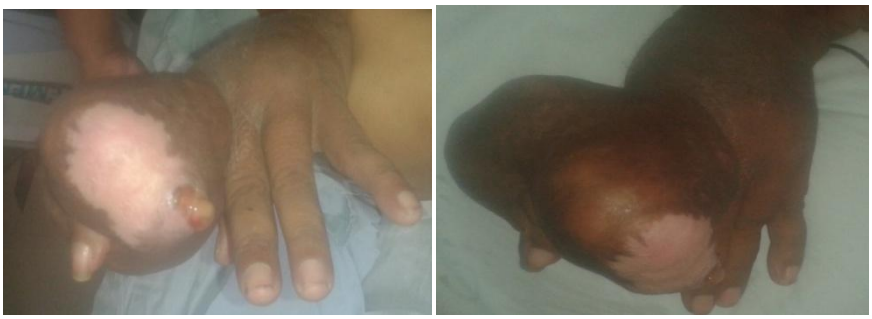


Fig 2. Xray

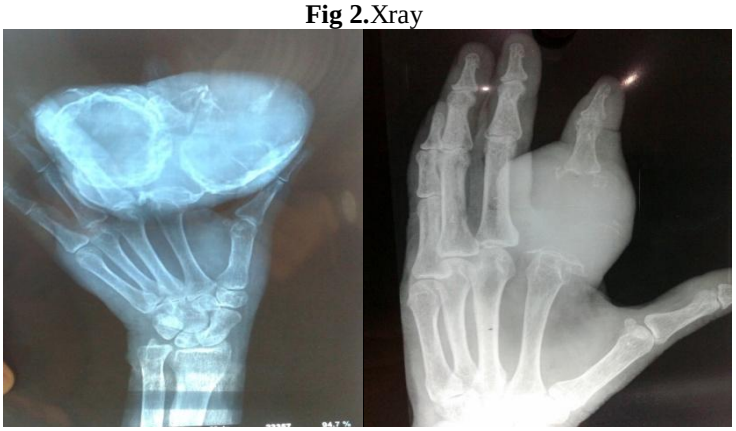
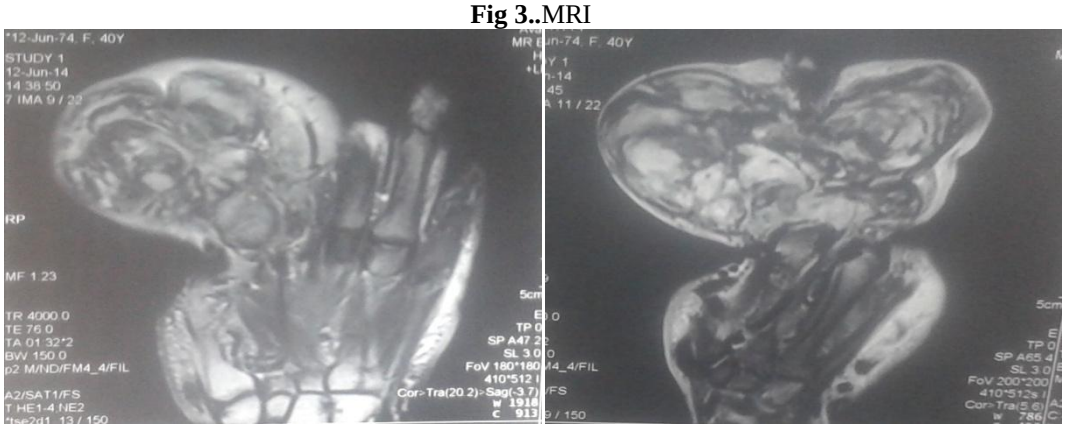


Fig 3..MRI



On the basis of FNAC and MRI findings excision biopsy was planned, andsecond ray amputation was performed under regional anaesthesia.

Fig 4.. Immediate post op: Clinical photograph

Excision biopsy showed an expansile, lytic, greyish mass with hemorrhagic areas. Microscopic finding ofmononuclear stromal cells,osteoclastic multinucleated giant cells and few mitotic figures were consistent with the diagnosis of GCT

Fig5. Tumour specimen:

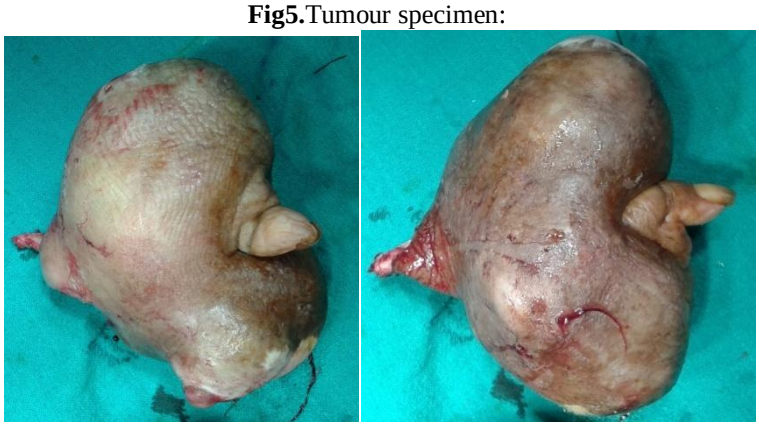


Fig 6. Histopathological picture:

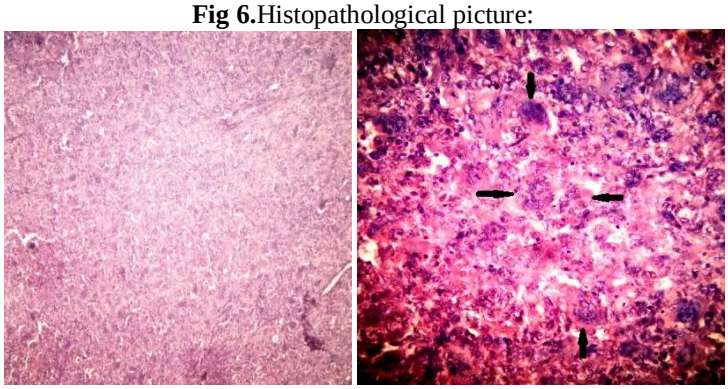


Fig 7.2 weeks Post op: Clinical photograph

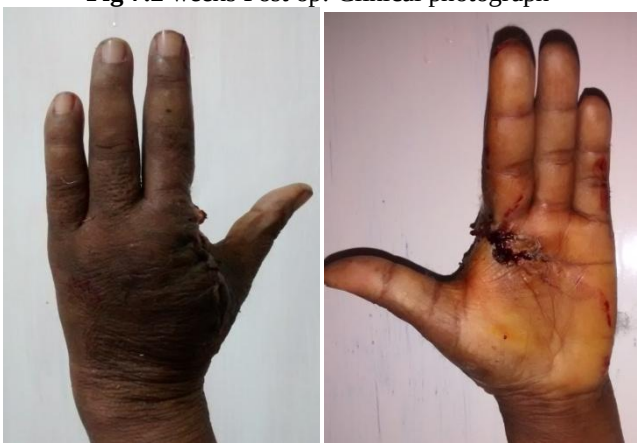


Fig 8.. Post op after 6 months

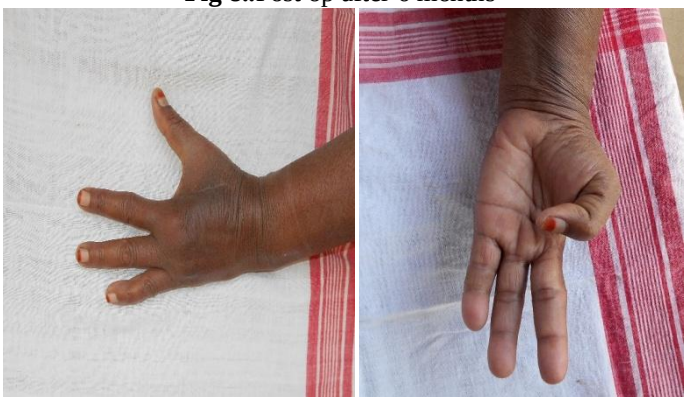
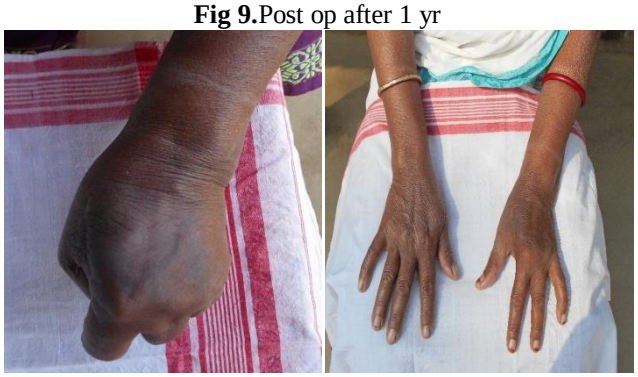


Fig 9. Post op after 1 yr



The patient is undergoing regular check-ups and has not shown any evidence of local recurrence clinically or radiologically. After one year of surgery her grip, grasp and pinch functions are intact, however weaker in comparison to opposite side. Patient is happy with the functional recovery as well as the cosmetic appearance of her hand.

Informed consent was obtained from the patient to publish this clinical case.

III. Discussion

GCT of the hand is a relatively rare lesion.A review by Athanasianet al.[10] reported only 13 GCT cases of the hand presenting at the Mayo clinic over a period of 50 years.Biscaglia et al. reported 8 lesions of the hand at the Rizzoli Orthopaedic institute in an analysis of cases over 50 years(1947-1997) [11].

Ray amputation and cosmetic reconstruction of the hand is more successful and less time consuming than any other procedure of excision and bone grafting to restore the finger[6]result of which is quiet often unpredictable..Unni reports an incidence of1.7% in the hand.Mirra et al. reported an incidence of less than 4% in the hand.

Averill et al reviewed 28 GCTs in the hand.26 were in the tubular bones and two involved the carpal bones.Radiologically giant cell tumors in the phalanges resemble several other lytic lesions of bone.The radiologic differential diagnosis of solitary lesions include Aneurysmal bone cyst,enchondroma, giant cell reparative granuloma,malignant bone tumors such as osteosarcoma,chondrosarcoma, brown tumor of hyperparathyroidism and metastasis.[7,8,9]

In our review of literature, we did not come across any reported case of a solitary GCT arising from a phalangeal bone with a bilobulated appearance.

Some studies have noted that GCT of hand is more frequently seen in younger individuals as compared to our case.[10]

GCT of hand is more aggressive than those in other locations, and tend to be multifocal.[11]

As these are rare tumors, there is no standard protocol of treatment. We choose ray amputation for the grade 3 GCT arising from the proximal phalanx with the aim of preventing recurrence. Most local recurrences of the GCTs of the hand are reported to occur within 1yr of primary surgery.[12]

Following ray resection there was no significant functional loss of the hand, and cosmetic appearence was acceptable to the patient. Most cases of recurrent GCT of phalanx ultimately require ray amputation for preventing further recurrence. As multiple surgical procedures may increase the chances of converting a benign tumor into malignant , we opted for ray resection as a definitive procedure.[13]

IV. Conclusion

Giant cell tumour of phalanges is a rare occurrence, though benign they are locally aggressive and possess malignant potential with very high local recurrence rate. At times diagnosis can be misleading both clinically and radiologically and hence need early excision and confirmation of diagnosis by histopathological examination. Designing the 1st web space is important to give a more cosmetically acceptable hand and hence precision is required to put skin incisions perfectly

During our review of literature we have not got any reference or mention of bilobulated GCT in proximal phalanx of index finger in the past. As it is a rare tumour we thought it is worth reporting.

V. Conflict Of Interest And Source Of Funding Statement

The Authors state that there is no conflict of interest in the publication of this manuscript, including financial, consultant, institutional and other relationships that might lead to bias. The authors declare that no sources of support exist, including pharmaceutical and industry support. The authors did not receive funds for this work.

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