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Giant cell tumour of clavicle: Occurrence of a common tumour in a rare location[☆]



Kavin Khatri, Jagdeep Singh, Anoop Kalia*, Anshul Dahuja

Department of Orthopaedics, Guru Gobind Singh Medical College and Hospital, Faridkot, India

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ABSTRACT

INTRODUCTION: The clavicle is rare site of bone tumours. Majority of the tumours of clavicle are malignant and are often misdiagnosed due to low index of suspicion. The oncological patterns of clavicle resemble that of flat bones.

CASE PRESENTATION: A 60 year old man presented to our centre with pain and swelling over lateral end of left clavicle. After thorough investigation a provisional diagnosis of giant cell tumor was made which was treated with partial claviclectomy. At one year follow up, there was no shoulder disability or any incidence of recurrence.

CONCLUSION: Since majority of clavicular tumors are malignant so any selling occurring in this area should be seen with high index of suspicion and should be investigated thoroughly.

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1. Introduction

The clavicle is a rare site for bone tumours [1]. According to the World Health Organisation, the giant cell tumor is an aggressive potentially malignant lesion which means that its evolution based on histological features is unpredictable [2]. Sites commonly affected by giant cell tumour are proximal tibia, distal femur and distal radius [3]. The oncologic patterns of clavicle resemble that of flat bones [4] and not other long bones. Among tumors of clavicle, malignant are more common than benign [5]. Giant cell tumors have been rarely reported in clavicle [3].

2. Case report

A 60 year old man presented to our department with pain and swelling over lateral end of left clavicle (Figs. 1 and 2). The swelling was gradually increasing in size since past 4 months. On palpation the swelling was tender, lobulated and hard in consistency. The overlying skin was non adherent and freely mobile. The pain was insidious in onset, non radiating and had no diurnal variations and was aggravated on shoulder movements and relieved on taking medications. The local temperature was elevated and superficial

veins were engorged. There was no regional lymphadenopathy and no neurovascular deficit in left upper limb. We got a plain radiograph which revealed which an expansile radiolucent lesion arising from lateral end of left clavicle (Fig. 3). The swelling demonstrated geographic type destruction without any soft tissue component or periosteal reaction. MRI was obtained which also suggested giant cell tumour (Fig. 4). To aid in the diagnosis fine needle aspiration cytology was done which revealed a predominantly cellular lesion having sheets of plump, oval mononuclear cells with mild pleomorphism. The cells had moderate cytoplasm, oval to elongated nucleus with moderate anisokaryocytosis with irregular nuclear membrane. Amongst these cells, many multinucleated giant cells were also which were distributed evenly. Storiform pattern was not seen. FNAC also diagnosed it as a giant cell tumour. The differential diagnosis which were kept in mind are aneurysmal bone cyst, non ossifying fibroma, eosinophilic granuloma and tuberculous osteomyelitis.

Since the clavicle does not necessary require reconstruction and the patient was a retired school teacher, not engaged in any physical work so surgical resection of the tumor was planned. After proper investigations and pre anaesthetic clearance, a wide excision of the mass along with 3 cm of the healthy tissue was done (Figs. 5 and 6). The excised mass was sent for histopathological examination which also confirmed it to be a giant cell tumor. No radiotherapy or chemotherapy was given post operatively. Wound healing was uneventful. A post operative x-ray was obtained (Fig. 7). The range of motion of the left shoulder was normal and post operatively there was no neurovascular deficit. The patient was happy with the surgical outcome and at 1 year follow up there was no evidence of recurrence or metastasis.

[☆] Our case report is in consensus with scare criteria as mentioned in the following paper. Agha RA, Fowler AJ, Saetta A, Barai I, Rajmohan S, Orgill DP, for the SCARE Group. The SCARE Statement: Consensus-based surgical case report guidelines. International Journal of Surgery 2016.

* Corresponding author.

E-mail addresses: kavinkhatri84@gmail.com (K. Khatri), jagatwal83@gmail.com (J. Singh), kaliaanoop@gmail.com (A. Kalia), anshuldahuja@gmail.com (A. Dahuja).



Fig. 1. Swelling over lateral end of left clavicle.



Fig. 2. Swelling over lateral end of left clavicle.

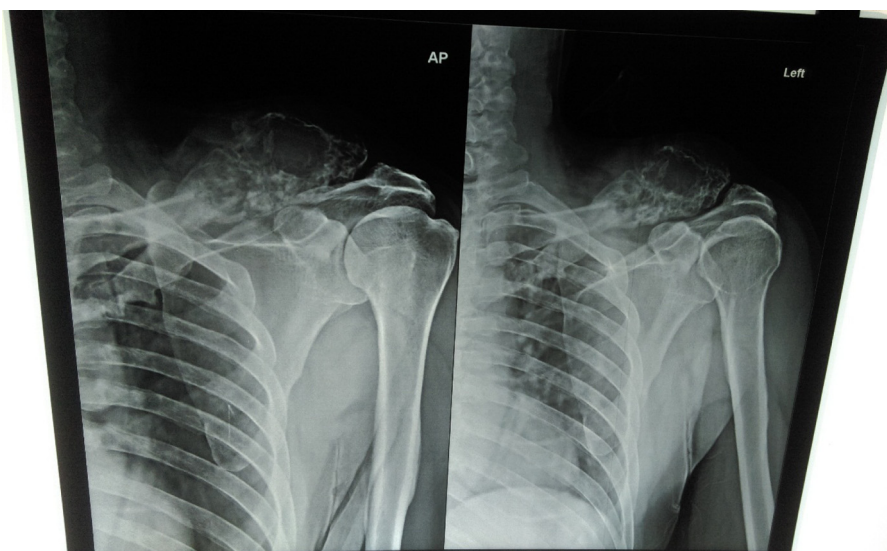


Fig. 3. X-ray showing expansile radiolucent lesion arising from lateral end of left clavicle.

3. Discussion

The clavicle is a rare site for bone tumors. Primary bone tumors of the clavicle are more likely to be malignant than benign [6,7] and amongst these tumors which occur in clavicle, giant cell tumor is a rare entity [7]. The differential diagnosis of giant cell tumor of clavicle which pose a diagnostic challenge both for the surgeon and the histopathologist are primary aneurysmal bone cyst, non ossifying fibroma, eosinophilic granuloma and tuberculous osteomyelitis.

These lesions can be distinguished from each other based on their histological characteristics.

Giant cell tumor is basically a cellular lesion made up of sheets of plump mononuclear cells with mild pleomorphism. The cells have moderate amount of cytoplasm, oval to elongated nucleus with moderate anisokaryosis with irregular nuclear membrane and 0–1 nucleolus. Amongst these cells are multinucleated giant cells distributed in a regular fashion. No collagen formation, no new bone formation or no necrosis is usually seen.

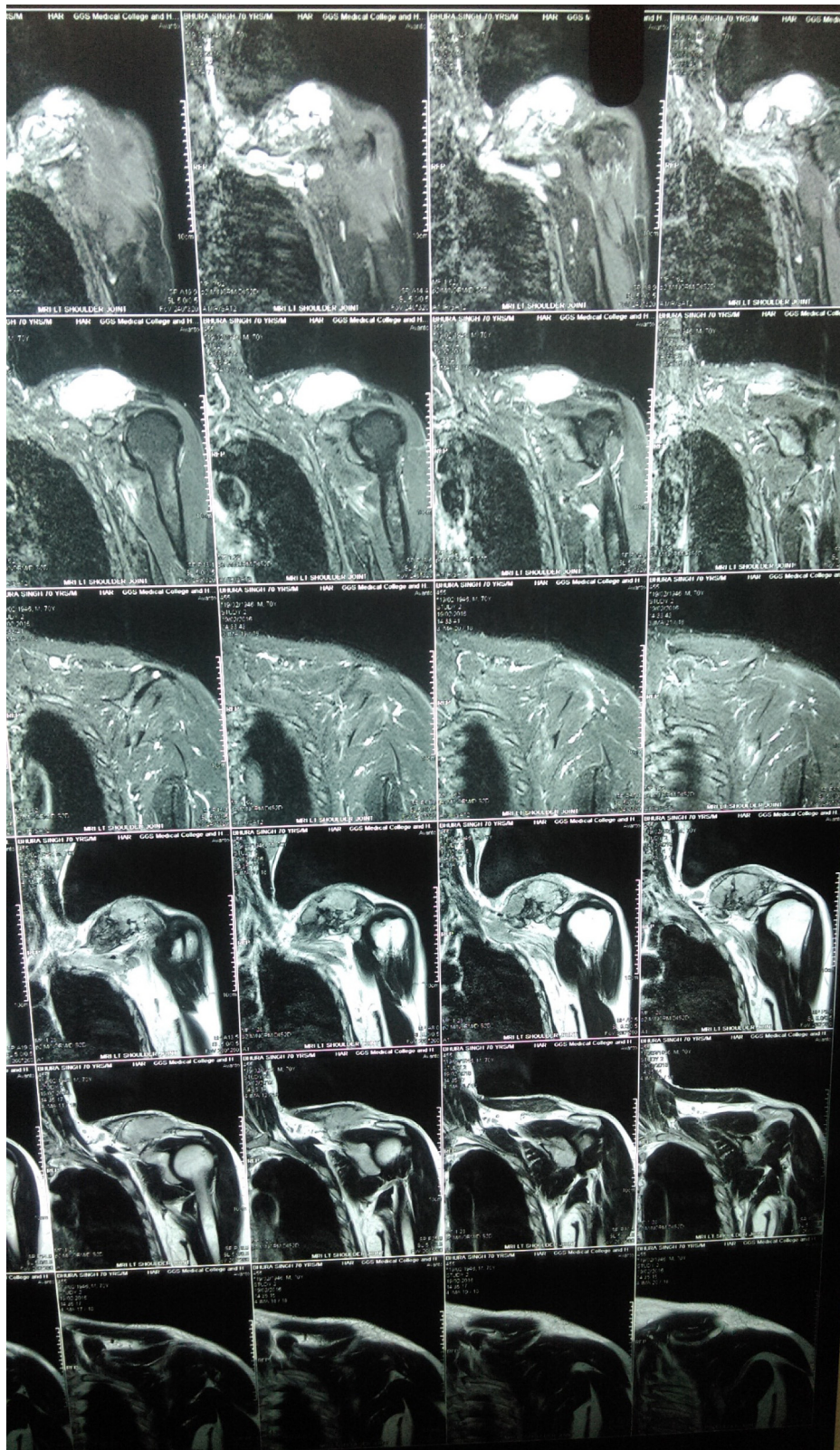


Fig. 4. Magnetic resonance imaging showing swelling arising from clavicle.

Aneurysmal bone cyst shows presence of blood filled spaces lined by fibroblasts. Giant cells in ABC are smaller as compared to giant cell tumor and their arrangement is loose with collagen formation.

Non ossifyin fibroma is the most common fibrous lesion in the adolescent age group. Histologically it has histiocytes loaded with lipid and hemosiderin and spindle cells arranged in storiform or whorled pattern and there is presence of collagen fibres.



Fig. 5. Intraoperative picture after excising the mass.



Fig. 6. Excised mass.



Fig. 7. Showing good range of motion after partial clavicle resection.

Eosinophilic granuloma has diagnostic Langerhans cells and also it has large number of leucocytes, fibroblasts, plasma cells and lymphocytes.

Curettage remains the main stay of treatment for giant cell tumors but for giant cell tumors occurring in expendable bones like distal ulna, iliac wing or proximal fibula, en bloc resection is performed without any reconstruction.

After extensive search of literature it was found that there are very few case reports describing giant cell tumors of clavicle [8–10]. Due to the paucity of the available literature no definite treatment guidelines are available on the management of giant cell tumor of clavicle. Partial or total claviclectomy seems to be a reasonable option to treat clavicular tumors. Primary malignant tumors of clavicle should be treated with total claviclectomy [11]. Various authors have reported different outcomes regarding shoulder function after total claviclectomy. Some authors [12] reported not so favourable outcomes after total claviclectomy due to pain, loss of muscle strength and dropping of shoulder.

While some authors established that total or subtotal excision of clavicle was rarely associated with loss of function [13]. Based on their reports we also performed partial claviclectomy and at one year follow up, patient was well satisfied with no disability noted.

4. Conclusion

The clavicle is a rare site for bone tumors and shares its oncological behavior with that of flat bones rather than long bones. We have reported this case to emphasize the fact any expansile lytic lesion occurring in the lateral end of clavicle should be taken seriously and the diagnosis can be easily missed both clinically and radiographically if the clinician is not aware of the wide array of differential diagnosis which range from an infectious etiology like tuberculous osteomyelitis to a neoplastic etiology like giant cell tumour. There seems to be a difference in opinion regarding functional outcome after claviclectomy for tumour like lesions of clavicle and our case report further highlights the fact the claviclectomy without any reconstruction seems to be a good option with no disability noted in long term.

Conflict of interest

The authors declare that they have no conflict of interest.

Funding

There was no sources of funding for our research.

Ethical approval

Since it is a single case report involving a single subject and we are not reporting the first case of this type in the literature, hence no approval was taken from the relevant ethics committee but written informed consent was taken from the patient to publish his details and clinical photographs.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author's contributions

“KK and AK developed the original idea. KK and AK and JS abstracted the data. KK, AK, AD and JS wrote the manuscript and is the guarantor. AK, KK and JS contributed to the development of protocol and edited the manuscript”.

Guarantor

Dr. Kavin Khatri.

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