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## CASE REPORT

## Giant cell tumour of the scapula treated by partial scapulectomy

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## SUMMARY

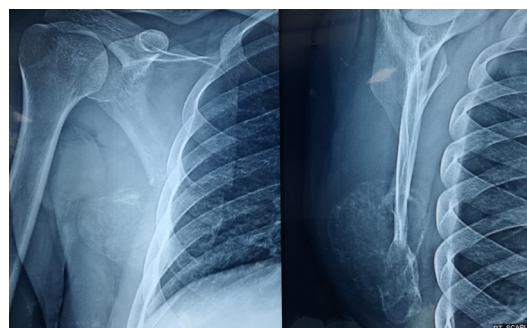
Giant cell tumour is a benign, but locally aggressive tumour. It most commonly affects the epiphyseal-metaphyseal region of long bones, but rarely in flat bones. We present you a case of 26-year-old man with a large giant cell tumour of the inferior angle of the scapula. The patient was treated with partial scapulectomy with complete resection of tumour. There was excellent retention of shoulder function postoperatively.

## BACKGROUND

This case is about a common tumour involving a very uncommon site. This is the second case reported of the presence of a giant cell tumour at the inferior angle of the scapula. In addition, its treatment also provides useful information on the shoulder function in the absence of the inferior half of scapular body.

## CASE PRESENTATION

A 26-year-old man presented to us with pain in the right scapula. He had an injury by the car



**Figure 2** Anteroposterior and lateral radiograph of the right scapula showing a large bony tumour arising from the inferior angle of the scapula.

door hitting against his right shoulder 3 weeks ago. Since the pain had not subsided and there appeared a swelling in the lower part of the scapula, he reported to us.

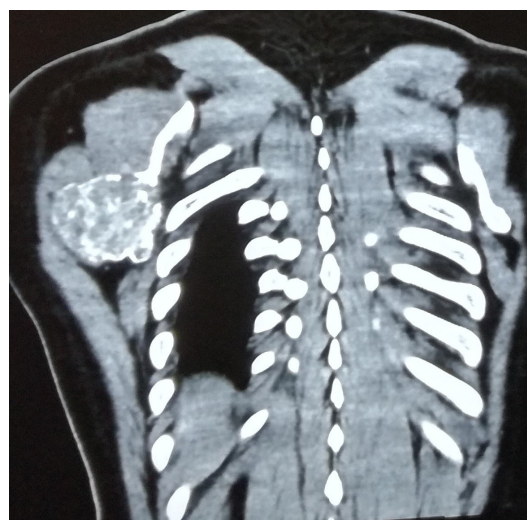
On examination, there was a diffuse swelling with tenderness in the right inferior part of the scapula ([figure 1](#)). Overlying skin was normal.

## INVESTIGATIONS

X-ray of the scapula revealed an expansile lesion at the inferior angle of the scapula ([figure 2](#)). CT scan revealed the expansile lesion arising from the inferior angle of the scapula. It showed bony



**Figure 1** Clinical photograph showing swelling in the inferior part of the scapula.

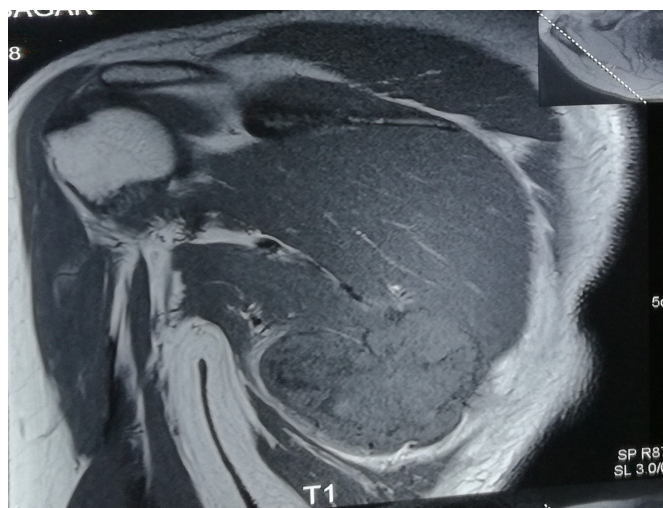


**Figure 3** CT image showing the tumour arising from the inferior angle of the scapula.



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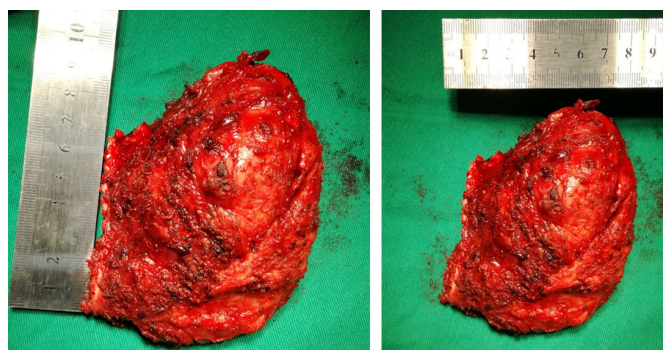
**Figure 4** MRI image showing that the tumour is relatively well defined.

septa within the lesion. There were focal areas of cortical breach (figure 3).

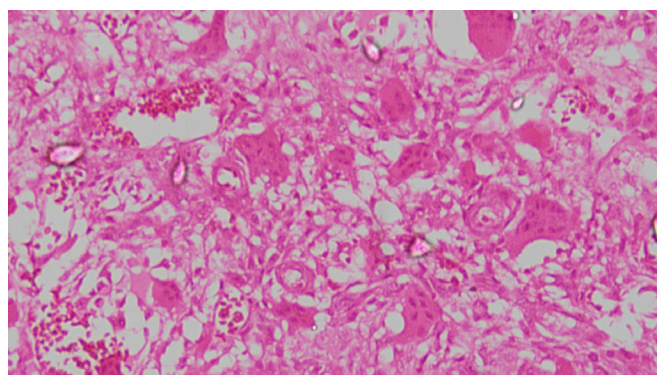
MRI revealed hypointensity on T1 weighted images with contrast enhancement. The tumour had relatively well-defined margins in the MRI (figure 4). Chest radiograph and ultrasound abdomen were normal.

### TREATMENT

We treated the patient with partial scapulectomy under general anaesthesia with a horizontal incision along the inferior border of the scapula centring over the swelling. After the horizontal incision the pseudocapsule was exposed and a frozen section reported the diagnosis of giant cell tumour and negative for malignancy. Dissection was carried along the pseudocapsule trying to reach the tumour margins and the cortical bone. There was soft capsule all along the posterior surface and lateral border of the tumour. The anterior surface of the tumour was eggshell thin bone cracking to the finger pressure. The medial margin had some hard cortical bone. There was hard cortical bone along the superior part. So, the decision was taken to cut the inferior part of the scapula close to the margin of the tumour, in preference to the intralesional excision. Intralesional excision would not have retained any better functionality. Thus, the inferior half of the body of the scapula along with the whole tumour was excised maintaining adequate tumour margins (figure 5). This resulted in achieving the marginal resection, which has lesser recurrence rates compared with intralesional excision (curettage).



**Figure 5** Completely excised tumour specimen.



**Figure 6** Histopathological section showing mononuclear stromal cells and characteristic multinucleated giant cells.

Histopathological gross examination reported one irregular firm-to-hard piece measuring 11×8×7 cm. Microscopic examination reported proliferation of uniform oval-to-spindle shaped cells with evenly distributed multinucleated giant cells. No evidence of malignancy (figure 6). This confirmed the diagnosis of giant cell tumour (GCT). Postoperative X-ray revealed absence of the inferior half of the right scapula without any evidence of residual tumour (figure 7).

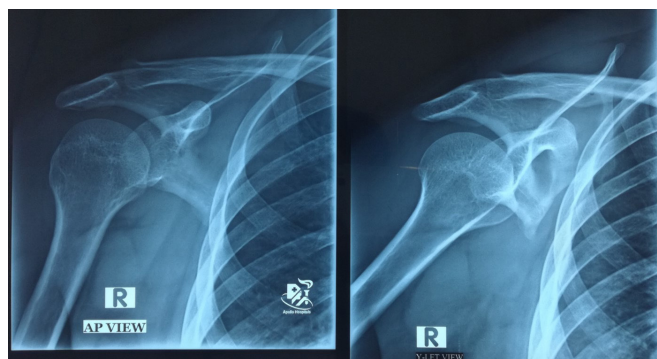
### OUTCOME AND FOLLOW-UP

Postoperatively, the patient was given three doses of 5 mg zoledronic acid at 1 month interval. The patient's pain disappeared and he had full range of scapulohumeral and glenohumeral range of movement at 6 weeks postoperatively (figure 8). There was near-normal functional recovery. There were no signs of local recurrence or any lesion in the chest radiograph at the last follow-up at 6 months. This patient will be followed further at an interval of 6 months with chest and right scapular radiographs for a minimum of 3 years.

### DISCUSSION

Giant cell tumour commonly affects adults between 20 to 40 years of age after epiphyseal closure involving the epiphyseal metaphyseal region. It most commonly involves the long bones, but rarely flat bones and involvement of scapula is even rarer.

The cases of scapular GCT reported in literature are; one case by Windeyer and Woodyatt,<sup>1</sup> one case by Tuli *et al*,<sup>2</sup> 13 cases by Aoki *et al*,<sup>3</sup> one case by Park *et al*,<sup>4</sup> one case by Sherwani *et al*<sup>5</sup> and one case by Faizan *et al*.<sup>6</sup> Turcotte *et al*<sup>7</sup> while



**Figure 7** Right scapular radiograph after surgery showing the absence of inferior half of the scapula.



**Figure 8** Clinical photographs showing excellent shoulder function after excision of tumour with partial scapulectomy.

### Learning points

- ▶ Giant cell tumour of the scapula is a rare presentation of a relatively common tumour.
- ▶ High index of suspicion is required to avoid missing clinically and radiologically.
- ▶ Complete excision of the giant cell tumour is the treatment of choice where intralesional excision by curettage is not going to give any additional functional benefits.
- ▶ Inferior half of the scapula can be expended with retention of excellent function.

writing a review reported on 1229 cases of bone GCT but only three involved the scapula. Among all these cases only one had involved the inferior angle of the scapula.

We emphasise our case as it is the second reported case of GCT involving the inferior angle of the scapula. In treatment, the biopsy was immediately followed by the definite procedure of tumour excision, once frozen section confirmed the diagnosis of GCT. Marginal tumour excision was done in preference to curettage (intralesional excision) as the amount of tumour growth and cortical expansion had not left any useful bone to do the intralesional excision with any better retention of function.

This marginal resection also avoided the higher recurrence rate associated with intralesional excision.<sup>7</sup> Also needs to be emphasised is that excising the inferior half of scapular body retains excellent shoulder function.

**Contributors** The article describes a case of a common tumour occurring at an unusual site. This case had presented first to AK. He was the one who identified the case and was involved in the complete management process. AK had the idea for the article, performed the literature search, and wrote the article. AK is the one to approve the final version of the publication of the work. AK is accountable for all aspects of the work. He was the one involved in patient consent. He is fully responsible for the finished article and has full access to the clinical data and figures presented in the article. He is the one who controlled the final decision to publish this case. In addition, AK assures that there is no one else involved in contributing to the case who has been missed as an author.

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