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Giant cell tumour of the proximal radius

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ABSTRACT

A 52-year-old Indian woman presented with a progressively increasing swelling and pain in the right elbow for the past eight months, which was not associated with trauma or constitutional symptoms. The patient was diagnosed to have Campanacci grade III giant cell tumour of the proximal radius, and was treated with above-elbow amputation. The patient has not shown any recurrence after five years of follow-up. The case was reported because of its rarity and the unusual site of occurrence of the tumour.

Keywords: bone tumour, giant cell tumour, proximal radius tumour

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INTRODUCTION

Giant cell tumours of the bones are usually located in the long bones. Approximately 50% are situated in the distal femur and proximal tibia. Other less frequent locations include the distal radius, proximal femur and humerus.[1,2] The proximal radius, in contrast to the distal radius, is an extremely unusual site for giant cell tumours. We present a case of giant cell tumour of the proximal radius in a woman who presented to us at an advanced stage and was treated by amputation. To the best of our knowledge, there are less than ten reports of giant cell tumour of the proximal radius in the literature.[3] This case warrants report because of the rarity of the lesion.

CASE REPORT

A 52-year-old Indian woman visited the outpatient department with complaints of progressively increasing swelling and pain in the right elbow for the past eight months. The patient gave no history of any preceding trauma. There was no history of fever or other constitutional symptoms. On examination, there was diffuse swelling over the lateral and anterior aspects extending from just below the cubital fossa to the middle of the forearm (Fig. 1). The swelling was not mobile in any plane and was extremely tender. The overlying skin was normal. Distal neurovascular examination did not reveal any deficit. All the movements at the elbow were restricted. Laboratory examination revealed mild leucocytosis and a raised erythrocyte sedimentation rate.

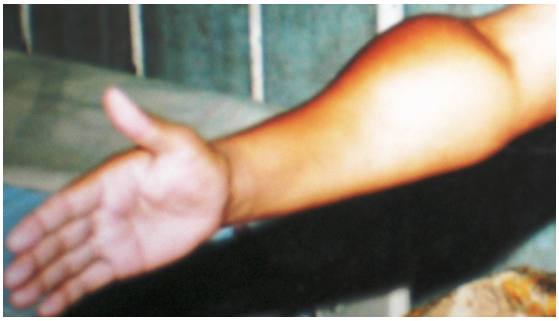

Fig. 1 Clinical photograph shows diffuse swelling over the anterolateral aspect of the proximal part of the forearm.

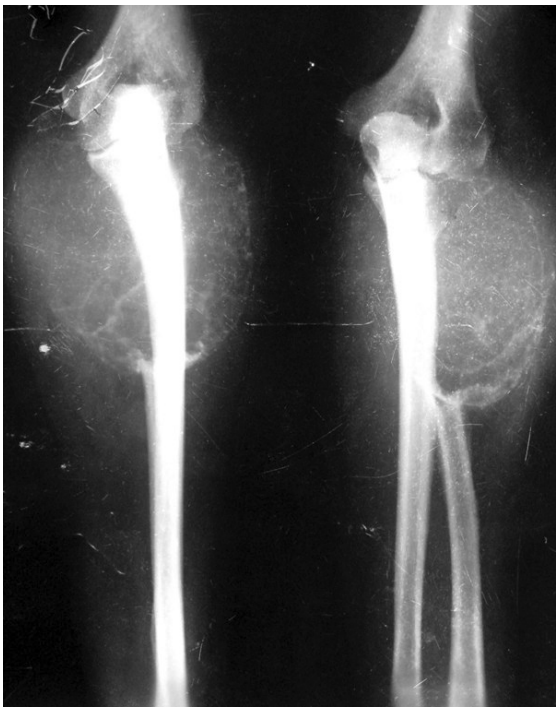

Fig. 2 Anteroposterior and lateral radiographs of the patient show a large, expansile, multiseptate lesion in the proximal radius with a soap-bubble appearance.

Radiographs showed a very large, expansile, multiseptate lesion in the upper third of the radius along with thinning of the cortices and ballooning of the involved part, which ended abruptly at the junction of the middle and upper third of radius. The lesion had a soap-bubble appearance and breaks in the thinned cortices were noted. The upper end of the ulna was eroded (Fig. 2). Chest radiograph did not reveal any abnormality. Fine needle aspiration cytology revealed blood-mixed aspirate with large multinucleated giant cells. Incisional biopsy of the swelling performed was suggestive of

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giant cell tumour. The tumour was classified to be Campanacci grade III. As the tumour was very large and at an advanced stage, and involved a large extent of the soft tissues, the treatment options of wide resection and amputation were discussed with the patient, with the understanding that the tumour had higher chances of recurrence if the former treatment was chosen.

An above-elbow amputation was performed after the patient chose to undergo amputation. The postoperative recovery was uneventful. Histological examination of the specimen reported the lesion as a giant cell tumour with healthy tissue margins. The patient has not shown any recurrence after five years of follow-up.

DISCUSSION

The proximal radius is a highly uncommon site for giant cell tumours. Lewis et al, in their extensive literature review in 1985, could find only seven reported cases.[3] Giant cell tumour in the proximal radius has an incidence of approximately 0.5% of all giant cell tumours of the bone.[3] To the best of our knowledge, this is the first report of a giant cell tumour in the proximal radius in the Southeast Asian region, and possibly the first Campanacci grade III tumour to be reported in the proximal radius.

Giant cell tumours are locally aggressive, but some may be malignant and may metastasise. Methods of treatment for giant cell tumours include curettage, curettage with bone grafting, curettage with the use of local adjuvant therapy (such as cryosurgery), enbloc excision with or without reconstruction, radiotherapy and amputation. In the present case, the patient presented to us after eight months of the onset of symptoms. By that time, the disease was advanced and had spread to the soft tissues and the proximal ulna. In such cases, curettage is not an advisable option. Resection and reconstruction is a good treatment option, but the risk of recurrence is high.[4] Amputation per se has little place in the primary treatment of giant cell tumours due to the postoperative disability caused. It is, however, one of the treatment options to be considered when the tumour has spread widely to the adjacent soft tissues or when the tumour is malignant.[5]

Limb salvage surgery in a tumour aims to balance adequate excision margins for disease control and the preservation of all the important structures, to retain maximum function. The advances in diagnostic and therapeutic measures have allowed limb salvage to be a reasonable option for most patients. However, the choice of surgery needs to be made based on the expectations and functional requirements of the individual patient.[6] The issues that need to be addressed while contemplating limb salvage are survival, short-term and long-term morbidity, functional outcome, and psychosocial consequences. Perioperative and long-term morbidity are higher in limb salvage surgery, including the higher likelihood of multiple future surgeries when compared with amputation. Moreover, nearly one-third of the long-term survivors of limb salvage surgery for bone tumours require an amputation.[6]

Amputation is an extensive procedure which provides excellent results in terms of disease elimination and reduction of the risk of recurrence. The patient can often be discharged after a relatively short period of time. We discussed both treatment options with the patient, while making it clear that due to the extensive nature of the lesion, resection and reconstruction may lead to a suboptimal functioning of the limb and a high chance of recurrence. The patient decided in favour of amputation. The reasons cited against limb salvage were prolonged hospitalisation and functional incapacitation, the risk of recurrence, and a higher cost of treatment.

A major limitation of this report is the lack of imaging studies, such as computed tomography and magnetic resonance imaging. For planning limb salvage surgery, these investigations are essential as they reveal the true extent of the tumour within the bone and its spread to adjacent tissues. These also show the relation of the neurovascular bundle to the tumour and help in planning the treatment. As the diagnosis was established on radiography and biopsy, the patient did not want the limb to be salvaged, and refused to undergo any further investigation that did not change the course of treatment.

Reconstructive options for the lesions around the elbow include endoprosthetics, resection arthroplasty, interposition arthroplasty, arthrodesis, allograft reconstruction, or allograft-prosthesis composite arthroplasty.[7] Due to the lack of proper imaging, we are unable to comment on the most suitable treatment in this case, but we were aware that the proximal radius and ulna would need to be sacrificed. This would have resulted in the loss of the elbow joint as well. Arthrodesis, endoprosthesis and allograft reconstruction are the possible reconstructive procedures that could have been done. As wide resection of a large amount of the involved soft tissues and bone would have been required, we would have favoured arthrodesis of the elbow joint and fixation of the radial stump to the ulna.

Amputation, in this case, enabled the patient to be discharged from hospital within a reasonable time and placed minimum burden on her resources. The patient

was followed up for five years and has not shown any recurrence. Though giant cell tumour is rare in the proximal radius, physicians should be aware of this entity, and a differential diagnosis may be kept when a tumour of the upper end of the radius is encountered.

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