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A Case Report of Recurrent Chondroblastoma in a 19 Year Old Male

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Abstract | **Case Report**

Introduction: Chondroblastoma is a rare benign, epiphyseal bone tumor that typically affects the second decade of life and represents approximately 1% of all bone tumors. Radiologically it manifest as a lytic tomour lesion in the epiphysis of long bones. ***Case report:*** We present a case of 19 year-old male who presented with recurrent symptoms of pain and swelling in right shoulder associated with restricted shoulder mobility. Preoperative radiological imaging showed large lytic epiphyseal lesion arising from upper end of humerus interspersed with areas of calcification. MRI was done which reveal significant findings of chondroblastoma which guided in the planning of treatment. ***Conclusion:*** Chondroblastomas are typically benign, but rarely it can progress locally or metastatise. Recurrence is also noted even after surgical resection which may suggest inadequate curettage. Early diagnosis and aggressive primary management prevents further surgeries and recurrences.

Keywords: Chondroblastoma, benign lytic lesion, shoulder pain, benign tumor.

INTRODUCTION

Chondroblastoma is a rare epiphyseal benign bone tumor, occurring in patients 10 to 25 years old, with 2:1 male predominance usually in the second decade and constituting less than 1% of bone tumors. The tumor has a predilection for long tubular bones for e.g, distal femur, proximal humerus and proximal tibia and usually involves the epiphysis before physeal closure. Chondroblastomas are located near a joint and slow growing which present with pain and swelling and functional impairment can be seen. Recurrence occurs in 10% to 20% of patients which are being treated similar to primary lesion. Malignant transformation of a chondroblastoma is extremely rare with benign pulmonary metastasis recorded approximately in 1% patients.

The suggested treatment for aggressive chondroblastoma ranges from simple curettage and bone grafting to resection with margins of surrounding normal tissue and structural reconstruction. In this case report, our aim was to present a chondroblastoma which was localised in the proximal humerus epiphysis extending into the soft tissues.

CASE REPORT

A 19 year old male presented to our OPD with chief complaint of pain and swelling in right shoulder since 2 years. The swelling had gradually increased over the last 3 months with restriction of mobility over the shoulder joint (Figure.1). He had the same episode over the same site right shoulder 3 years back for which he was admitted in private hospital and on clinical evaluation and radiological investigations was diagnosed of chondroblastoma of proximal humerus. As the swelling was progressive and involved with restriction of mobility, he was advised and got operated with curettage and bone grafting 3 years ago. No documents were available of earlier investigations and surgery. As per history, postoperatively patient regained free range of movement over shoulder and was discharged. Now patient has presented to us with the same complaint of swelling and restricted mobility over right shoulder which gradually developed since 3 months without any history of trauma. Pain was characterized by dull aching in nature which was none radiating and gradually increased in intensity and was not relieved by painkillers. There is no any history of fever, weight loss and wasting.

On clinical examination of right shoulder: well healed scar present over anterior aspect, no any sinus, tenderness present, minimal swelling noted on palpation, decreased range of motion (abduction and flexion) and no wasting of muscle. No any neurovascular deficit was present.

Radiologically, plain xray shows expansile lytic lesion at right proximal humerus epiphysis with interspersed calcification seen clearly. MRI was done and showed abnormal expansile lytic bony lesion at upper end of postero medial part of right humerus (figure.2).

Patient was advised for admission and biopsy for further management but due to financial constraint refused and agreed to follow up at 3 months interval.

Fig-1: Showing restricted range of motion on flexion, abduction and extension over right shoulder joint.

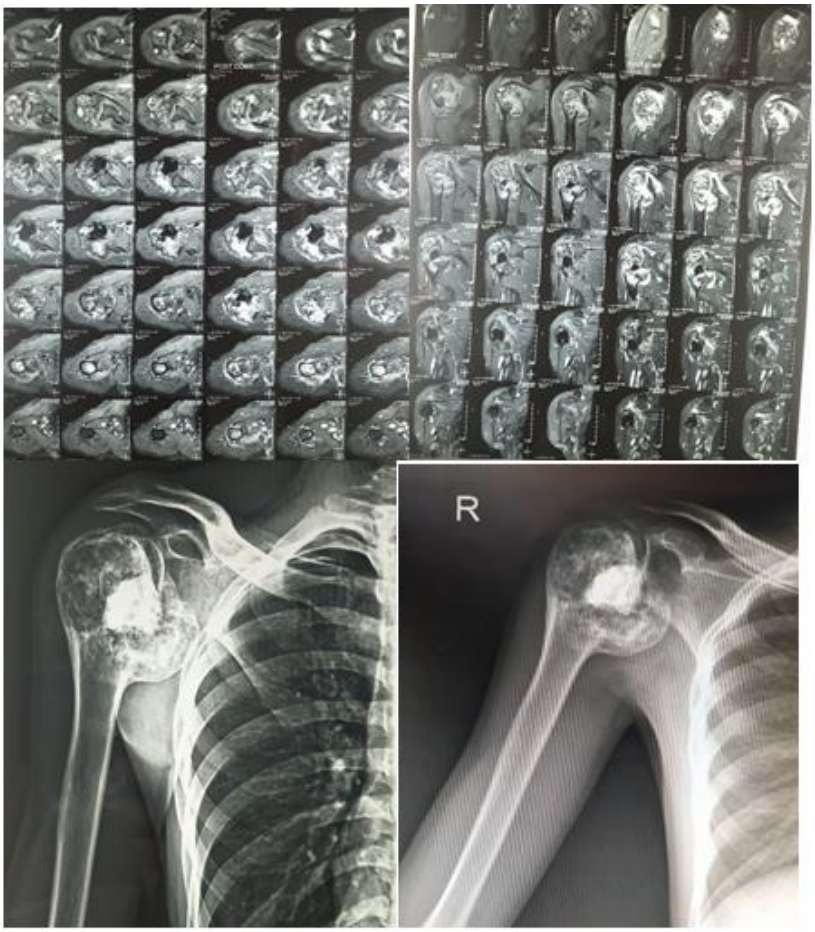

Fig-2: MRI and xray showing expansile lytic epiphyseal bony lesion with interspersed areas of calcification of right proximal humerus.

DISCUSSION

The term benign 'chondroblastoma' was proposed by Jaffe and Lichtenstein [1] in 1942 to describe this rare, benign and distinctive tumor composed of immature chondroblasts with a scant chondroid matrix. Chondroblastoma is recognized as a benign, cartilaginous lesion that characteristically arises in the epiphysis of long bones, particularly the proximal humerus, proximal tibia, and distal femur [2]. It

represents less than 1% of all primary bone tumors [3]. Although chondroblastoma affects people of all ages, a study of 104 cases by Bloem and Mulder [4] revealed an average age of 16 years in tumors affecting long bones. Since chondroblastoma usually causes pain localized to the lesion, usually patients present with local tenderness, swelling, and limitations of neighboring joint movement [5]. Our 19 year old patient presented to us with swelling, tenderness and limitation of movement right shoulder which led us to early diagnosis before it grows beyond the cortex. Most lesions (60%) involve the epiphysis and extend into the metaphysis, and a purely metaphyseal lesion is unlikely to be a chondroblastoma [6].

Radiological features of chondroblastoma usually presents as a sharply demarcated oval or round lytic lesion arising in epiphysis surrounded by a rim of sclerotic bone. However, cortical breakthrough is unusual. A scattered, stippled and interspersed calcification appearance or a sparsely trabeculated pattern could be observed occasionally [7]. In our case interspersed calcification was seen in xray and MRI revealed the presence of a lobular structure of high signal intensity on T2-weighted images. However, accurate diagnosis of overgrown chondroblastoma is difficult using only imaging information [8, 9], because overgrown chondroblastoma has a profile that resembles the chondroblastic osteosarcoma, which constitutes approximately 25% of the osteosarcoma category [10]. Differentiation of chondroblastic osteosarcoma from chondroblastoma was significant in terms of treatment and prognosis and accurate diagnosis could be made only by appropriate biopsy. MRI can help in the diagnosis and in the differentiation of a chondroblastoma. MRI is especially useful when plain radiographic findings are inconclusive [11]. Immunohistochemically tumor cells coexpress vimentin and S100 protein [12]. Kyriakos *et al.* [13] confirmed the existence of malignant chondroblastoma having histological characteristics of benign chondroblastoma but with the ability to progress and metastatise aggressively. Kunze [14] studied the period from the diagnosis of primary tumour to the detection of lung metastasis with average 8.4 years. A chest CT may be useful in doubt for detecting occult metastatic nodules in such patients. In addition PET scan is an advance technology and is often performed for the presence or absence of metastases [15].

Therapeutic modalities for chondroblastoma include curettage, en bloc resections and radiation therapy [16]. The evolution of the chondroblastoma is mainly dominated by risk of local recurrence which varies between 5 and 38% [17]. Thus, long-term observation for metastasis as well as recurrence should be required.

CONCLUSION

Chondroblastoma is a rare benign bone tumor. Occasionally, however, Chondroblastoma develops more aggressively, with invasion of joint spaces, adjacent bones and even metastases. Metastases are extremely rare soon after diagnosis. Despite its rarity, the possibility of metastasis must be kept in mind. A preoperative plain chest X-ray should be done on all patients newly diagnosed, because metastasis involves the lung most commonly and may be curable by early resection. CT imaging of the chest 1–2 months after primary tumour resection is also advisable to screen for metastases. Although most chondroblastomas are benign, recurrence is also common with these lesions. Early diagnosis and adequate therapy can help to reduce events of recurrence and repeated surgeries.

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