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Giant Osteochondroma of Proximal Humerus – An Unusual Presentation

Authors
Dr P.S.V.R.V.G. Vijay Kumar[1], Dr P. Ashok Kumar[2], Dr C.J Mani Kumar[3]
[1]Junior Resident of Orthopaedics, Andhra Medical College, Visakhapatnam, India
[2]Professor of Orthopaedics, Andhra Medical College, Visakhapatnam, India
[3]Assistant Professor of Orthopaedics, Andhra Medical College, Visakhapatnam, India

Abstract
Introduction: *Osteochondroma represents the most common bone tumour and is a developmental lesion rather than a true neoplasm. It constitutes 20%–50% of all benign bone tumours and 10%–15% of all bone tumours. Its radiologic features are often pathognomonic and identically reflect its pathologic appearance. Osteochondromas typically occur at the metaphysis of long bones, especially the distal femur, proximal humerus, proximal tibia and fibula. Most cases are diagnosed within the first three decades of life.*
Materials and Methods: *We present a case of a 22 yr old male patient with giant osteochondroma of left proximal humerus. It is an unusual presentation for its size and location with no clinical symptoms and a growing mass over the left shoulder extending into axilla. Imaging studies demonstrated large pedunculated and sessile masses arising from the proximal humerus. On surgical exploration, pedunculated and sessile masses were found all around the proximal humerus with cauliflower like growth and hyaline cartilaginous cap. Each mass was carefully separated from the neurovascular structures and resected one by one.*
Results: *No post-operative neurological deficits were found. Patient was prescribed physiotherapy and was advised monthly follow-up. Patient had complete range of motion at the last follow up visit and was conveniently able to do his daily activities.*
Discussion: *Osteochondromas may develop from proliferation of cartilage-forming periosteal cells or from a defect in the fibrous tissue surrounding a physis. During skeletal growth the lesions enlarge with the surrounding bone, and they stabilize with skeletal maturity.*
In our case, it is very rare to see such huge cauliflower like growth. Also the mass extended into axilla . We were successful in excising the tumour protecting the vital structures in axilla with patient having no postoperative neurological deficits.
Conclusion: *It is very rare for Osteochondroma to present at proximal humerus with mass extending gigantically into axilla. Careful dissection and protection of vital structures and good amount of learning curve of surgeon and expertise is demanding in operating such cases to avoid post operative neurovascular deficits*
Keywords: *Osteochondroma, Proximal Humerus, Axilla.*

Introduction

Osteochondromas are the largest group of benign tumours arising from bones pre -formed by cartilage. They are also called as exostoses. Osteochondroma is defined as 'a cartilage capped bony projection arising on the external surface of bone containing a marrow cavity that is continuous with that of the underlying bone'[1] These tumours account for 10 to 15 % of all bone tumours and 20 to 50 % of benign bone tumours.

Osteochondroma is the commonest bone tumour in children. Males are affected twice as commonly as females[1]

The lesion is usually located at the metaphysis of a long bone, most frequently in the distal femur but any bone developing from preformed cartilage may be involved[2]

Case Report

We present a case of a 22 yr old male patient with giant osteochondroma of left proximal humerus. It is an unusual presentation for its size and location as approximately 50% of the lesions arise in the lower limb 75% of which is around distal metaphysic

Clinical Presentation

Patient had slow growing tumour for the past one year. He was asymptomatic and complained of only discomfort due to massive size of swelling extending into left axilla.

On examination there is non tender hard swelling with irregular surface and palpable stalk. Insinuation is positive beneath the stalk.

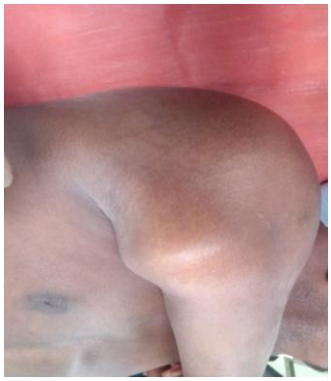

Figure 1 Mass in proximal humerus extending into axilla

Investigations

- Routine surgical profile and biochemical tests like serum alkaline phosphatase and serum calcium levels were within normal limits
- X ray left shoulder shows bony outgrowth with stalk from proximal humerus which is not proportional to the size observed clinically [clinico-radiological dissociation]
- MRI shows cauliflower like growth

Treatment

Surgical excision was done and mass was sent for histopathological examination.

Tumour was approached by incision through axilla. The pedunculated and sessile masses were found all around the proximal humerus with cauliflower like growth and hyaline cartilaginous cap. Each mass was carefully separated from the neurovascular structures and resected one by one.

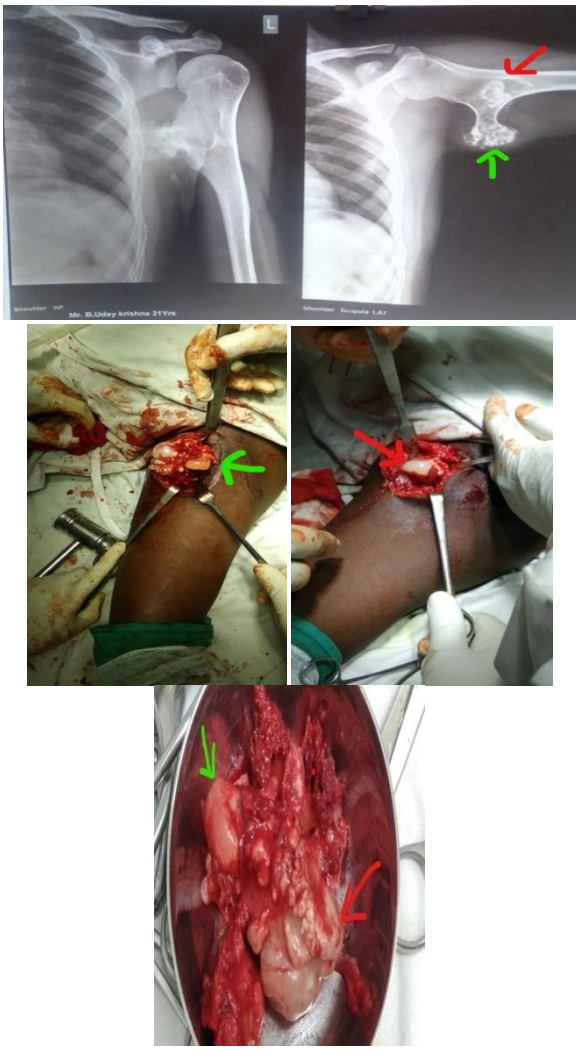

Figure 2: Mass indicated by green arrow is pedunculated Mass indicated by red arrow is sessile

Result

No post-operative neurological deficits were found. Patient was prescribed physiotherapy and was advised monthly follow-up.

Patient had complete range of motion at the last follow up visit and was conveniently able to do his daily activities

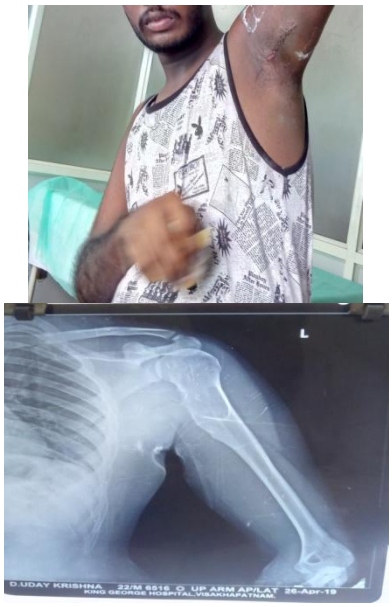

Figure 3: Immediate Post Operative Photograghs

Figure 4 6 Months Post Operative Photographs. Patient Has Good Range of Motion with no Neurovascular Deficits

Discussion

Osteochondroma represents the most common bone tumor and is a developmental lesion rather than a true neoplasm. Osteochondromas may develop from proliferation of cartilage-forming periosteal cells or froma defect in the fibrous tissue surrounding a physis .It constitutes 20%–50% of all benign bone tumors and 10%–15% of all bone tumors

It consists of a bony base or stalk with a cartilage cap that projects from the normal bone away from a nearby joint. During skeletal growth the lesions enlarge with the surrounding bone, and they stabilize with skeletal maturity.

The hyaline cartilage is difficult to assess on conventional radiography but may be suggested by the identification of rings and arcs or flocculent calcifications as the result of chondroid mineralisation[3]

The high water content of the hyaline cartilage cap creates an intermediate to low signal on T1-weighted sequences and a high signal on T2weighted sequences. Mineralised portions in the cartilage cap remain low in signal on all MR pulse sequences[4]

Thickness of the hyaline cartilage cap is the most important imaging finding considering the risk of malignant transformation to a secondary chondrosarcoma. Cartilage cap thickness of more than 15 mm in a skeletal mature patient should be considered with great suspicion [2]. Other signs of malignant transformation include growth of a previously unchanged osteochondroma in a skeletal mature patient, irregular lesion surface, focal interior radiolucencies, erosion or destruction of adjacent bone and surrounding soft tissue mass formation containing irregular calcifications[5,6]

In the present case, it is very rare to see such a huge cauliflower like growth arising from proximal humerus and extending into axilla. The mass contained a pedunculated tumour anteromedially and a sessile tumour posteromedially which have become confluent to form a huge mass. The neurovascular bundles were found to be just medial to the sessile one.

Through midline axillary incision the plane between pectoralis major and latissimus dorsi was taken. The pectoralis major was retracted superolaterally and latissimus dorsi inferomedially. Tumour was exposed, the

neurovascular bundles were identified nearer to sessile tumour and was carefully protected. Thetumour was resected in toto and sent for histopathological examination. The axilla though has enough soft tissue to accommodate post operative edema, due to presence of major neurovascular structures in close proximity, utmost care was taken while dissecting the neurovascular structures found close to such a huge mass.

Conclusion

It is very rare for Osteochondroma to present at proximal humerus with mass extending gigantically into axilla.

Malignant transformation should always be suspected in such growing masses and should be ruled out.

Careful dissection and protection of vital structures and good amount of learning curve of surgeon and expertise is demanding in operating such cases to avoid post operative neurovascular deficits.

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