

First Rib Osteochondroma

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Introduction

Osteochondroma are most common bone neoplasm accounting for 30-40% of benign osseous tumours [1,2]. Osteochondroma is benign developmental growth defect in which there is focal herniation of lateral component of epiphysial plate with a cartilaginous cap [3]. Understanding and recognizing the spectrum of the appearance and complications of first rib osteochondroma is important because of its dreadful complications that may follow if not taken care.

Case Report

A 10 year boy came with chief complaint of swelling in the right supraclavicular region disfiguring the area. There was another exostosis on inner side of right scapula which was rubbing on inner side of scapula on chest wall. CT scan has confirmed exostosis at the right supraclavicular area arising from right first rib and inner side of inferior end of right scapula. Multiple small exostosis were also found on lower end of right femur, upper end of right tibia and lower end of right radius which were not causing any pain and were not disfiguring (Figure 1).

Discussion

Tumours of the ribs compromise approximately 2% of all tumours of the body and may be benign or metastatic. Approximately 60% of the resected tumours are benign. Osteochondroma are the most common benign bone tumours [1,2] These tumours occurs more frequently in males. Male/Female Ratio of 3:1.

Osteochondroma begin in the childhood and grow until completion of skeletal maturity. They develop from an aberrant focus of growth plate beneath the ring of Ranvier, which continues to grow and undergo enchondral ossification in parallel with general skeletal growth. When skeletal maturity is reached, the cartilage cap thins and eventually completely ossifie [3]. Osteochondroma of first rib is frequently asymptomatic and the development of pain usually becomes an issue when an osteochondroma is repeatedly bumped on its prominence, or if a painful bursa develops or malignant changes occur.

First rib exostosis presents with swelling in the supraclavicular region, producing disfigurement and pain.

The complications of osteochondroma of first rib are often the result of mechanical interference with neighboring anatomic structures. The exostosis can injure the lung and pleura during respiration giving

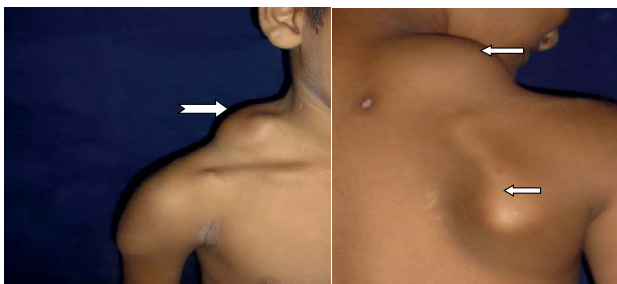


Figure 1: Clinical picture showing right supra clavicular mass and right scapular mass.

rise to pneumothorax, or haemothorax. Osteochondroma may cause compression of adjacent vascular or neural structures [4-9].

There is an incidence of venous thoracic outlet syndrome associated with first rib osteochondroma which is a life threatening complication [7,8] Reports illustrate that rib exostosis can present acutely as a life-threatening bleeding or as chronic complication in the form of pneumonitis and empyema [4-6]. Chondrosarcoma is an exceedingly rare complication in 1-4% of osteochondroma which evolves very slowly, usually occurring in adult life [10].

There are certain path gnostic findings associated with osteochondroma (Figure 2).

1. The lesion protrudes from the host bone with a sessile (broad based) stalk.
2. It occurs in the metaphysis
3. The cortex and cancellous bone of the osteochondroma blend with the cortex and cancellous bone of the host. This is the main radiographic finding and any deviation from this feature should raise suspicion of a more serious lesion.



Figure 2: X-ray showing osteochondroma.

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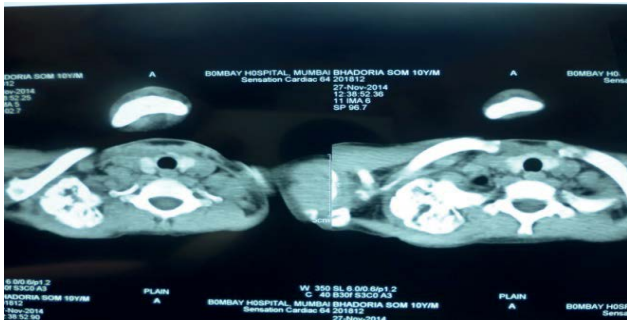


Figure 3: CT scan showed a bony mass approximately 4 cm in diameter arising from metaphysis of the right first rib with A 1 cm cartilaginous cap.

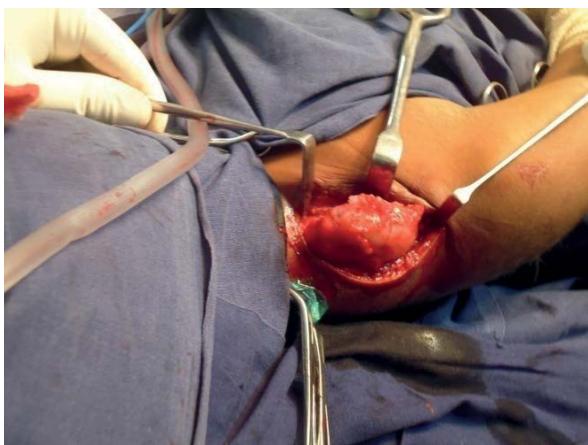


Figure 4a: Intraoperative picture.



Figure 4b: Resected mass.

4. Coat Hanger Lesion- Away from costo chondral joint (Figure 3).

Surgical resection can be expected to result in a successful outcome for symptomatic osteochondroma with low morbidity. We preferred a supra clavicular approach. A 7 cm incision was taken in the supra clavicular region. The base of the exostosis was approached by soft tissue dissection all around the exostosis and it was excised from the base with the cartilaginous cap in situ with it. The excised tissue was sent for histo pathology which confirmed the diagnosis of enchondroma.

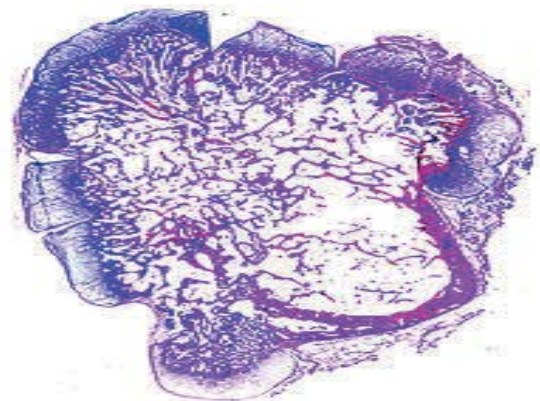


Figure 4c: Histopathology picture showing cartilaginous cap with enchondral ossification.

The scapular lesion was also removed. Post operatively patient is doing excellent (Figure 4a-4c).

Conclusion

In general all the osteochondroma are resected on development of complications. First rib exocytosis is a rare site and as it can cause life threatening complications and for this reason it should be resected as soon as diagnosed.

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