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Growth Diferentiation of Scapular Exostisis In Relation To Its Position

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Abstract: *Osteochondroma or exostosis is a benign tumor arising from the bone involving the long bones most commonly, pelvis, ribs and the scapula at rare instances. It can run in families called as multiple hereditary exostosis(MHE) which is different from solitary exostosis in terms of malignant transformation. MHE has a higher chance of malignant transformation. In our study 7 cases of solitary scapular exostosis were studied and followed up. The size of the tumor in relation to the forces acting on it were assessed. Pain was also a feature in this study without malignant transformation, but suspicion of malignancy needs needle biopsy and later complete excision as like any malignant tumour.*

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I. Introduction

Exostosis or osteochondroma is a benign tumor arising from the bone usually noticed before physeal closure and growth stops with cessation of growth. Malignant transformation is suspected if growth continues after physeal closure or presence of pain. Other causes of pain are when there is formation of bursae around the tumor, compressing on neurovascular structures and fracture of the tumor at the pedicle. Scapular exostosis are rare and can occur on the dorsal and ventral aspect. Excision and biopsy of the tumor is the treatment of choice if malignancy is not suspected.

II. Aim

To assess the growth differentiation of scapular exostosis in relation to its position and structures surrounding it.

III. Materials And Methods

This is a prospective study done during the period 2015 to 2018. It is a prospective and a retrospective study in which 7 cases of scapular exostosis were studied pre operatively, intra operatively and postoperatively. All cases were clinically diagnosed to be solitary scapular exostosis and radiological impressions were also obtained. X-ray and magnetic resonance imaging was done and the size of the tumor was measured approximately. All patients were between the age group of 12 -21. 1 patient had complaints of pain all others had come for a cosmetic deformity. Radiology showed physeal closure in all the patients. 6 patients underwent excision and biopsy, 1 patient with pain underwent biopsy and then excision.

IV. Results

Out of the 7 patients, 5 were dorsal exostosis and 2 were ventral exostosis.

DORSAL	5
VENTRAL	2

1 patient had complaints of pain during movements of the scapula.

CHIEF COMPLAINTS	COSMETIC DEFORMITY	PAIN
	6	1

V. Discussion

In our study, 7 cases of scapular exostosis were diagnosed clinically, radiologically and underwent excision biopsy. 1 case had pain during scapular movements for which patient underwent core needle biopsy followed by excision. All 7 cases were histopathologically proved to be osteochondroma.

Sizes of all the excised tumors were compared and it was found that ventral tumors are smaller than dorsal. Even though it was not significant, a special mention should be made here as ventral tumors are pressured by the muscles and bones surrounding it, the growth of the tumor can be potentially reduced. Intra operative observation shows that ventral exostosis are more rounded with smooth surface where as, dorsal tumors are bigger in size and have an irregular surface.

One patient had pain which was suspected malignancy for which biopsy was done followed by excision, the pain was due to friction between the tumor and surrounding structures. All patients were radiologically and clinically followed up for one year and none of the patients had any signs of recurrence. Patient with pain also became symptom free after excision.

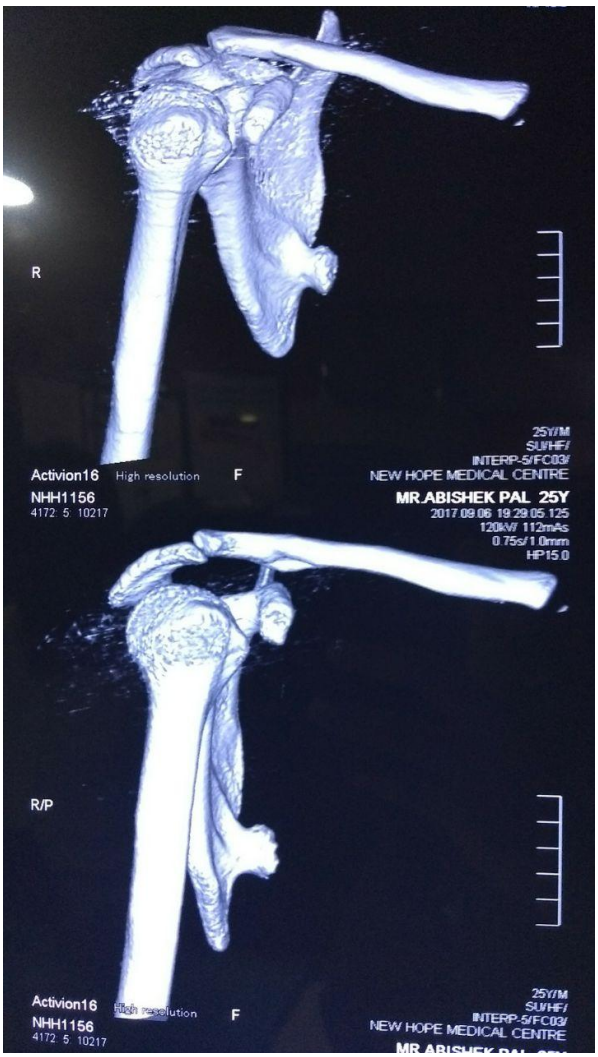

Figure 1

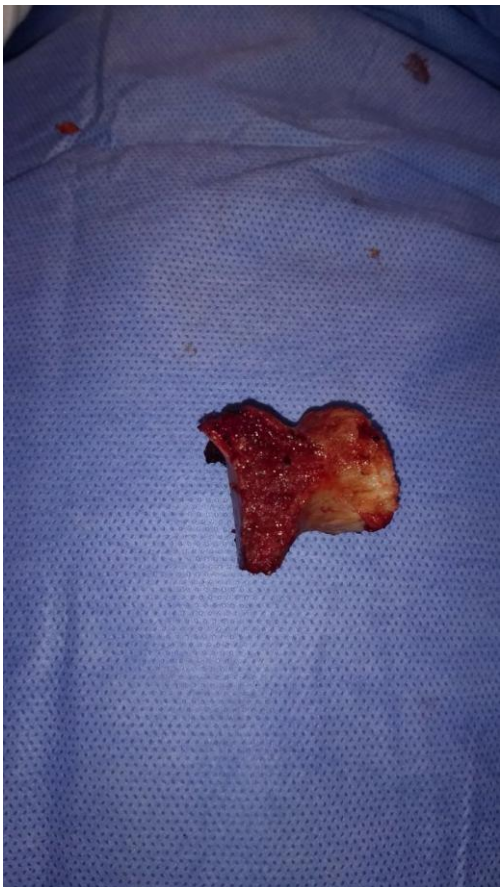

Figure 2

A case of ventral exostosis (figures 1 and 2) which is smaller, well rounded and has a smooth surface when compared to dorsal exostosis (figures3,4 and 5).

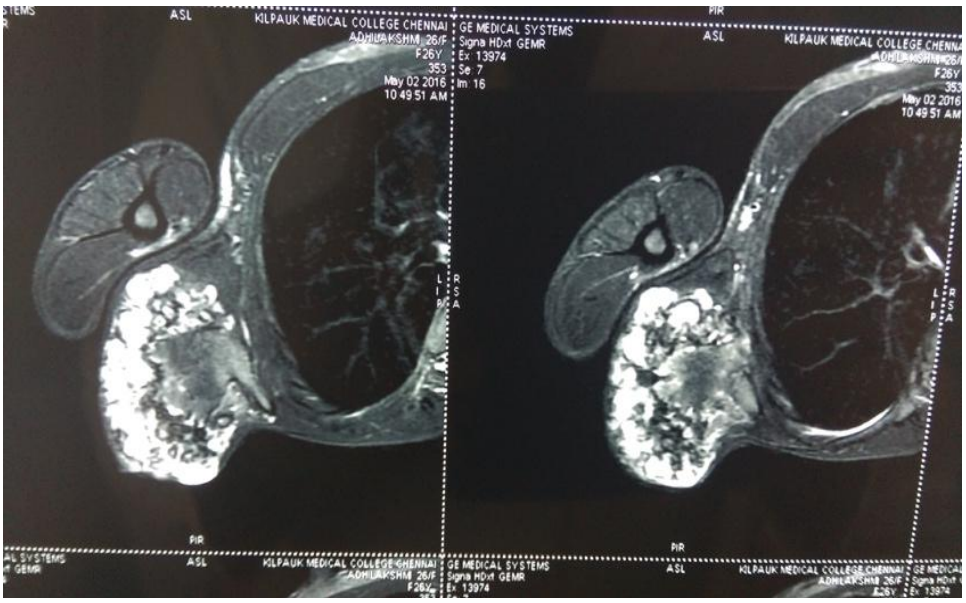

Figure 3

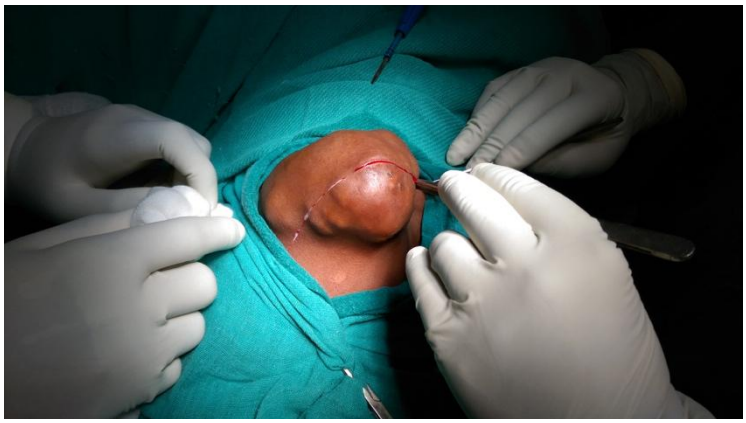

Figure 4

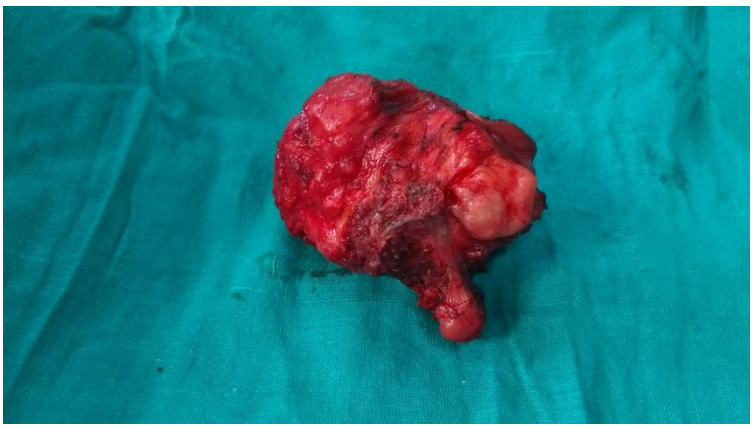

Figure 5

VI. Conclusion

1. Excision biopsy is the treatment of choice for exostosis of scapula unless there is a suspicion of malignant transformation.
2. Biopsy followed by excision is better option of management even for the slightest doubts of malignant transformation.
3. **Prabhakar's theory of histogenesis:**Based on the observation that ventral exostosis is small, more organized and with a smooth surface, whereas the dorsal exostosis is irregular, large and mushroom like. I would like to postulate that osteochondroma even though is a true neoplasm, recent studied revealed that, it is due to mutation in the gene encoding exostosis 1 (EXT1), it still behaves like a physis, which under pressure and loading produces small rounded organized growth. Whereas an unloaded osteochondroma produces bizarre growth. The tumor may represent a perverted activity of the periosteum, which reverts to its role as perichondrium.

This theory is supported by Virchow in 1891 and Plate defect theory by Keith in 1920.

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