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## An unusual presentation of osteochondroma on the dorsal surface of the scapula

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### Abstract

**Introduction:** Osteochondroma of the scapula is a rare tumour of the thorax. It constitutes 14.4% of all tumours of the scapula with the ventral surface being the most common site of presentation. The dorsal surface of the scapula is rarely seen as a potential site for the origin of osteochondroma which is the case in our patient. Most of the patients presenting with osteochondroma on the dorsal aspect of scapula have been reported to be of the sessile variant. Radiographic imaging, preferably through MRI or CT, assists in the identification of benign growth; however, a definitive diagnosis requires a biopsy. Open surgical resection and arthroscopic excision are the definitive treatment modalities of the nidus.

**Case Report:** We described one case of osteochondroma at unusual site, on the dorsal aspect of scapula. Patient had difficulty in sleeping in supine position and restricted range of motion of the affected shoulder.

**Conclusion:** Depending on the site of occurrence, osteochondromas can give rise to different local symptoms. Possibility of osteochondroma should be kept in mind during differential diagnosis of bony swelling in flat bones as well as small bones.

**Keywords:** Osteochondroma, the thorax, radiographic imaging

### Introduction

Osteochondromas are the most common benign tumours of the bone with an incidence of 30% to 40% [1]. These lesions are thought to arise due to congenital defect in perichondrium [1]. These generally occur near the growth plates of long bones and most commonly form around the shoulder or knee [1]. Literature describing involvement of other anatomic sites is scarce. These can arise in any bone which is formed from cartilage [2]. Scapular osteochondromas represent three to four percent of all osteochondromas [3]. Osteochondromas around small bones of foot are also rare. Here we present two case scenarios with osteochondromas at dorsal aspect of scapula and base of first metatarsal.

**Case Presentation:** A 2-year-old male child presented to the NSCB MCH, Jabalpur Orthopaedic Outpatient Clinic with a complaint of a painless protrusion on the right side of his upper back for the past one year. At presentation, the patient reported a reduced range of motion of the left arm on full abduction. Otherwise, the patient's history was unremarkable. He reported that his main reasons for visiting were cosmesis and reduced range of motion. On physical examination, a uniform, rounded, protuberant mass (8cm\*6cm) was seen and palpated on the dorsal aspect of the right scapular blade. Although there was no tenderness to palpation, the range of motion of the left arm was restricted to 145 degrees on abduction. There was no evidence of winging of the scapula, even though the symmetry of the upper body upon full abduction of the right arm showed slight unevenness. Neurovascular structures were intact on examination of both the upper limbs. Computed tomography (CT) scan showed a pedunculated mushroom-like mass arising from the dorsal aspect of the superior border of the right scapula. A provisional diagnosis of pedunculated osteochondroma of right scapula was made. An excision biopsy was planned for the patient.

**Surgery:** Under general anaesthesia, the patient was made to lie the prone position. After preparing the right shoulder, a sterile drape was applied. A 6 cm incision was made parallel to the medial border of the scapula and a 5 cm incision was given over the horizontal spinous

process of the scapula over the swelling. The trapezius was dissected and the borders of the mass were delineated. Piece meal excision of the mass was done. The remnant was nibbled and dorsal surface of the scapula was smoothed using a file. The excised mass was sent for histopathological studies. Histopathological study of the patient confirmed the diagnosis of osteochondroma. Macroscopy showed bony fragment with soft tissue attachments of size 10 cm × 6 cm × 3 cm. Microscopy revealed multiple sections of bone fragments were seen with a cartilaginous cap with trabecular bone and fatty tissue. The patient was immobilized using an arm pouch. Sutures were removed on the 12th post-operative.



5 6

**Fig 5, 6:** Intra Operative Images



1 2

**Fig 1, 2:** Pre-Operative Clinical Pictures



**Fig 7:** Tumor Mass



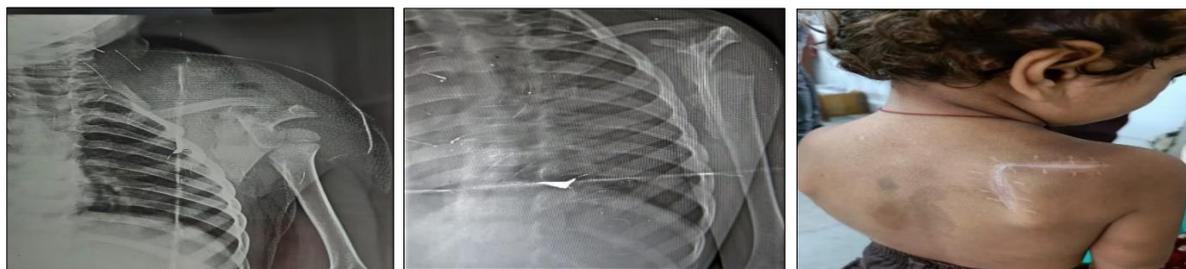
3 4

**Fig 3, 4:** Pre-Operative X Ray and Ct Scan



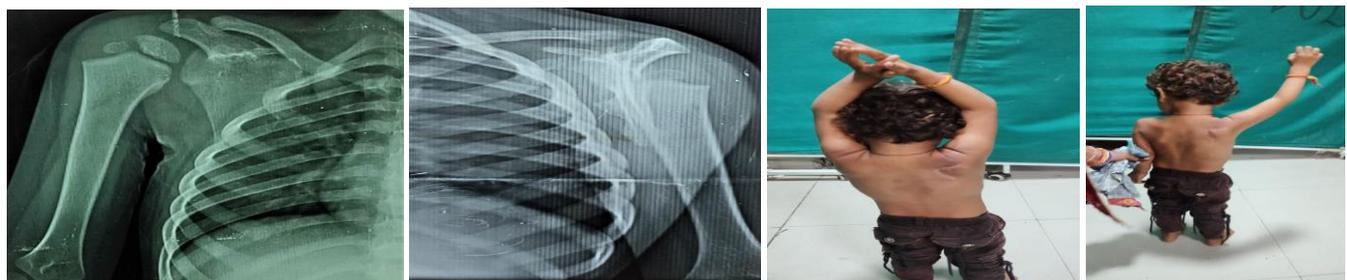
8 9

**Fig 8, 9:** Post operatively shoulder and arm range of motion was done.



10 11 12

**Fig 10, 11, 12:** Follow up clinical pictures and x rays at one month



11 12 13 14

**Fig 11, 12, 13, 14:** Follow up clinical pictures and x rays at six months

## Discussion

Osteochondromas or exostoses are benign bone tumours. Commonly, they present as painless bony hard swellings around growing ends of long bones like femur and tibia<sup>[3]</sup>. They are usually asymptomatic. Most of the patients seek treatment for cosmetic reasons. Solitary osteochondromas of the scapula are rare and most of the time present on the ventral surface of scapula causing snapping shoulder syndrome. Unusual site of presentation such as the dorsal surface of scapula must also be thought of while clinically examining the patient. Surgeons must strive to completely resect the tumour to negate the risk of recurrence. Pain presents secondary to fracture through stalk of pedunculated osteochondromas or malignant change. Rarely patients present with local symptoms due to pressure on surrounding nerves and vessels<sup>[4]</sup>. In our case with dorsal scapular osteochondroma, patient had difficulty in sleeping in supine position. X-rays are usually diagnostic which show cortex and medulla of swelling continuous with that of parent bone. CT scan may be needed in certain situations where swelling is not easily visible as in case of volar scapular osteochondromas to make diagnosis<sup>[3]</sup>. Histopathological examination also confirmed the diagnosis<sup>[5]</sup>. Extra-periosteal resection is the treatment of choice. Recurrences are common. Few cases of solitary osteochondroma of scapula have been reported in literature. Most of these are case reports describe osteochondroma on volar aspect of scapula causing pseudo-winging of scapula. Description of symptomatic solitary osteochondroma on dorsal aspect of scapula is rare. Nathan *et al.* in 2010<sup>[6]</sup> described their experience of treating five volar, two dorsal and one inferior scapular osteochondroma over a period of 13 years. At a mean time of 4.17 years post-resection, no sign of recurrence was found in seven patients. Yadkikar *et al.*<sup>[7]</sup> in year 2013 presented a case with dorsal scapular osteochondroma, who had difficulty in sleeping in supine position. Salgia *et al.*<sup>[8]</sup> in 2013 also treated patient with similar presentation but patient was from higher age group and was predominantly concerned about cosmetic appearance. Patient improved symptomatically after excision of lesion and at one year follow up there is no evidence of recurrence of lesion.

## Conclusion

Depending on site of occurrence, osteochondromas have different symptoms. So in patients presenting with bony swellings around flat and small bones of feet, differential diagnosis of osteochondroma should be kept in mind. Surgical excision should be done at the earliest for symptomatic cases of osteochondroma over the dorsal aspect of scapula

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