

## Case Report

# An Unusual Presentation of Osteochondroma on the Dorsal Surface of the Scapula- A Review of Literature

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## Case Report

A 19-year-old male presented to us with complaints of swelling over the left upper back for 2 years. He complained of discomfort while sleeping on his back and while moving left shoulder for 1 year. It was spontaneous in onset and gradually progressive. It was not associated with any history of trauma, fever, difficulty in breathing, weight loss or history of similar complaints in the past.

### Clinical examination

On examination a hard, oval bony swelling of size 3 x 3 cm was palpable on the dorsum of left scapula along the medial border, non-tender, fixed to the scapula and with normal pinchable overlying skin (Figure 1).



Figure 1: Clinical Photograph.

There was no sensory or motor deficit in the left upper limb with a full range of motion of the left shoulder. There was no evidence of any other swelling in the body.

### Investigations

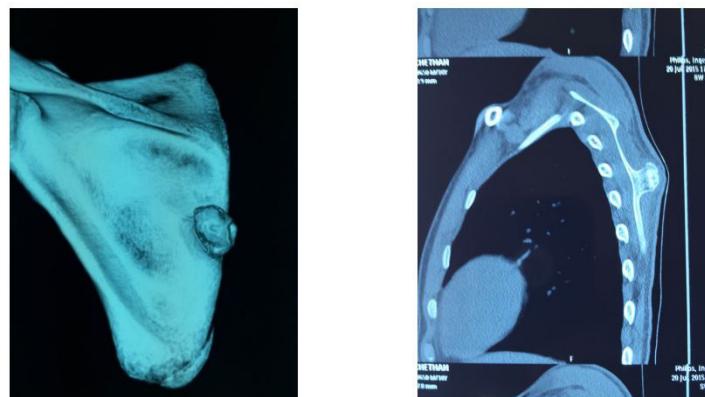
X-ray of the left shoulder was taken in Antero-posterior and scapular Y view, which revealed a bony swelling arising from the

dorsal surface of the left scapula (Figure 2).



Figure 2: X-ray showing the pedunculated mass.

CT scan showed a pedunculated mushroom-like mass arising from the dorsal aspect of the medial border of the scapula. There was no evidence of any pathological fracture or ventral extension or chest wall abnormality (Figure 3).





**Figure 3:** CT scan with 3D reconstruction showing the size and stalk of the osteochondroma.

A provisional diagnosis of pedunculated osteochondroma of the left scapula was made. The patient was planned for excision biopsy.

### Surgical technique

Under general anaesthesia, the patient was made to lie in the prone position. After preparing the left shoulder a sterile drape was applied. A 3-cm incision was made parallel to the medial border of the scapula over the swelling. The trapezius was dissected, and the borders of the mass were delineated (Figure 4).

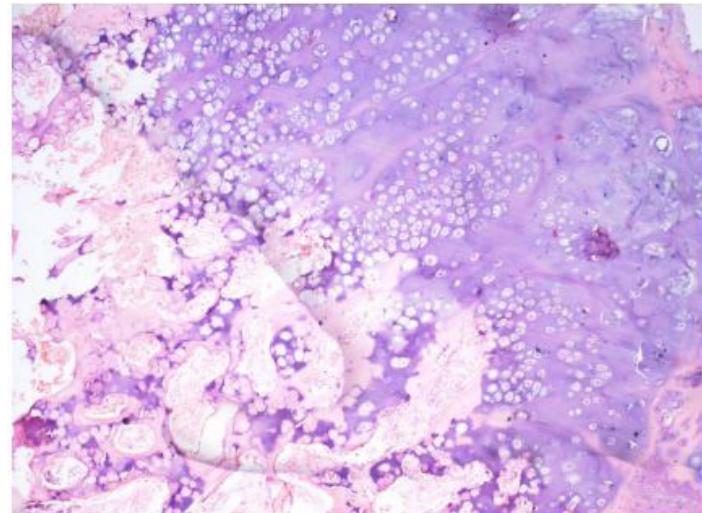


**Figure 4:** Intraoperative photograph.

The stalk was identified, and the mass was excised in toto. The remnant stump was nibbled, and dorsal surface of the scapula

was smoothed using a file. The excised mass was sent for histopathological studies.

**Histopathology:** Studies confirmed the diagnosis of osteochondroma (Figure 5).



**Figure 5:** Histopathological microscopy photograph.

**Macroscopy:** Bony fragment with soft tissue attachments of size 5x4x1 cm.

**Microscopy:** Multiple sections of bone fragments were seen with a cartilaginous cap with trabecular bone and fatty tissue. The cartilaginous cap was 3mm in thickness.

### Post-Operative Care

**Postoperative 1st day:** The patient was immobilised using an arm pouch.

**Postoperative 3rd day:** Patient developed fever with multiple episodes of vomiting. His platelet count had dropped to 20,000/ cumm and tested positive for dengue serology. His liver function tests were normal. The patient was transfused two units of platelet concentrate. He was kept nil oral with continuous fluid and electrolytes infusion.

**Postoperative 6th day:** Patient was symptomatically better. His operative wound was healthy. Platelets picked up to 52000/ cumm.

**Postoperative 10th day:** Wound was healthy. Sutures were removed. Pendulum exercises were initiated. The patient was asymptomatic.

### Discussion

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 [1].

The dorsal surface of the scapula is rarely seen as a potential site for the origin of osteochondroma from our review of the literature, which was the case in our patient. Most of the patients presenting with solitary osteochondroma of the scapula have been reported to be of the sessile variant. Despite its unknown aetiology, a peripheral portion of the physis is thought to herniate from the growth plate [2,3]. This metaplastic cartilage grows to form the exostosis, which is connected to the bone by a thin stalk. Osteochondroma commonly occurs at an age of fewer than 30 years, with a male to female ratio of  $>1.5:1$  [4]. Our patient was a male of 19 years of age. He presented with a painless bony mass which is the most commonly reported symptom [3]. Pain, if present, is mostly due to the mass effect of a tumour on the surrounding tissue. A wide range of other presentations includes decreased range of motion, nerve impingement, underlying bursitis, fracture of the stalk of a tumour and “pseudo-winging” of the scapula [2,4]. Snapping scapula syndrome, which is a syndrome of painful, audible and/or palpable abnormal scapula thoracic motion, can develop when the osteochondroma is present on the anterior surface of the scapula, especially in adolescence or early adulthood [5]. Solitary osteochondromas have a 3% chance of converting into an osteosarcoma.

This was one of the reasons why she was operated, and the tumour excised. This risk increases to 10% for patients with hereditary multiple exostoses [6]. Malignant transformation is characterized by a sudden increase in the size of a tumour accompanied by pain. Osteochondromas are usually not difficult to diagnose clinically, but confirmation is a must by histopathological studies of the biopsy taken. Radiographic studies like X-ray and CT scan are essential for isolating the location of the mass and planning surgical approach [3]. In our patient, a CT scan with the 3D reconstruction of the shoulder was done and it revealed the mass was a pedunculated mushroom-like swelling arising from the dorsal aspect of the scapula along the medial border of the scapula. MRI is usually reserved for cases in which malignancy is suspected. Histopathology of osteochondroma showed enchondral bone connected to normal bone by a thin stalk in continuity with the medullary canal of the native bone. The thickness of the cartilaginous cap seen in the biopsy specimen also is one of the predicting factors for malignant transformation [3].

A cartilaginous cap thickness of less than 1 cm indicates a benign condition whereas a cap, thicker than 2 cm should raise concern for malignant transformation [1,3]. The biopsy of our patient revealed the thickness of the cartilaginous cap to be of 3cm, which indicated a possibly significant malignant potential. Osteochondromas usually stop growing at the time of closure of the physis,

and growth into adulthood should also raise suspicion for possible malignancy [1]. The only definitive treatment of osteochondroma is en bloc excision of the tumour [3,4]. After narrowing down the location of the mass with the aid of CT scan, we planned a surgical approach parallel to the medial border of the scapula. Endoscopic resection is gaining popularity due to claims of earlier functional recovery, better results in terms of pain relief, post-operative performance and cosmetic outcome due to a smaller incision [4]. In our patient, the incision made was only a 4 cm one and we wanted to give importance to resecting the tumour completely. The overall prognosis is good with relapse being very rare, usually occurring when tumour margins are not cleared completely, and residual fragments of cartilage cap or periosteum remain following excision [1, 6]. Incomplete excisions lead to a 2% recurrence risk [6]. The decision for surgery was taken because of the increasing size and discomfort for the patient for 1 year.

## Conclusion

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 reduce the risk of recurrence. Surgical excision should be done at the earliest for symptomatic cases to reduce the risk of malignant transformation.

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