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A Heavy Burden on the Back: Surgical Excision of a Massive Scapular Osteochondroma – A Case Report

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Learning Point of the Article:

Dorsal scapular osteochondromas with lateral and ventral extension are rare and should be considered in scapular swellings, with surgery reserved for clear indications and outcomes best assessed using Patient-Reported Outcome Measures to strengthen clinical research in benign bone tumors.

Abstract

Introduction: Osteochondromas are the most common benign bone tumors, typically arising from the metaphyseal regions of long bones. However, their occurrence in flat bones, particularly the scapula, is rare. We report a case of a large solitary osteochondroma arising from the dorsal aspect of the scapula in a pediatric patient, which was successfully treated with surgical excision.

Case Report: A 12-year-old female presented with a progressively enlarging bony swelling over the right scapular region since the age of 7 years, recently associated with difficulty in lying over the affected side. Radiological evaluation, including X-ray and computed tomography scan confirmed a large osteochondroma arising from the inferior angle of the right scapula. This case is unique as the osteochondroma extends from dorsal to ventral aspect through the lateral aspect of scapula making it difficult for the child to lie on both supine and right lateral positions. The patient underwent en bloc excision, resulting in complete resolution of symptoms and had no recurrence at follow-up.

Conclusion: Though uncommon, osteochondroma should be considered in the differential diagnosis of bony swellings over flat bones, such as the scapula. Earlier surgical management may yield the best functional and cosmetic outcomes.

Keywords: Osteochondroma, scapula, bony swelling, pediatric bone tumor, surgical excision.

Introduction

Osteochondroma or osteocartilaginous exostosis, accounts for approximately 35–50% of benign bone tumors. While commonly found in long bones, such as the femur, tibia, and humerus, involvement of flat bones – especially the scapula – is uncommon, accounting for only 3–4.6% of all osteochondroma cases. Among scapular tumors, osteochondromas account for 14.4%, with the ventral surface being the more common site of occurrence [1, 2]. We present a rare case of a large, solitary osteochondroma arising from the dorsal surface of inferior angle of scapula, which was successfully treated with complete surgical excision.

Case Report

A 12-year-old female presented to our orthopedic clinic with complaints of a large, hard swelling over the right scapular region and difficulty in lying on the affected side. The swelling was noted since the age of 7 years and gradually increased in size over

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Author's Photo Gallery


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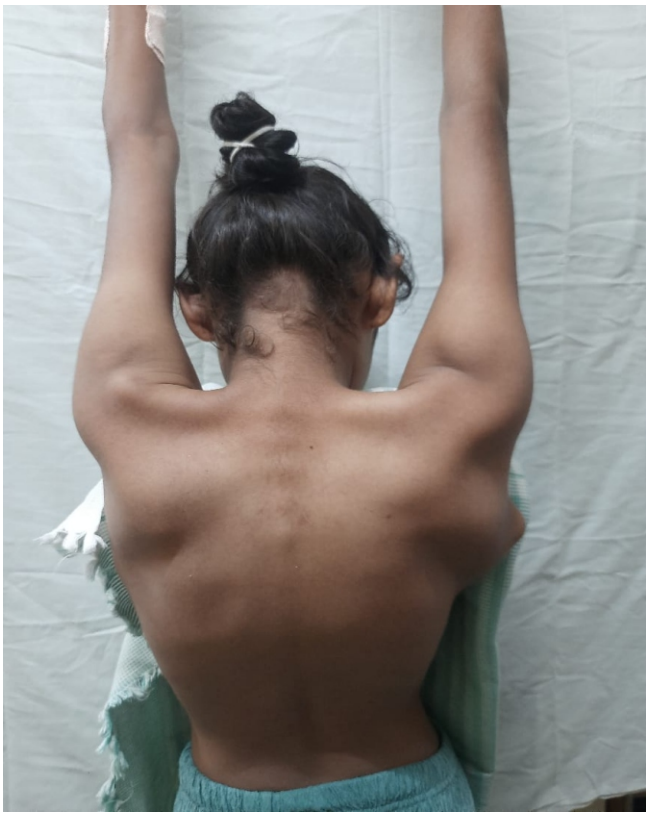

Figure 1: Preoperative clinical photograph from the back showing a large lobulated swelling over the dorsal aspect of the right scapula, causing visible posterior asymmetry and pseudowinging.

Figure 2: Pre-operative clinical photograph from the right side revealing extension of mass from the posterior to the anterior aspect.

the years, becoming symptomatic in the past year with difficulty in lying on the affected side.

On physical examination, a lobulated, bony hard, and non tender mass measuring approximately 15 × 6 × 6 cm was palpated over the inferior angle of the right scapula, extending from the posterior aspect forward toward the thoracic wall; the overlying skin was freely mobile and there were no signs of inflammation or neurovascular compromise (Figs. 1 and 2). An incidental finding of multiple swellings around bilateral knee joints was made.

Plain radiographs and computed tomography (CT) of the right scapula revealed a large, pedunculated exostosis arising from the dorsal aspect of the scapula (Fig. 3). Multiple pedunculated bony lesions from the bilateral distal femur and proximal tibia were noted. Surgical excision of the scapular mass was elected, while the knee lesions were left under observation since there were no clinical complaints.

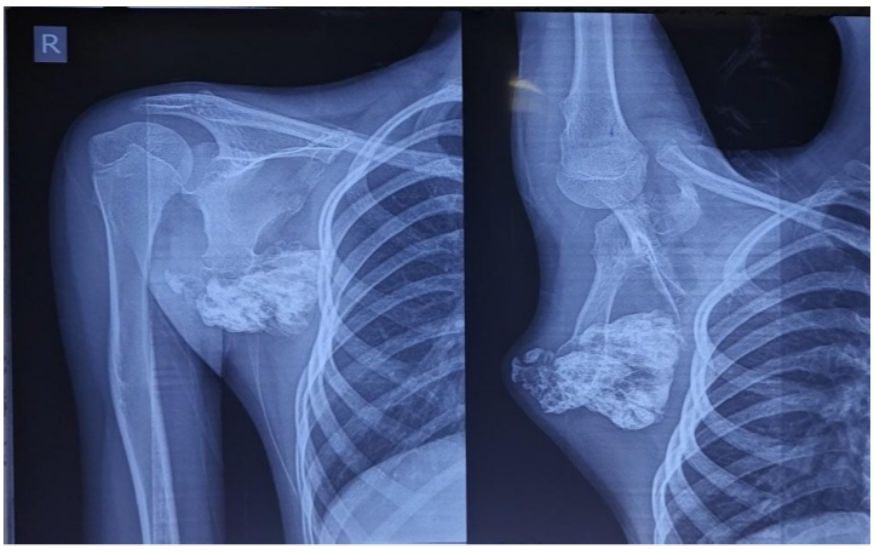

Figure 3: Preoperative shoulder radiograph (antero-posterior and scapular Y views) showing a large, well-circumscribed, pedunculated bony mass arising from the inferior angle of the right scapula.

Under general anesthesia with the patient prone, a straight incision was made along the lateral border of the right scapula; the 15 × 6 × 6 cm, lobulated, bony mass was noted which was delivered en bloc (Fig. 4). The tumor was lobulated with a cartilage cap, and continuity between the medullary canal of the lesion and the native scapula confirmed the diagnosis of osteochondroma. Intraoperative clinical picture and fluoroscopy ensured complete resection. Post op X-ray confirmed the same.

Histopathological examination confirmed benign osteochondroma. Post-operatively, the patient had significant improvement in

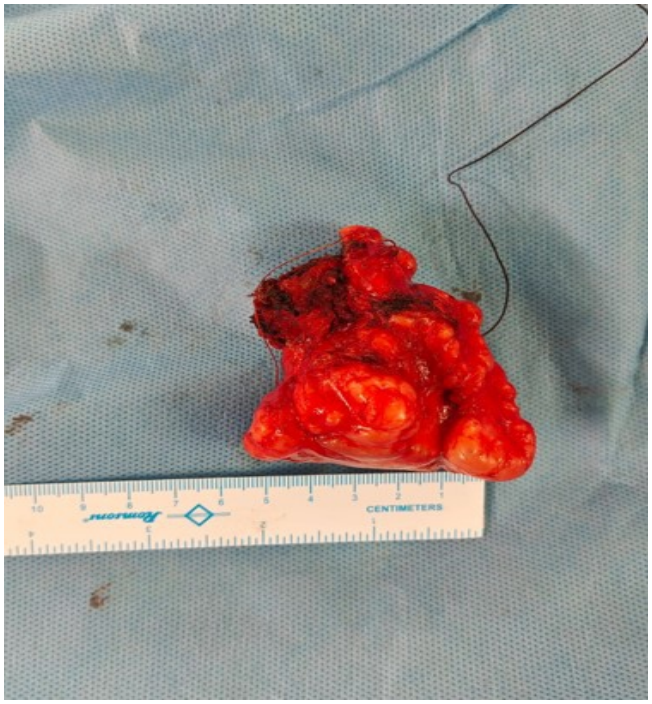

Figure 4: Gross image of the excised tumor with multilobulated surface and cartilaginous cap, placed next to a scale for reference (approx. 6 cm).

Figure 5: 1-year clinical follow-up image from behind showing no signs of clinical recurrence with healed scar.

shoulder mobility, with complete wound healing and no recurrence on follow-up examination and imaging done 2-years post-surgery (Fig. 5 and 6).

Discussion

Osteochondromas are benign osteocartilaginous exostoses that originate when epiphyseal (growth plate) cartilage herniates through the periosteal sleeve and ossifies – separating from the parent bone cortex and medulla – yet remain usually asymptomatic and are detected incidentally on radiographs or CT scans [3, 4]. Flat bone involvement is uncommon, and dorsal scapular osteochondromas are even rarer compared to the ventral side. Scapular osteochondroma on superomedial angles are also reported and are excised by superior approach to scapula [5]. Classification is based on the morphology of the base, defined as either pedunculated (with a stalk, growing away from the epiphysis) or sessile (broad based) [6]. Osteochondroma on the dorsal aspect are usually reported Sessile [7]. In rare sites, such as the scapula, however, they may produce symptoms, such as pain, cosmetic prominence, or mechanical issues, such as snapping or restricted scapulothoracic motion [8].

Signs most concerning for malignant transformation include new onset pain, rapid growth especially after skeletal maturity, anatomical site-scapula or pelvis, and a cartilage cap thickness >2 cm. In skeletally immature bone, during spurts of growth, the cartilage cap may become quite large, and necessarily does not indicate a malignant transformation [7]. They may mimic other pathologies, such as lipomas, soft tissue tumors, or bony deformities [9,10]. In our case, the size and location of the tumor resulted in functional limitation, warranting surgical intervention.

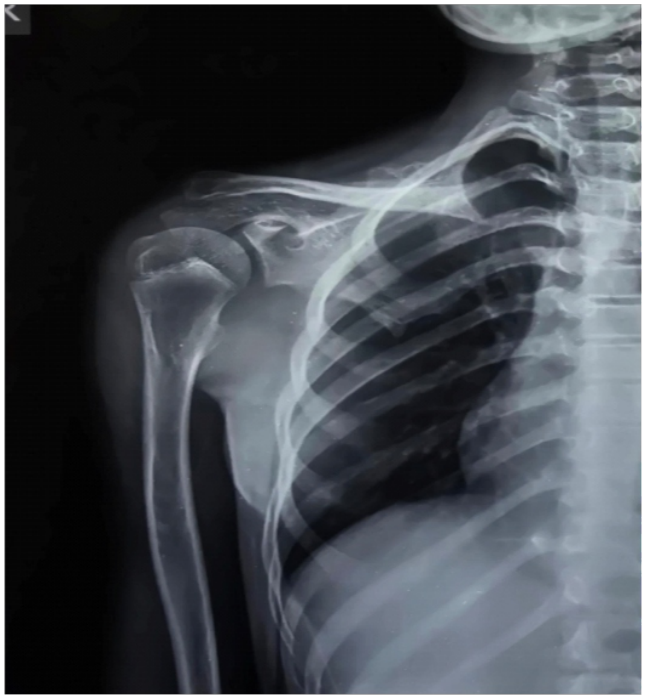

Figure 6: 1-year follow-up antero-posterior X-ray showing no recurrence of the lesion.

Delayed diagnosis can lead to complications, such as pseudo-winging, snapping scapula, bursa formation, or nerve compression [11,12,13,14]. Surgical excision provides excellent results, as seen in our patient [15]. Physiotherapy rehabilitation should be given to improve quality of life [16].

Conclusion

Massive solitary osteochondroma of the dorsal scapula is a rare clinical entity, but should be considered in the differential diagnosis of longstanding scapular swellings. Early imaging, prompt diagnosis, and surgical excision can prevent complications and restore function, especially in pediatric patients.

Clinical Message

Osteochondroma, although typically seen in long bones, can present atypically in flat bones, such as the scapula. Large lesions can cause functional impairment and should be surgically addressed for symptomatic relief and prevention of complications.

Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given the consent for his/ her images and other clinical information to be reported in the journal. The patient understands that his/ her names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Conflict of interest: Nil **Source of support:** None

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