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CASE REPORT: RARE CASE OF SCAPULAR OSTEOCHONDROMA

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ABSTRACT Osteochondroma is the most common benign bone tumour; scapular involvement is uncommon and easily missed when winging or snapping are absent. We report a medial border scapular osteochondroma in an adolescent and emphasise surface-dependent symptomatology and curative management. A 15-year-old girl presented with an 8–10 month history of an enlarging, painless swelling along the medial border of the scapula. She noted pressure-like discomfort when supine and during overhead activity. Examination showed a hard, non-tender, immobile bony prominence with full shoulder motion and no dynamic or static winging. Radiographs demonstrated a pedunculated exostosis in corticomedullary continuity with the scapula, consistent with osteochondroma. Through a posterior parascapular approach, subperiosteal dissection enabled en bloc excision with a narrow bony margin, preserving musculature. The specimen measured 3.8 × 3.5 × 3.0 cm with a smooth surface. Histology demonstrated a mature hyaline cartilaginous cap 0.3–0.4 cm thick over trabecular bone and hematopoietic marrow without atypia or mitoses, confirming osteochondroma. Recovery was uneventful; early follow-up documented full range of motion and no recurrence. Medial border scapular osteochondroma may present as posterior contour prominence and discomfort without winging. Recognition of corticomedullary continuity on radiographs and a thin cartilage cap supports benign behaviour. Muscle-sparing en bloc excision yields definitive treatment and rapid recovery while excluding hereditary exostoses and malignant transformation.

KEYWORDS : Scapular Osteochondroma; Scapula; Osteochondroma; Adolescent; Corticomedullary Continuity; Cartilage Cap; Scapular Winging (Differential); En Bloc Excision.

INTRODUCTION

Osteochondroma is the most prevalent benign bone tumour, classically defined as a cartilage-capped exostosis that is continuous with the cortex and medullary canal of the parent bone, arising from aberrant physeal growth at the metaphyseal regions of long bones during skeletal maturation. Although the lesion is typically encountered around the knee and proximal humerus, its occurrence in flat bones is distinctly uncommon, and involvement of the scapula constitutes a small fraction of all reported osteochondromas.[1]

Within the scapula, osteochondromas may arise from either the dorsal or ventral surface, with dorsal localisation considered particularly rare and therefore prone to delayed recognition.[2] Recent case reports have characterised dorsal scapular osteochondromas as insidious, slowly enlarging masses that present with posterior shoulder pain, cosmetically apparent bony prominence, and difficulty lying supine, yet are often overlooked in the initial diagnostic work-up.[2,3] Additional literature further reinforces dorsal scapula as an unusual topography for this otherwise common tumour, underscoring the need for careful clinical and radiological evaluation when a hard, immobile scapular swelling is encountered in adolescents and young adults.[4]

By contrast, ventral scapular osteochondromas more frequently manifest with scapulothoracic mechanical symptoms—including snapping scapula, pseudo-winging, and activity-related interscapular pain—and may pose significant diagnostic and therapeutic challenges in resource-constrained environments.[5] Such lesions can produce chest wall discomfort and thoracic cage compression, with cross-sectional imaging revealing mass effect on adjacent ribs and pleura.[6] Scapular osteochondroma is now recognised as an important structural cause of scapular winging, sometimes presenting de novo in adulthood rather than during the period of rapid growth, thereby mimicking neuromuscular aetiologies.[7] Lesions arising from the superior angle or medial border of the scapula have been reported to present after years of neglected shoulder pain and mechanical snapping, highlighting the potential for prolonged morbidity when the diagnosis is missed.[8] In advanced cases, chronic frictional contact between the exostosis and thoracic cage may even culminate in secondary rib erosion and fixed scapular winging.[9]

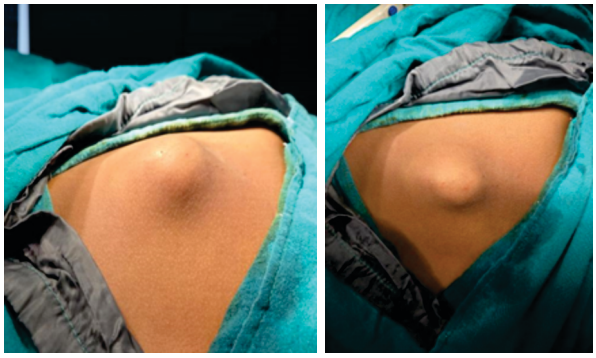
Against this backdrop of limited but evolving evidence, we report a rare case of scapular osteochondroma in an adolescent female, contributing further to the clinico-pathological spectrum and diagnostic awareness of this infrequent scapular neoplasm.

Case Presentation

A 15-year-old girl presented to the Orthopaedics service of a tertiary-care teaching hospital with an 8–10-month history of a gradually enlarging, painless swelling over the medial border of the scapular region. Over the preceding few months she noted dull, pressure-like discomfort when lying supine and with overhead activities. There was no antecedent trauma, fever, weight loss, or neuropathic symptoms. She reported no similar swellings elsewhere, and family history was negative for multiple exostoses.

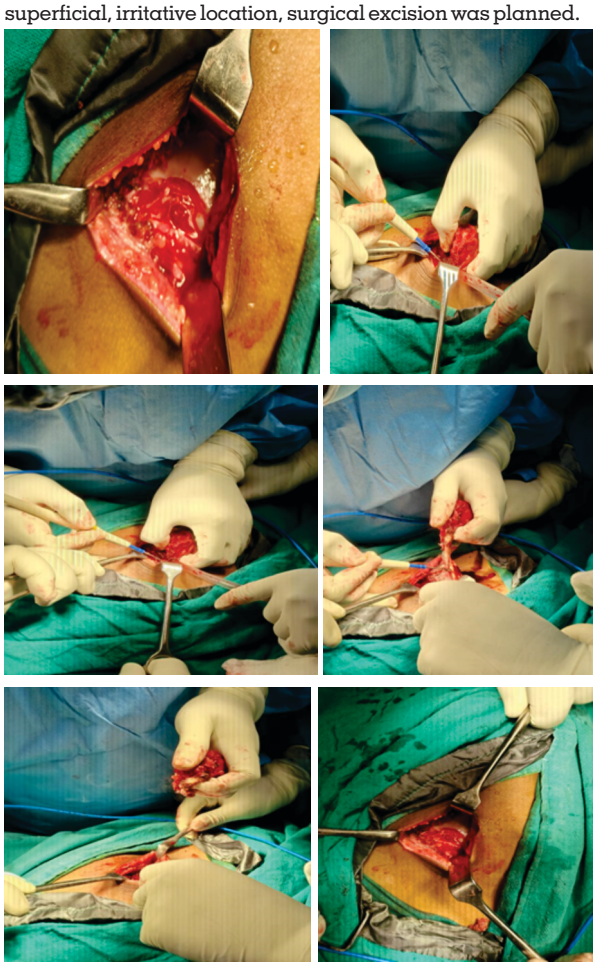
On examination, a solitary, well-circumscribed, hard, non-tender, immobile bony prominence was palpable along the medial scapular border. The overlying skin was normal without erythema, warmth, or sinus. Shoulder range of motion was full; terminal abduction provoked mild discomfort without crepitus or mechanical locking. There was no clinical

evidence of dynamic or static muscular winging. Distal neurovascular status of the limb was intact, and survey of the remainder of the skeleton revealed no additional lesions.



Preoperative Clinical Photographs

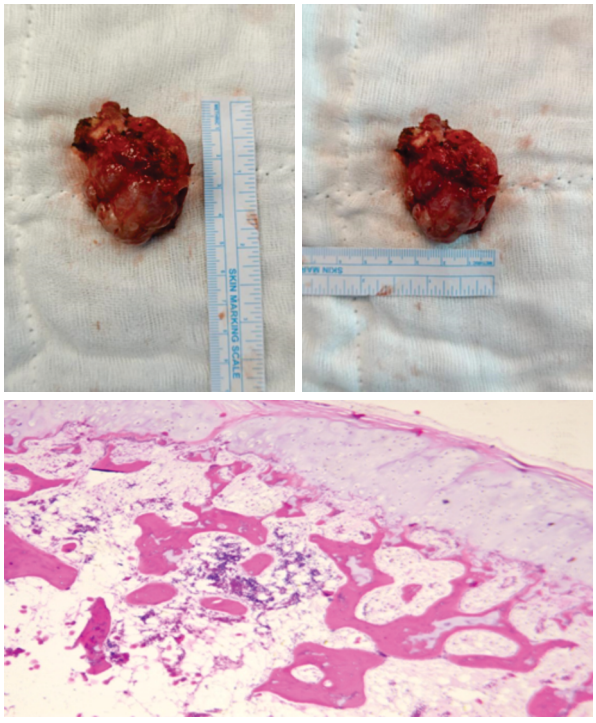
Plain radiographs of the shoulder girdle demonstrated a well-marginated, pedunculated bony outgrowth arising from the medial border of the scapula with corticomedullary continuity with the parent bone, radiologically consistent with an osteochondroma. In view of progressive symptoms and the superficial, irritative location, surgical excision was planned.



Intraoperative Photographs

Via a posterior parascapular approach, subperiosteal dissection exposed a pedunculated exostosis arising from the medial scapular border. The lesion was mobilised circumferentially and excised en bloc with a narrow bony margin using osteotomes, preserving surrounding musculature (operative steps illustrated in intraoperative photographs). The postoperative course was uneventful with immediate relief of pressure-related discomfort; the limb was mobilised as tolerated.

The specimen, submitted to the Department of Pathology and Laboratory Medicine, comprised a single pale-white bony mass measuring 3.8 × 3.5 × 3.0 cm. The external surface was smooth and glistening. On the cut section, pale-white areas (approximately 1.0 × 0.8 cm) were seen, and the cartilaginous cap measured 0.3–0.4 cm in thickness. Microscopy showed a mature hyaline cartilagininous cap with overlying fibrous perichondrium and underlying bony trabeculae with hematopoietic marrow elements; no cytological atypia, mitoses, or features of malignant transformation were identified.



Gross Specimen and Microscopy

Clinico–radiologic–pathologic correlation: A slowly progressive, hard, non-tender medial-scapular swelling in an adolescent; radiographs showing a pedunculated exostosis in corticomedullary continuity with the scapula; and histology demonstrating a cartilage-capped bony outgrowth with a thin cap (<5 mm) and absence of atypia together establish the diagnosis of a solitary scapular osteochondroma, effectively excluding hereditary multiple exostoses and secondary chondrosarcoma.

At early follow-up, the patient was pain-free, had full shoulder motion, and showed a well-healed scar without clinical evidence of recurrence. Written informed consent for surgical treatment and publication of de-identified clinical details and images was obtained from the guardian.

DISCUSSION

This case describes a medial-border scapular osteochondroma in an adolescent, confirmed by clinico–radiologic–pathologic concordance and managed with complete excision, thereby exemplifying the benign biology and favourable prognosis of this entity at an uncommon site. Osteochondroma is the commonest benign bone tumour, arising from aberrant physeal growth and defined radiologically by corticomedullary continuity with the parent bone; flat-bone involvement, including the scapula, is distinctly infrequent, which contributes to diagnostic delay in atypical locations. Our patient's age and a thin cartilage cap (0.3–0.4 cm) align with accepted benign thresholds, whereas cap thickening (>1–2 cm after maturity), growth post-maturity, or new persistent pain would raise concern for malignant transformation.[1]

Topography and presentation. The clinical picture of a slowly enlarging, hard, non-tender scapular prominence with pressure-related discomfort mirrors recently reported scapular osteochondromas that present as posterior contour deformity with difficulty lying supine and minimal scapulothoracic mechanics. The patterns detailed by Khan & Chand and Das et al. emphasise how such lesions may be overlooked when they do not produce overt winging or snapping.[2,3] Rarity at the medial/superomedial region has been highlighted previously, where unusual scapular topography contributed to delayed presentation—an observation echoed by Bektas & Ozmanevra.[4] By contrast, ventral scapular osteochondromas classically manifest with scapulothoracic mechanical symptoms—snapping, pseudo-winging, and interscapular pain—reinforcing that symptom phenotype is strongly surface-dependent.[5]

Thoracic interaction and complications. Our patient had no chest pain, dyspnoea, or restrictive symptoms, distinguishing this case from the rib-compressive morphology described by Chun et al., in which ventral scapular osteochondroma produced chest discomfort and thoracic contour alteration.[6] Likewise, there were no features of static winging with rib erosion, a complication well documented in superomedial ventral lesions and attributable to chronic frictional contact with the thoracic cage, as reported by Sivananda et al.[9] The differential symptomatology across reports supports a practical clinical heuristic: surface orientation tends to predict the dominant complaint—posterior mass effect for posteriorly presenting lesions versus scapulothoracic mechanics or thoracic compression for ventral masses.[7,9]

Differential diagnosis and evaluation. In adolescents with a scapular mass, differentials span elastofibroma dorsi, osteoma, osteoblastoma, parosteal osteosarcoma, and neuromuscular causes of winging (long thoracic or spinal accessory nerve palsy). In our case, the absence of dynamic or static muscular winging and the radiographic demonstration of corticomedullary continuity argued strongly for osteochondroma, consistent with diagnostic criteria synthesised across contemporary reviews and case series.[1] A solitary lesion, negative family history, and lack of additional exostoses further argue against hereditary multiple exostoses, aligning with standard teaching and recent case-based discussions.[2]

Imaging–pathology correlation. While ventral lesions often warrant CT/MRI to map subscapular relations and measure cartilage cap thickness, superficial scapular masses can be adequately triaged by radiography when the exostotic morphology is unequivocal. This pragmatic approach, common to both routine and resource-limited settings, is reflected in Ngongang et al. and complements our pathway to surgery.[5] Histology in our patient—mature hyaline cartilage with fibrous perichondrium over trabecular bone and hematopoietic marrow, without atypia or mitotic activity—matches archetypal osteochondroma across dorsal and ventral reports and conforms to benign benchmarks outlined in reference texts and recent series.[1,3]

Surgical management and outcomes. We performed en bloc excision via a posterior parascapular, subperiosteal dissection, preserving surrounding musculature. This muscle-sparing strategy parallels the open techniques reported in resource-constrained environments (with reliable symptom relief when the cap is entirely removed) and is congruent with the favourable experiences documented for scapular osteochondromas across differing surfaces.[5] Uncomplicated convalescence with prompt relief has been described after excision of posteriorly presenting lesions (Khan & Chand; Das et al.) and in ventral cases with or without thoracic compression (Chun et al.; Alatassi et al.), supporting a uniformly good prognosis when complete resection is achieved.[2,3] The low recurrence risk after full cap removal observed in these reports is concordant with general guidance for solitary osteochondromas.[1,4]

Contribution of this case. First, it reinforces that scapular osteochondroma at the medial border may present predominantly with posterior contour prominence and positional discomfort, without winging or snapping—contrasting with the ventral, scapulothoracic phenotype.[5,7] Second, it illustrates that plain radiography plus meticulous clinical examination can suffice for operative planning in superficially presenting lesions, reserving cross-sectional imaging for cases with suspected rib/chest-wall involvement or equivocal cap characteristics.[5,6] Third, the thin cap in an adolescent and rapid symptom resolution after complete cap removal reiterate the benign trajectory and surgical curability summarised in contemporary literature.[2,4]

In aggregate, our findings integrate coherently with published evidence: the rarity of scapular involvement, the surface-dependent symptom complex, the diagnostic primacy of corticomedullary continuity, and the excellent outcomes after complete excision collectively position scapular osteochondroma as an uncommon yet highly manageable entity when recognised promptly and treated definitively.[1,10]

CONCLUSION

An adolescent presented with a medial-border scapular osteochondroma causing posterior prominence without winging. Radiographs demonstrated corticomedullary continuity; histology showed a thin cartilage cap. Muscle-sparing en bloc excision achieved immediate relief and early disease-free recovery. Surface-dependent symptom recognition and timely surgery enable definitive management while excluding hereditary exostoses and malignant transformation.

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