

Dorsal Scapular Osteochondroma in a Young Male: A Case Report and Literature Review

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Learning Point of the Article:

Dorsal scapular osteochondromas are quite rare. Diagnosis is made through a combination of imaging and histopathological examination. Asymptomatic lesions can be treated conservatively but surgical intervention is required in cases where the patient is symptomatic or malignant transformation is present.

Abstract

Introduction: Osteochondromas are a unique group of benign bone tumors that are characterized by bony outgrowth covered by Cartilage. It has a peculiar micro-architecture as its cortices are extensions of those of parent bone and there is a continuity of medullary cavity; this is akin to branching in plants, rightly earning the name “Exostosis.”

Case Report: We report a case of a 21-year-old male who presented with complaints of swelling on the upper back associated with mild discomfort. Examination confirmed a bony mass on the dorsal aspect of the scapula without any restricted range of motion of the shoulder joint. On the confirmation of diagnosis, en bloc excision was performed.

Conclusion: In conclusion, dorsal scapular osteochondromas are a rarity, and excision of the lesion is an effective management for symptomatic lesions.

Keywords: Osteochondroma, exostosis, scapula, orthopedic tumor.

Introduction

Osteochondroma, as an orthopedic entity sits tightly on the fence between neoplastic and non-neoplastic lesions. Although considered as a benign bone tumor, it represents a developmental aberration involving ectopic migration of a part of the growth plate and its autonomous proliferation [1]. The lesion consists of a bony mass and overlying cartilage, with its cortex and medullary cavity contiguous with those of the originating bone. Its growth also mirrors the growth of its parent bone and peaks at skeletal maturity, unless it transforms into a malignant lesion [2, 3]. It is mostly found as a solitary lesion but may present as multiple lesions in a condition known as multiple hereditary exostoses [4, 5]. Owing to its asymptomatic nature, it

is usually found incidentally on imaging or occasionally presents as a painless lump. Rarely, it might present with pain because of mechanical irritation of adjacent structures including muscles and tendons, or if there is a malignant transformation of the lesion [6, 7]. The distal femur, proximal tibia, and proximal humerus constitute the most common sites of presentation of osteochondroma [8]. The scapula is a relatively rare site, but osteochondroma is the most common tumor of the scapula. Most scapular osteochondromas present on the ventral aspect, with the dorsal side relatively less involved and less reported [9-12]. We report a case of large dorsal scapular osteochondroma in a young male.

Author's Photo Gallery



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Access this article online

Website:
www.jocr.co.in

DOI:
<https://doi.org/10.13107/jocr.2024.v14.i08.4628>

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Submitted: 05/04/2024; Review: 11/05/2024; Accepted: June 2024; Published: August 2024

DOI: <https://doi.org/10.13107/jocr.2024.v14.i08.4628>

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Figure 1: Clinical picture of the patient showing swelling on the dorsal aspect of the right scapula.



Figure 2: X-ray showing a non-uniform radio-opaque lesion adjacent to the medial border of the scapula.

Case Report

A 21-year-old young adult presented with a swelling over the right upper thoracic region. The swelling was first noticed by the patient around 9 years ago, as a peanut-sized lump which progressively grew to about the size of a golf ball at the present day. There was no history of any significant trauma or any other lump. It was painless for the majority of its duration but started causing discomfort in the past 2 months before the presentation. Due to its asymptomatic nature for much of the course, the patient avoided any surgical treatment advised to him multiple times.

On examination, the swelling was solitary, protuberant, localized, spherical, and non-pulsatile. The overlying skin was unremarkable and there was no change in local skin temperature. Swelling was non-tender and globular with dimensions of 5.5 cm × 6 cm × 3.5 cm. Bony hard consistency was evident with clearly defined edges. The swelling was fixed to the underlying scapula, a few centimeters above the inferior angle. It was non-fluctuating and non-reducible. There was a movement of the swelling corresponding to the movements of the scapula. Neurovascular examination of the right upper limb was

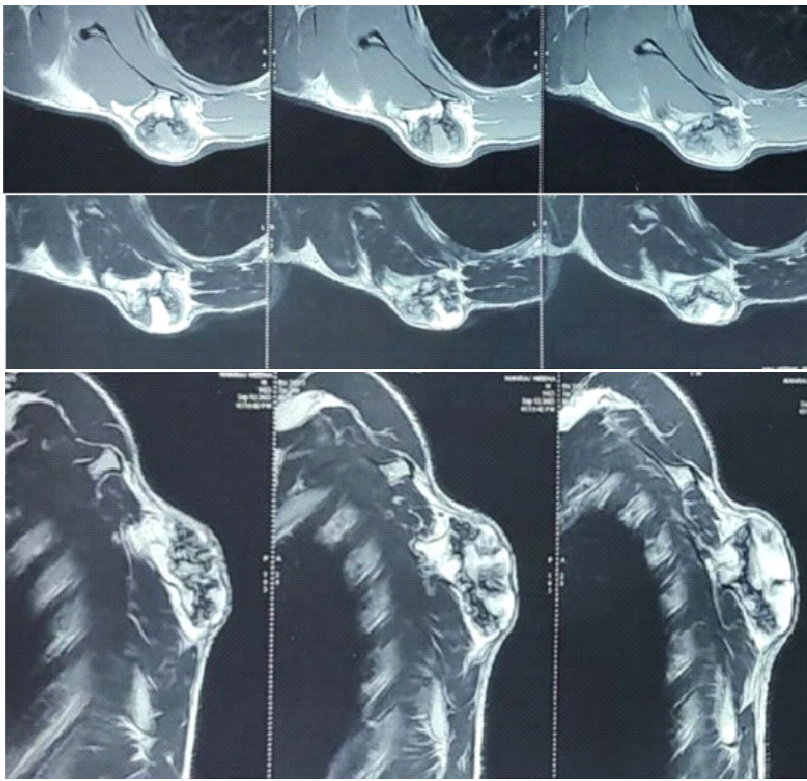


Figure 3: Magnetic resonance imaging suggests a large pedunculated osseous lesion with overlying cartilaginous cap.

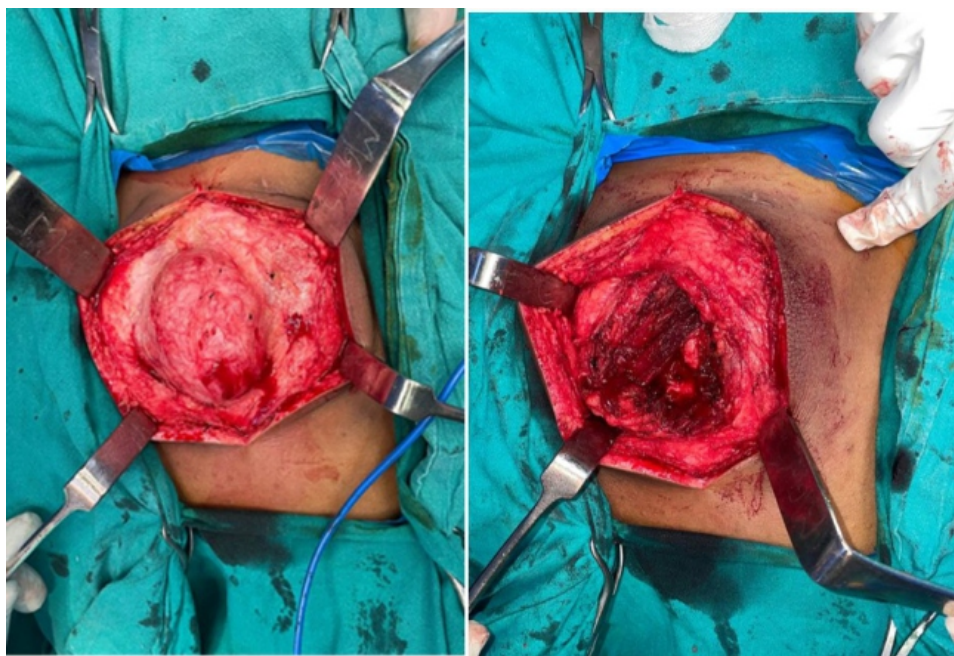


Figure 4: Intra-operative images of the dorsal scapular lesion and after excision.

unremarkable (Fig. 1).

Magnetic resonance imaging (MRI) was obtained and suggested a large (3.6 cm × 5.6 cm × 5.9 cm) pedunculated osseous lesion with an overlying cartilaginous cap, arising from the dorsal surface of the body of the right scapula (Fig. 2 and 3).

A biopsy sample was taken and sent for histopathological examination. The report suggested a chondroid lesion with the focal osseous component. Findings were consistent with osteochondroma without any element of sarcomatous changes.



Figure 5: Specimen measuring 6 cm × 5.5 cm × 3.5 cm.

En bloc excision of the lesion was planned. The patient was taken on the operation Table 1 in a prone position under the effect of general anesthesia. A 7.5 cm incision was taken centered over the swelling and parallel to the medial margin of the scapula. The muscle was separated along the plane created by the tumor above the mass and the base of the mass was accessed from all directions. It was dissected with the periosteum and excised along with the periosteum from the base with the help of an osteotome. The specimen measured 6 cm × 5.5 cm × 3.5 cm (Fig. 4 and 5).

The patient had immediate relief postoperatively. He was called for follow-up at 15 days, 1 month, 2 months, and 3 months

postoperatively and assessed clinically and functionally. There was no pain or reappearance of swelling. Shoulder range of movements and scapulo-thoracic rhythm were normal at 3 months postoperatively (Fig. 6 and 7).

Discussion and Literature Review

Despite the common occurrence of osteochondromas, the scapula remains a relatively less common site. This can be explained by the fact that scapula ossifies through intra-membranous mode while the most acceptable paradigm of the pathogenesis of osteochondroma is the migration of growth plate remnants to an ectopic location [13, 14]. However, there is a caveat, that osteochondromas constitute the most common tumor of scapula and the most common site is the ventral surface [15-19]. Usually, they follow the growth and development of the parent bone and are present in 2nd or 3rd decade of life. They are mostly asymptomatic but may irritate adjacent structures leading to a myriad of signs and symptoms. Although plain radiography forms the gold standard imaging modality for their diagnosis, suspected osteochondromas of scapula require MRI. MRI is advised when a malignant transformation is suspected. Most asymptomatic lesions are treated conservatively but



Figure 6: Post-operative X-ray images showing complete excision of the lesion.

symptomatic lesions usually require surgery. Our case had a more rare presentation as the tumor was on the dorsal surface. We have also reviewed similar case reports (Table 1).



Figure 7: Post-operative clinical pictures of the patient showing the suture line and range of movements of the right shoulder joint from 60 cm away.

Authors	Sex/Age	Presentation	Site	Operative findings	Histopathology	Size	Follow-up
Fjeldborg and Hansen [20]	12/M	Pain and winging of the scapula	Coastal	NA	NA	NA	NA
Yadkikar and Yadkikar [21]	11/F	Pain and difficulty in sleeping	Dorsal	Excision	Consistent with osteochondroma	3x2 cm	No pain and full shoulder ROM good
Vaishya et al. [22]	18/M	Large lump, winging of scapula, restricted glenohumeral, and joint movements	Medial margin	Excision of lesion which shows a bony, mass capped by a cartilage	Consistent with osteochondroma	5x3 cm	Fully corrected deformity and shoulder ROM
Nekkanti et al. [23]	19/M	Gradually progressing swelling with discomfort	Dorsal	En bloc excision	Consistent with Osteochondroma	3x3 cm	NA
Ngongang et al. [24]	17/M	Pain with winging of the scapula	Ventromedial	Stalk excised	Consistent with osteochondroma	9x5 cm	Painless full range of movements of shoulder.
Shahid et al. [25]	23/M	Painless lump	Dorsal	No surgery done	NA	NA	NA
Segura Sánchez et al. [26]	11/M	Painful localized swelling over the upper back	Dorsal	Surgical excision	Osteochondroma confirmed	4.0x4.0 cm	NA
Jindal et al. [27]	18/M	Painless left scapular swelling	Dorsal	Excision of stalk	Consistent with osteochondroma	4.5x4.0x4.0 cm	NA
Altwaijri et al. [28]	2/F	Painful swelling over scapula	Dorsal	Surgical excision with margins	Osteochondroma with no malignancy confirmed	3.0x2.5 cm	NA
Faur et al. [29]	24/M	Painful swelling on right upper back	Ventral	Surgical excision	Consistent with osteochondroma	3.5 cm max	NA
Das et al. [30]	10/M	Painless lump over right scapula	Dorsal	Surgical excision	Osteochondroma confirmed	5.5x4.5 cm	Good

Table 1: Review of literature.

Conclusion

Dorsal scapular osteochondromas are a rarity. Here, we have reported a case of a 21-year-old male patient with a globular swelling on the upper back associated with discomfort. After making a diagnosis after radiological and histopathological examination, the decision of en bloc excision of the lesion was taken in view of symptoms.

Clinical Message

A mindfully rehearsed sequence of diligent history-taking, careful clinical examination, appropriate imaging, and biopsy is required for the diagnosis of osteochondroma at a location as rare as the dorsal scapula. En bloc excision is the choice of procedure if the indications for surgery are met.

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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Conflict of Interest: Nil
Source of Support: Nil

Consent: The authors confirm that informed consent was obtained from the patient for publication of this case report

How to Cite this Article

Jangir R, Kumar M, Berwal A, Muzahid M, Tailor RR, Dulhanani M. Dorsal Scapular Osteochondroma in a Young Male: A Case Report and Literature Review. *Journal of Orthopaedic Case Reports* 2024 August;14(8): 10-15.