

A Solitary Ventral Scapular Osteochondroma causing Pseudo-winged of Scapula: A Case Report

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Learning Point of the Article:

Ventral scapular osteochondroma should always be considered as a differential diagnosis for a young child presenting with a winged scapula.

Abstract

Introduction: Winging of scapula is defined as a failure of dynamic stabilizing structures that anchor the scapula to the chest wall, leading to prominence of the medial border of scapula. It could be primary, secondary, or voluntary. Primary winging could be true winging due to neuromuscular causes or pseudo-winged due to osseous or soft-tissue masses. A scapular osteochondroma is a very rare presentation site and causes pseudo-winged leading to pushing away of the scapula away from the chest wall presenting as medial border prominence. Here, we are reporting a rare case of a scapular osteochondroma causing a pseudo-winged of the scapula.

Case Report: A 2-year-old male child presented with painless, immobile, and non-fluctuant swelling over the left scapular region, insidious in onset and progressive in nature. On examination, a non-tender, immobile swelling was palpable with a painless and unrestricted range of motion at the shoulder joint. After evaluating radiographs and CT scan, the patient was diagnosed to have a ventral scapular osteochondroma leading to pseudo-winged of the scapula.

Conclusion: Despite the rarity, a differential diagnosis of a scapular osteochondroma should be kept in mind while examining a young child presenting with a winged scapula.

Keywords: Scapula, osteochondroma, pseudo-winged.

Introduction

Winging of scapula or scapula alata is defined as a failure of dynamic stabilizing structures that anchor the scapula to the chest wall, leading to prominence of the medial border of scapula [1,2].

Winging may be described as primary, secondary, or voluntary. Primary scapular winging occurs as a result of anatomic disorders (neurologic, soft tissue or osseous origin) that directly affect the scapulothoracic articulation. Secondary scapular winging occurs due to abnormality in glenohumeral joints. Voluntary winging occurs due to psychological causes and is quite rare [3].

Primary winging comprises true winging which occurs due to neuromuscular causes such as long thoracic nerve palsy and

pseudo-winged which occur due to osseous and soft-tissue masses over the scapula and thoracic cage [4]. Scapular osteochondroma is a rare cause of pseudo-winged which pushes the scapula away from the chest wall and inhibits muscle function [2].

We report a case of scapular osteochondroma arising from the ventral surface and leading to pseudo-winged of the scapula.

Case Report

A 2-year-old male child presented to the outpatient clinic with a painless swelling and deformity over the left scapular region which was insidious in onset and gradually progressing over the past 3 months. The child was first born, with no siblings and there

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Figure 1: Clinical examination of the shoulder showed an evident winging of the left scapula.

was no history of a similar condition in any of the family members. The child had developmental milestones appropriate for his age. There was no history of trauma and no swelling elsewhere in the body. There was no history of fever or weight loss.

On clinical examination, the left scapula looked asymmetrical as compared to the right, with the medial border of the left scapula seeming prominent and elevated from the thoracic cage (Fig. 1). A swelling was palpable $5 \times 4 \times 4$ cm in size which was non-tender, immobile, arising from underlying bone and non-adherent to the overlying skin. It was non-fluctuant and non-compressible. Skin overlying the scapula was intact. Range of motion of shoulder and cervical spine was normal and unrestricted. On neurological examination, the sensory, motor, and reflex testing of bilateral upper limbs were within normal limits. There was no sign of compression of nerves, vessels, or lymphatic system.

Plain radiographs and computed tomography (CT) scan (Fig. 2a, 2b, 2c) were done. The radiograph showed a bony lesion and the CT scan demonstrated a well-corticated bony excrescence arising from ventral surface of the left lower part of body of the scapula, 3 cm proximal to inferior angle and no associated fracture of the bony stalk.

In this case, we had a skeletally immature 2-year-old male child who was asymptomatic apart from a painless mass over the scapula with no associated complications, and hence, was planned to be managed conservatively and followed up regularly at 6 monthly intervals till skeletal maturity. This was planned keeping in mind the fact that a benign ventral scapular osteochondroma ceases to grow after the growth plate has fused

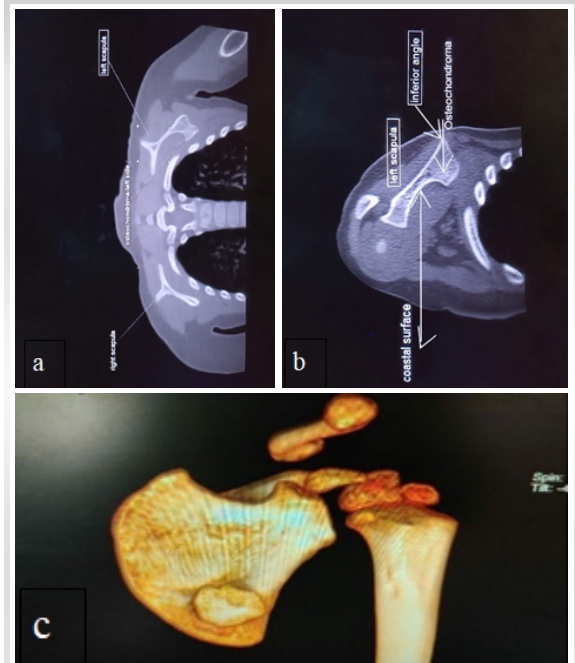


Figure 2: (a) 2D CT coronal view, (b) 2D CT sagittal view, (c) 3D CT showing a solitary ventral scapular osteochondroma.

(once skeletal maturity has been reached) and is very rarely associated with complications such as fracture of the bony stalk, nerve impingement, and rapid enlargement associated with malignancy.

Discussion

Osteochondroma is a developmental physal growth defect which presents as a pedunculated or sessile cartilage-capped bony projection arising on the external surface of the bone containing a marrow cavity that is in continuity with that of the underlying bone and grows through endochondral ossification beneath the periosteum [5, 6, 7].

Osteochondroma represents 30% of all primary bone tumors, 45% of benign bone tumors and is the most common benign bone tumor in humans [5, 8]. It is most commonly seen around metaphysis of long bones. The proximal humerus and knee constitute 90% of occurrence sites [6]. Flat bones such as the pelvis and the scapula are rare sites for osteochondroma with 3–4.5% involvement of the scapula [9]. Osteochondromas are common in young patients under 30 years of age and increase in size in the first decade of life [10]. Incidence is higher in males probably because females tend to have a milder phenotype and hence is easily overlooked [11].

Ventral scapular osteochondroma is usually painless, but may sometimes present with pain, decreased range of motion especially abduction, crepitus, and snapping. Complications such as fracture of bony stalk, nerve impingement, and bursal formation may occur [5]. Very rarely, in 1% of cases, a malignant transformation may occur characterized by sudden increase in

Table 1: Review of case reports of pseudo-winged of scapula due to osteochondroma.

Authors	Age (year)	Sex	Presentation	Outcome
Fageir <i>et al.</i> (2009) [13]	16	Female	Left-sided painless winged scapula.	Excision under general anesthesia in prone position using medial parascapular approach. Postoperatively at 6-month follow-up, the patient had complete painless range of motion. Slight scapular border prominence remained as there were two ventral scapular osteochondromas out of which one was managed conservatively.
Tungdim <i>et al.</i> (2017) [14]	4	Male	Left-sided painless winged scapula with a tender swelling.	Excision in semi-prone position with arm kept in internal rotation. Postoperatively at 6-month follow-up, the patient had painless range of motion and disappearance of winging.
Chun (2019) [9]	14	Male	Left-sided chest pain and winged scapula.	Excision under general anesthesia in lateral decubitus position with arm internally rotated using medial parascapular approach. Postoperatively at 1 year follow-up, the patient had painless range of motion and no symptoms with disappearance of winging.
Prakash <i>et al.</i> (2020) [15]	5 and 12	Female and female	Left-sided winged scapula.	Excision under general anesthesia by triangle of auscultation approach in prone position. Postoperatively at 1 year follow-up, both patients had pain-free range of motion and disappearance of winging.
Barnawal <i>et al.</i> (2020) [6]	6	Male	Left-sided winged scapula with swelling over back.	Excision under general anesthesia in prone position with shoulder in internal rotation using muscle splitting approach between trapezius and rhomboid. Postoperatively, there was no winging of scapula, pain-free range of motion, and no symptoms.

size and pain [5]. Usually, a benign osteochondroma ceases to grow when the growth plate closes at puberty, and a sudden increase in size at puberty should raise a concern for possible malignancy [10]. However, the patient mentioned in the case report was only 2 years old and had none of these symptoms.

True winging of scapula is generally considered to be due to neuromuscular disorders like serratus anterior palsy which increases on forward flexion of the arm and is a dynamic kind of winging. Pseudo-winging is due to non-neuromuscular causes such as lesions over the scapula and adjacent thoracic cage and kyphoscoliotic deformities of upper and mid-thoracic spine with osteochondroma being the most common tumor cause among tumors. Pseudo-winging is a static kind of winging which is characteristically present at rest and does not increase with forward flexion of arm [4].

Osteochondromas are often seen as an incidental finding, as the lesions tend to present as asymptomatic, slow-growing masses on the involved bone [7]. AP and lateral radiographs are sufficient to make the diagnosis, but a CT scan gives us a better anatomical understanding of the lesion and helps in planning future management [5]. Histopathological evaluation shows endochondral ossification and cartilage with disorganized growth plate [12].

Diagnosis of pseudo-winged due to scapular osteochondroma

is often missed. A summary of recent case reports published is presented in Table 1.

A ventral scapular osteochondroma causing pseudo-winged is usually managed with surgical excision of the entire lesion with stalk, unless skeleton is immature [7]. Patients can be followed up with routine clinical examinations and yearly radiographs until skeletal maturity. On subsequent outpatient department visits, new onset of symptoms such as nerve impingement, sudden onset of increased pain, or rapid increase in size of the lesion should be checked for, which could indicate a possible malignancy [5].

Prognosis of a solitary ventral osteochondroma after excision is excellent. Surgical excision helps to achieve a complete resolution and relief of mechanical symptoms, with a full range of motion in the affected shoulder [7]. Very rarely, tumor relapse is seen when unclear resection margins are left [7].

Conclusion

This case report highlights the importance of considering ventral scapular osteochondroma leading to pseudo-winged of scapula as a differential diagnosis, in a case of a young child presenting with winged scapula. A high degree of suspicion accompanied by proper clinical examination helps in diagnosing this rare entity.

Clinical Message

Ventral scapular osteochondroma should always be considered as a differential diagnosis for a young child presenting with a winged scapula.

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