

Case Report

Pseudo scapula alata: a case report of a scapular osteochondroma

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ABSTRACT

An osteochondroma is a type of cartilaginous tumour, that frequently affects long bones. In the scapula, although rare, this benign tumour is the most frequently encountered. The symptoms at this location are usually related to the mass effect that it can produce. Surgery is recommended when symptoms of compression, pain or an increase in size are noticed. The authors present a case of a 11 year-old-boy with an osteochondroma on the ventral surface of the scapula, that cause a pseudo winging of this bone and pain, with indication for surgical excision. Pseudo scapula alata should be differentiated from the true one, which is a dynamic dyskinesia. In the presence of this static deformity the surgeon must keep in mind other diagnosis as a scapular osteochondroma or other mass effect lesions. This benign tumour does not frequently suffer malignant transformation. Surgery can lead to a complete resolution of the symptoms, and if done properly decrease to almost zero the rate of recurrence. The diagnosis of the tumour in this location can be delayed due to its atypical location and presentation. With this case report the authors expect to raise awareness of the unusual manifestations of osteochondroma, especially in the paediatric setting.

Keywords: Osteochondroma, Scapular tumour, Pseudo scapula alata, Paediatric dyskinesia

INTRODUCTION

An osteochondroma is, by definition, an exostosis covered by cartilage, that grows beneath the periosteum via endochondral ossification.¹ It is the most common benign bone tumour, and its progression in size typically stops at the end of the skeletal growth.¹⁻⁴ This tumour can appear in any bone formed by cartilage, being more frequent in the metaphyseal areas surrounding the most active physis (long bones). Locations like the scapula are rare and usually solitary.¹ Despite this, the osteochondroma is the most frequent bone tumour around the scapula.^{1,5,6,7,8}

It usually appears between the ages of 17 months and 16 years old and affects mostly the male sex (1,5:1).^{9,2,3,10} The risk of malignant transformation depends on the thickness of the cartilage cap (>2 cm) and the continuous growth

after skeletal maturity, being more frequent in hereditary forms (5%), than the solitary lesions (1-2%).^{2,3,5,7,10,11}

Clinically most are asymptomatic.^{6,13} In the scapula the symptoms are related to the mass effect, especially when it is located to the ventral surface, and can include soft tissue impingement and bursitis, vascular or neurological injury, or mimic a winging scapula.^{1,2,5,6,13} In these cases, the excision is necessary to regain the normal scapulothoracic motion.⁶

CASE REPORT

An 11-year-old boy, with unremarkable medical history, presented at our practice for a second opinion for a probable scapula alata. He had with pain referred to the internal border of the left scapular region and dyskinesia

with a static scapular winging (Figure 1 a, b, c, d, e). The pain began gradually and progressed, despite no history of trauma. There were no other mobility deficits, and the neurovascular examination of the left upper extremity was normal.

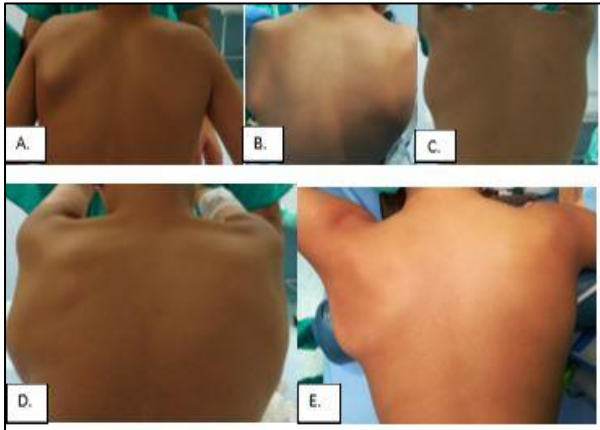


Figure 1: Pre-operative scapulothoracic motion.



Figure 2: Pre-operative X-ray.

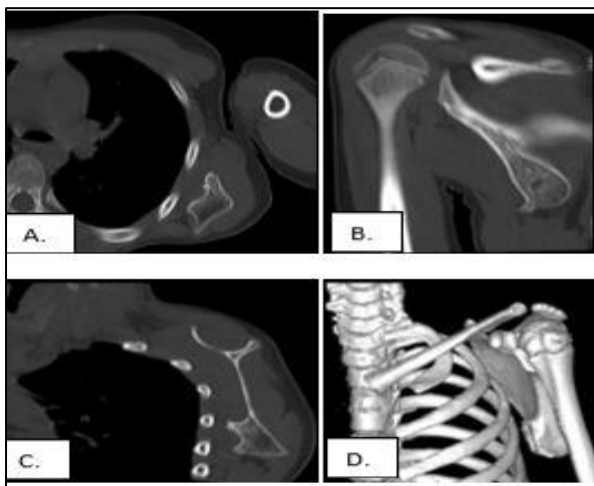


Figure 3: Pre-operative CT scan.

The x-ray revealed a bone forming lesion on the ventral side of the scapula, at its lower angle (Figure 2 a, b). A CT scan was ordered and an exostosis of 3x1,2 cm with a cartilage cap of 4 mm was identified. The lesion projected

internally to the thoracic junction (Figure 3 a, b, c, d). These findings were suggestive of a sessile osteochondroma.

Due to the symptoms and clinical findings, surgical excision was proposed.

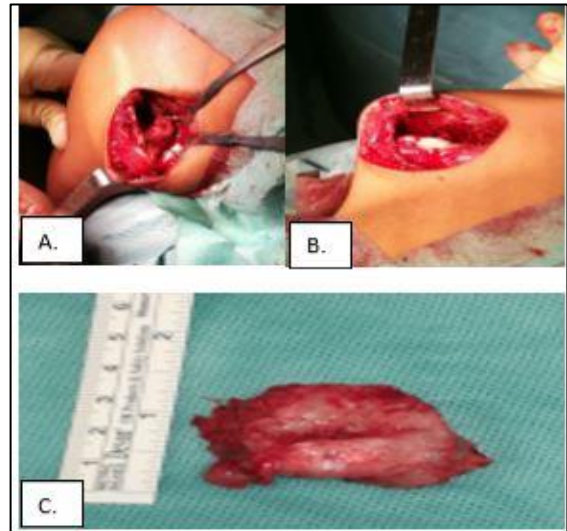


Figure 4: Surgical approach and tumour excision.



Figure 5: Post-operative X-ray.



Figure 6: Post-operative scapulothoracic motion (at 4 weeks).

For the surgery, the patient was positioned in prone, under general anaesthesia. The arm was placed in extension and internal rotation. A posterior parascapular approach, with an incision along the medial border of the scapula was performed, the fascia opened, and the rhomboids retracted. No transverse cut was made in any structure, to ensure a better, prompt post-operative recovery without any functional loss. Scapula was lifted and the tumour was identified (Figure 4a). The excision was made from its base, first with a saw blade, then completed with a Muller's osteotome. A full excision was confirmed (Figure 4b), and the incision was closed in layers.



Figure 7: X-ray at 4 weeks post-operative.

The mass (Figure 4c) was sent for histopathology, which confirmed the diagnosis of osteochondroma. No malignant transformation was noticed in the cartilaginous cap.

The postoperative period was uneventful, and clinical examination showed painless full shoulder mobility as well as the absence of scapular winging. Radiograph confirmed complete removal of the tumour (Figure 5). The patient was discharged after 2 days, and the arm was immobilized in a sling for 2 weeks during which period only pendulum exercises and movements below the shoulder plane were permitted.

After 4 weeks the patient's examination (Figure 6a, b, c, d, e) revealed disappearance of the pseudo-winging and a pain-free normal scapulothoracic motion, with normal symmetry of the upper back. The x-ray showed no signs of recurrence (Figure 7 a, b)

Two years after the surgery he remained well, with full shoulder mobility, no dyskinesia, and no signs of recurrence.

DISCUSSION

Osteochondroma is an exostosis covered by cartilage, that grows via endochondral ossification, in any bone formed by cartilage.¹ Locations around the knee (distal femur and proximal tibia) and the shoulder girdle (proximal humerus) are the most common.^{2,7,14}

Although scapular involvement is rare, the osteochondroma is the most frequent tumour on this bone (4%).^{1,5,6,7,8} Endochondral ossification occurs at the medial border and lateral angle of the scapula, being these zones where osteochondroma usually appears.¹³ Most of these tumours are asymptomatic, and usually found incidentally by "routine" imaging, being the symptoms usually related to the mass effect that they can produce.^{1,3,5,6}

The diagnosis of scapular osteochondroma is usually delayed, because of its atypical location and presentation. In the presence of a scapula alata, the most common causes are a neuromuscular injury or dysfunction.^{5,6,13} Osteochondroma on the ventral surface of the scapula, causes a "pseudo-winging", a static one, present at rest and that does not increase on forward flexion of arm against resistance.^{5,6,7,13} In the presence of this dyskinesia the surgeon must think about a subscapular mass, being the osteochondroma the most common cause.^{2,5,6,7,10}

Once this lesion may be difficult to identify in plain radiographs, CT scan is usually required for an early diagnosis, and MRI could be a valuable tool for evaluation of the soft tissues and malignant degeneration.^{2,5,9,13} Histopathological study gives the definitive diagnosis.

Malignant transformation is rare in solitary lesions (1-2%) and is usually related to the thickness and spotting of the cartilage cap, the continuous growth after skeletal maturity and the sudden increase in pain.^{3,5,7} It is more common around the pelvic bones and proximal femur.⁵

Because of this, they are usually a "leave me alone" type of lesion, but sometimes only excision (open approach or arthroscopic, muscle sparing or detaching) can resolve the pain, dysmorphia, or dyskinesia they produce.^{6,3} Full resolution of the symptoms and an exceedingly rare rate of recurrence are to be expected with full resection of the lesion.^{2,3,9,11} There are various techniques described for en bloc excision of the scapular osteochondromas. The muscle sparing ones ensure less blood loss and a rapid postoperative recovery.¹⁴ Arthroscopic excision should be left for experienced centers and in cases that the lesion is definitely benign.¹³

CONCLUSION

The diagnosis of scapular osteochondroma may sometimes be challenging due to its atypical location and presentation. The wrong diagnosis can lead to a surgical solution that, not only do not solve the problem, but possibly can create a greater one. Surgical excision is the treatment of choice for symptomatic lesions, and if done properly results in full recovery and no recurrence. By reporting this case, we aim to increase the awareness of the unusual manifestations of osteochondroma, especially in the paediatric setting.

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