

Painful Snapping and Pseudo-winged Scapula due to a large Scapular Osteochondroma

Rohit Prakash Dharmadhikari¹

Abstract

Introduction: Osteochondromas are common benign bone tumours. They are usually seen in metaphyses of long bones and are seldom found in flat bones like scapula. When present in scapula, they may cause abnormal scapulothoracic movements leading to pain, snapping and winging of scapula.

Case Report: We describe the case of a middle-aged woman with painful snapping and pseudo-winged of scapula due to a large osteochondroma. The patient was treated with open resection with relief of symptoms.

Conclusion: Pseudo-winged and snapping scapula can be rarely caused by scapular osteochondromas even in cases presenting in fourth decade. These lesion respond well to surgical excision.

Keywords: Osteochondroma, Snapping Scapula, Pseudo-winged Scapula.

Introduction

Osteochondromas constitute 10-15% of all bone tumours and 30-50% of benign bone tumours, representing the most common benign bone tumours [1-3]. They are usually solitary tumours, but can be multiple in hereditary exostoses. Though considered as a tumour, an osteochondroma is actually a developmental physal growth defect. This defect usually occurs in the metaphysis of long bones like femur, humerus and tibia. It is unusual in scapula [4-7], seen only in 4% cases [8]. It usually presents as an asymptomatic slowly-growing mass, but may produce symptoms as a result of an overlying bursa [2,3,8,9], soft tissue impingement [10], a fracture of the stalk [11], a vascular injury [12,13], a neurological injury [14] and malignant transformation. Snapping scapula is an uncommon disorder resulting from derangement of the scapula-costal mechanism. The etiology is usually idiopathic. However, an anatomical cause like osteochondroma may lead to snapping scapula; in such cases excision of the tumour is required

to obtain normal scapulothoracic motion [15].

This report describes a case with a large scapular osteochondroma causing pseudo-winged and snapping scapula syndrome and treated with excision.

Case Report

A 34-year old right-hand dominant female presented with tolerable pain in upper back associated with “clunking” during active movements of right shoulder. The patient also noticed a mass in the scapular region. Symptoms developed gradually over a six month period following trauma.

Physical examination revealed a non-tender palpable mass at superior angle of scapula. Marked crepitus, both palpable and audible, was produced during active shoulder range of motion. Winging of scapula was noticed (Fig. 1a). The upper extremity and shoulder girdle muscles were neurologically intact. Laboratory investigations were within normal limits.

Radiographs showed a large bony tumour arising from superior angle of scapula towards the thorax (Fig. 1b). Computed tomography scan images revealed a pedunculated osteochondroma measuring 6.2×5.0 cm attached to ventral surface of superior angle of scapula by a small stalk. Similar but smaller sessile and pedunculated lesions were also seen involving the body of the scapula as well as the upper shaft of right humerus

¹Mumbai Port Trust Hospital
Mumbai, India

Address of Correspondence

Dr Rohit Prakash Dharmadhikari
Mumbai Port Trust Hospital
Mumbai, India.
Email: dr.rohitd@yahoo.co.in



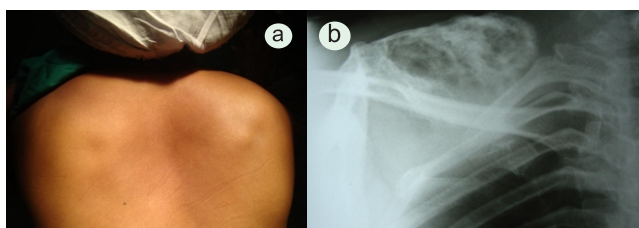


Fig 1: a- Photograph of the patient shows prominent medial border of right scapula (Pseudo-winging). b- AP scapular radiograph showing osteochondroma arising from scapula.

(Fig. 2a-b).

The patient was treated with excision of osteochondroma in prone position under general anesthesia. No bursa was demonstrated (Fig. 2c) and we encountered no technical difficulties during surgery. Histopathological examination confirmed the mass to be an osteochondroma. No malignant transformation was noticed in the cartilaginous cap. Post-operative clinical examination showed painless and full shoulder mobility as well as absence of scapular winging and crepitus. Radiograph confirmed complete removal of the tumor (Fig. 2d). There was no recurrence of symptoms at one year follow up

Discussion

The snapping scapula syndrome was first described by Boinet in 1867. Since then, case reports of painful snapping scapula due to scapular osteochondroma have been infrequent [16-19]. The syndrome presents with pain in back and around the shoulder girdle associated with audible and/or palpable crepitus of scapula on scapulocostal movements. Milch[17] described this crepitus as a tactile-acoustic phenomenon secondary to an abnormality between the anterior surface of the scapula and the thoracic wall. Milch[17] also reported

that Mauclair divided the sounds into three classes- Froissement or gentle friction sound, Frottement or somewhat louder sound and Craquement or loud snapping sound. According to Milch, the second category is the commonest.

The diverse etiology of the snapping scapula syndrome includes anomalies of bone, muscles or bursae[17]. Carlson et al [16] in a review of 89 cases of snapping scapula syndrome reported skeletal abnormalities in 11 cases. 27 cases were idiopathic and osteochondromas were seen in 3 cases.

Mechanism of snapping can be explained by the study of local anatomy. Normally, the serratus anterior and subscapularis muscle cushion the anterior surface of scapula assisting the gliding of scapula over the thoracic wall [16, 6]. However, there is little cushion over the superior and inferior angles and the medial border. Thus, osteochondromas in these locations can lead to snapping. The repeated friction between the tumour and the chest wall may lead to formation of a bursa [2,20]. No bursa, however, could be demonstrated in our case.

Scapular osteochondroma causes snapping usually in adolescence or early adulthood [18]. However in our case, the patient presented in fourth decade. Trauma, as in our case, might precipitate the symptoms[7,19]. Winging of scapula is a described feature of scapular osteochondroma[2,18]. This "pseudo-winging" is indicative of a subscapular mass with neurologically intact serratus anterior[2].

Snapping scapula caused by soft tissue abnormality may be treated conservatively. However, when a bony abnormality like osteochondroma has

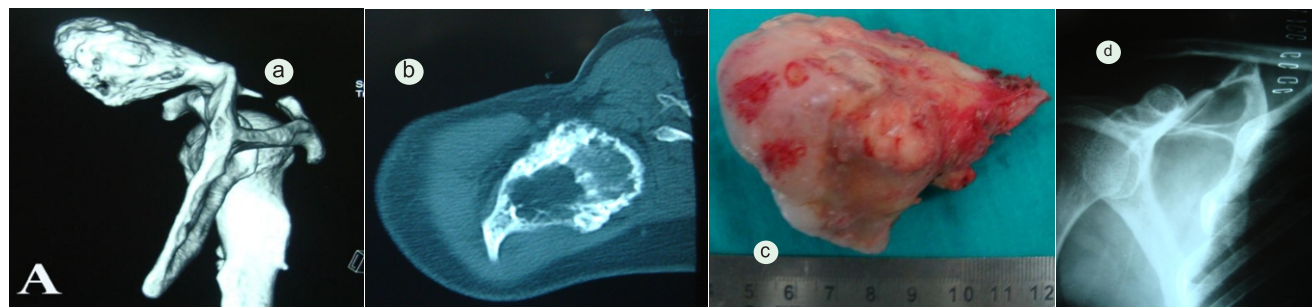


Figure 2 : a- A CT scan of right shoulder joint shows a large pedunculated lytic bony lesion originating from the medial aspect of the superior margin of right scapula. The mass measures 6.2x5.0 cm in size. The tumour shows speculated sclerosed margins with no cortical break. Similar but smaller lesions are also seen involving the upper shaft of right humerus. b- Axial CT image of the lesion. c- A photograph showing the measurement of the tumour. Gross examination of the excised tumour shows irregular surface along with its stalk with characteristic bluish gray cap of cartilage. d- final radiograph confirming complete removal of tumor.

Table 1: Literature Review of Case Reports of Snapping Scapula

Author	Year	No. of Patients	Presenting Complaints	Management	Results
Dobelle et al (4)	1939	1	Grating sound without pain	Surgical resection	Resolution of symptoms
Milch (17)	1950	4	Pain, crepitations, swelling; one case presented with grating with winging of scapula but no pain	All underwent surgical resection	Resolution of symptoms
Parsons (18)	1973	5	Pain, swelling, discomfort and crepitations; one had winging of scapula	4 patients underwent surgical excision; one patient declined surgery	Resolution of symptoms in those who underwent surgery
Strizak et al (19)	1982	1	Pain with audible and palpable grating	Surgical excision	Resolution of symptoms
Carlson et al (16)	1997	3	Pain and clicking noise	2 treated surgically and 1 non-surgically	Out of surgically treated patients one had relief while other had partial relief. The third patient had no significant change in symptoms
Okada K et al (3)	1999	1	Pain, crepitation with snapping	Surgical excision	Resolution of symptoms
Mohsen et al (2)	2006	1	Pain, swelling with winging of scapula	Surgical resection	Resolution of symptoms
Riet et al (5)	2007	1	Painful crepitus with pseudowinging of scapula	Arthroscopic resection	Resolution of symptoms
Fukunaga S et al (21)	2007	1	Pain with clunking but no winging	Endoscopic removal of tumour	Resolution of symptoms
Yoo et al (9)	2008	1	Swelling	Surgical excision	Resolution of symptoms
Aalderink et al (6)	2010	1	Pain with winging	Arthroscopic resection	Resolution of symptoms

been detected, surgical intervention is required. Carlson[16] reported that 52%(12 out of 23) patients with idiopathic type had relief of symptoms with conservative therapy, while no patient(0 out of 4) with skeletal abnormality had relief with conservative line of management. Surgical resection of osteochondroma leads to relief of symptoms as illustrated by our case.

Successful arthroscopic resection of a subscapular osteochondroma has also been described [5,6]. Incomplete removal, however, may lead to recurrence.

Conclusion

To conclude, snapping scapula syndrome is a disorder caused by abnormal scapulothoracic motion of variable



etiology. This syndrome may be a clinical manifestation of a subscapular osteochondroma with or without history of trauma. Surgical resection of the tumour is a reliable treatment which results in resolution of the crepitus and pain.

Clinical Message

Snapping scapula is a syndrome of variable etiology. It is important to differentiate between idiopathic and anatomical causes as conservative treatment is less likely to be successful if a clear anatomical cause can be found.

Acknowledgements: Auther will like to thank Dr Ketan Khurjekar for his guidance and Dr Ashok Shyam for providing reference articles for preparing this case report.

References

1. Pongkripetch M, Sirikulchayanonta V: Analysis of bone tumors in Ramathibodi Hospital, Thailand, during 1977–1986: study of 652 cases. *J Med Assoc Thai* 1989; 72: 621– 628.
2. Mohsen MS, Moosa NK, Kumar P. Osteochondroma of the scapula associated with winging and large bursa formation. *Med Prin Pract.* 2006;15:387-390
3. Okada K, Terada K, Sashi R, Hoshi N. Large bursa formation associated with osteochondroma of the scapula: a case report and review of the literature. *Jpn J Clin Oncol.* 1999;29(7):356-360
4. Dobelle M. An unusual location of an osteochondroma: Report of a case. *J Bone Joint Surg Am.* 1939;21:781-784
5. Reit RP, Glabbeek FV. Arthroscopic resection of a symptomatic snapping subscapular osteochondroma. *Acta Orthop Belg.* 2007;73:252-254
6. Aalderink K, Wolf B. Scapular osteochondroma treated with arthroscopic excision using prone positioning. *Am J Orthop.* 2010;39(2):E11-E14
7. Tomo H, Ito Y, Aono M, Takoaka K. Chest-wall deformity associated with osteochondroma of the scapula: A case report and review of the literature. *J Shoulder Elbow Surgery* 2005;14:103-106
8. El-Khoury GY, Bassett GS. Symptomatic bursa formation with osteochondromas. *Am J Roentgenol.* Nov 1979;133:895-898
9. Yoo W, Kim JR, Jang KY, Lee SY, Park JH. Rapidly developed huge bursitis associated with scapular osteochondroma of the multiple exostosis: a case report. *Rheumatol Int.* 2009;29:317-319
10. Ogawa K, Yoshida A, Ui M. Symptomatic osteochondroma of the clavicle. A report of two cases. *J Bone Joint Surg Am.* 1999;81:404-408
11. Prakash U, Court-Brown CM. Fracture through an osteochondroma. *Injury.* 1996;27(5):357-358
12. Greenway G, Resnick D, Bookstein JJ. Popliteal pseudoaneurysm as a complication of an adjacent osteochondroma: angiographic diagnosis. *Am J Roentgenol.* Feb 1979;132:294-296
13. Hershey SL, Lansden FT. Osteochondromas as a cause of false popliteal aneurysms: Review of the literature and report of two cases. *J Bone Joint Surg Am.* 1972;54:1765-1768
14. Twersky J, Kassner EG, Tenner MS, Camera A. Vertebral and costal osteochondromas causing spinal cord compression. *Am J Roentgenol.* 1975;124:124-128
15. Poppen NK, Walker PS. Normal and abnormal motion of the shoulder. *J Bone Joint Surg Am.* 1976;58:195-201
16. Carlson HL, Haig AJ, Stewart DC. Snapping scapula syndrome: Three case reports and analysis of the literature. *Arch Phys Med Rehabil.* May 1997;78:506-511
17. Milch H. Partial scapulectomy for snapping of the scapula. *J Bone Joint Surg Am.* 1950;32:561-566
18. Parsons TA. The snapping scapula and subscapular exostoses. *J Bone Joint Surg Am.* May 1973;55B:345-349
19. Strizak AM, Cowen MH. The snapping scapula syndrome. A case report. *J Bone Joint Surg Am.* Jul 1982;64:941-942
20. Wright JM, Matayoshi E, Goldstein AP. Bursal osteochondromatosis overlying an osteochondroma of a rib. *J Bone Joint Surg Am.* 1997;79:1085-88
21. Fukunaga S, Futani H, Yoshiya S. Endoscopically assisted resection of a scapular osteochondroma causing snapping scapula syndrome. *World J Surg Oncol* 2007; 5: 37.

Conflict of Interest: Nil
Source of Support: None

How to cite the article:

Dharmadhikari RP. Painful snapping and pseudo-winged scapula due to a large scapular osteochondroma. *J Orthopaedic Case Reports* 2012 April-June;2(2):10-13

