

CLINICAL CASE

SNAPPING SCAPULA SYNDROME DUE TO SOLITARY
OSTEOCHONDROMA OF THE SCAPULA – CASE REPORT

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Abstract

Osteochondroma or exostosis is a benign bone tumor, located mainly in the metaphysis of the long bones and involving the scapula in only 3-4.6% of all cases. Due to mass effect, it may produce various manifestations when it is located on the anterior surface of the scapula. The snapping scapula syndrome is a rare condition caused by the disruption of the gliding between the posterior chest wall and the scapula's anterior surface. Authors report a rare presentation of osteochondroma on the antero-medial side of the scapula in an 11-year-old boy, who had abnormal range of motion, associated with pain and a grating sensation being present when the arm was actively and passively abducted and/or elevated. The patient's history, clinical examination and imagistic were relevant for osteochondroma of the scapula. The case was successfully managed by an open excision. The histological examination confirmed the clinical diagnosis of osteochondroma. The symptoms resolved immediately after surgery. Osteochondroma should be taken into account as a differential diagnosis in any adolescent presenting with snapping scapula syndrome.

Keywords: osteochondroma, snapping scapula syndrome, anterior surface of the scapula

Introduction

Osteochondroma or exostosis is a benign bone tumor, located mainly in the metaphysis of the long bones and involving the scapula in only 3-4.6% of all cases [1]. Due to mass effect, it may produce various manifestations when it is located on the anterior surface of the scapula. The snapping scapula syndrome is a rare condition caused by the disruption of the gliding between the posterior chest wall and the scapula's anterior surface [2,3,13]. The patient may describe it as a “click” during the abduction of the shoulder. This may or may not be symptomatic.

Case presentation

An 11-year-old patient presented in our department with local progressive deformity of the right scapula area with painful mobilization of the right shoulder during abduction. The manifestations started 4 months ago, a locally progressive deformation and a “click” during mobilization being described. The pain increased progressively with the growing in dimensions of the tumoral bony mass.

The clinical examination highlighted a solid, irregular tumoral formation on the medial side of the scapula, being deeply fixed to the scapula. When mobilizing the right shoulder,

the tumoral mass moved along with the scapula and a “click” was perceived which limited the

right shoulder movement and which, according to the patient, was painful (Figure 1).



Figure 1 - The clinical examination showing the local modifications of the right scapula area.

A scapula X-ray has been performed which showed the presence of a bony tumoral formation on the antero-medial surface of the scapula (Figure 2).



Figure 2 - Antero-posterior X-ray showing a bony tumor on the medial part of the scapula.

A MRI examination has been performed which revealed a globulous formation, with bone-like signal, inhomogeneous due to the presence of thick bone trabeculae and which

included T2 hypersignal areas, moderate Gadolinium caption, with a diameter of 37/30/44 mm, located on the medial side of the scapula, adjacent to the inferior angle and impinging the adjacent muscular structures (Figure 3).

After clinical-radiological examination, surgery has been performed by resection-biopsy of the tumoral mass (Figure 4).

The histological examination certified a scapular osteochondroma (Figure 5).

After the tumor was resected, the patient presented a significant improvement of the clinical status, no relapses being described until now.

Discussions

Osteochondroma is a benign tumor, frequently located in the metaphysis of the long bones, often seen in the inferior member (50%), especially around the knee, in 10% in the small bones of the hand, in 5% in the pelvis and in 4% in the scapula [6,7].

Usually, these tumoral formations are incidental findings, due to the fact that they are painless. The pain appears because of the local manifestations due to mass effect and the mechanical pressure of the nearby anatomical structures (muscular, vascular and nervous

compressions). Fractures may be present and exacerbate symptoms, frequently located at the implantation basis [9].

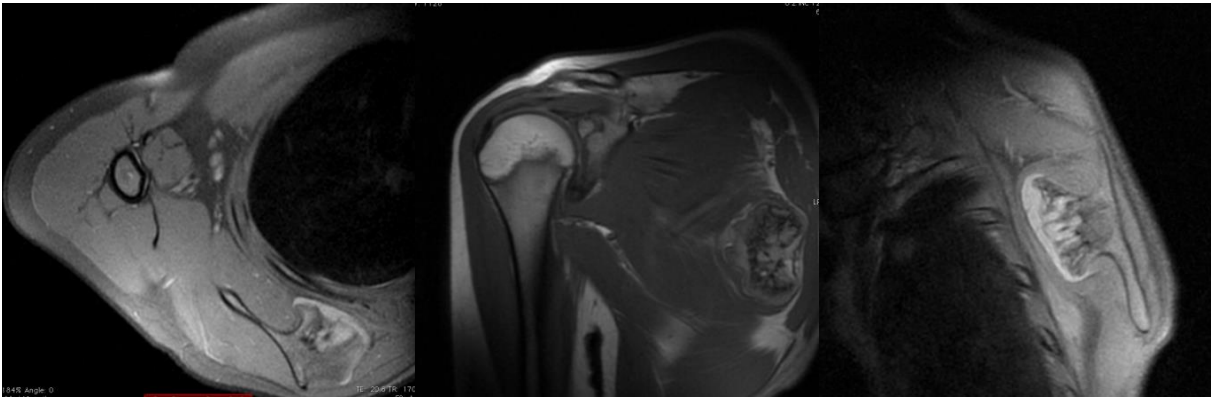


Figure 3 - MRI sections revealing an inhomogenous tumor, on the medial side of scapula, adjacent to the inferior angle, that impinges the nearby muscular structures.

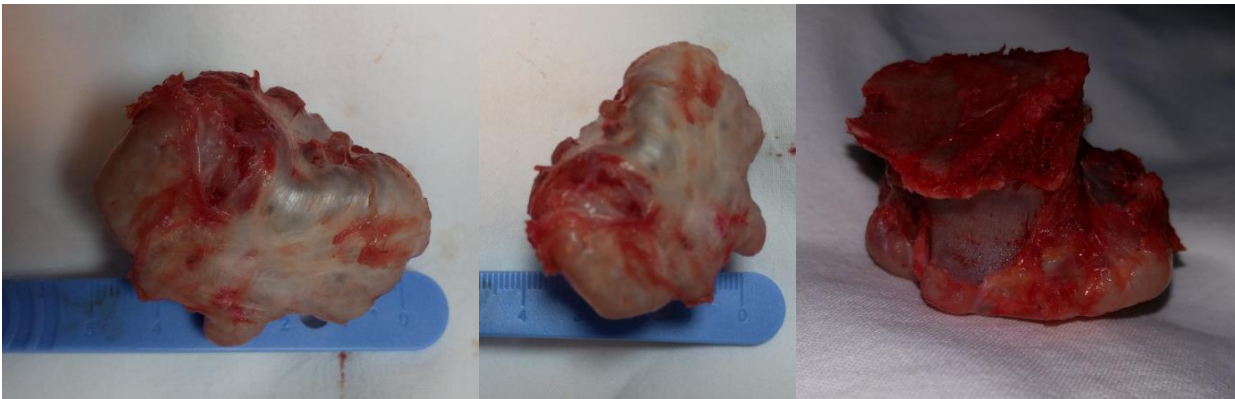


Figure - 4 The resection piece.

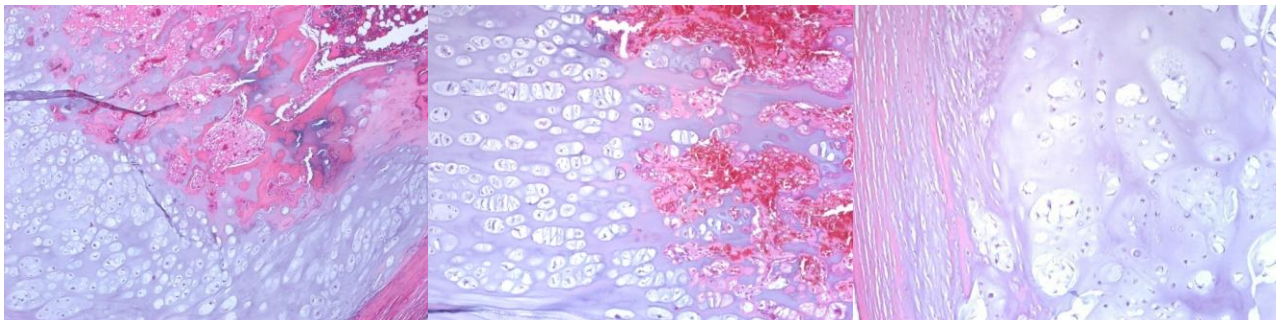


Figure 5 - Tumoral formation fragments made of hyaline cartilage with enchondral ossification areas which continues with cancellous bone tissue with hematogenous bone marrow partially transformed into fibro-adipose tissue, with edema, hiperemia and haematic extravasations, covered with fibro-conjunctive tissue; focally presence of reactive bone; adjacent fibro-conjunctive tissue fragment and muscular fibers presenting hemorrhagic extravasations and edema.

Osteochondromas located on the scapular anterior surface usually present a diversity of symptoms, often provoking mechanical issues due to its' mass effect and compression [4,5]. Our case presented an osteochondroma that involved a snapping scapula syndrome. This cause should be taken into account when

making differential diagnosis in any patient presenting with snapping scapula syndrome.

Symptoms may appear due to the growing of the bursitis in volume, too. It is very important to make a differential diagnosis between the fast extension of the bursitis and the malignant degeneration of the cartilaginous tissue of the osteochondroma [7-9].

The risk of malignant transformation for osteochondroma is very low (1%), but an alert sign may be its' rapid growth in volume, accompanied by intensive pain. The volumetric growth of osteochondroma ends with the closure of the growing plates [10].

Usually, patients address to physicians after they notice a local deformity, pain appearance, the range of motion of the upper limb decreases, and a presence of a “click” during mobilization of the scapula. It is very important to perform antero-posterior and lateral X-ray of the shoulder, which may reveal the lesion and determine its' spatial relations. The CT scan is useful in confirming the diagnosis and in the preoperative planning, too. The MRI is useful especially when a malignant transformation tumor is suspected [7].

This kind of lesion requires surgery and complete resection of the tumoral mass. The rate of relapse is low (<2 %) [7], but, usually, this rate is given by the incomplete resection of tumor or its margins [10]. Nowadays, endoscopic resection is considered as a suitable treatment option in certain cases, due to a faster functional recovery and better results regarding pain disappearance, faster postoperative recovery and aesthetics [11,12].

Conclusions

This case report presents a rare localization of osteochondroma, which led to the presence of a snapping scapula syndrome and underlines the importance of including this pathology in the differential diagnosis in any patient presenting this kind of symptomatology.

References

- [1]Raju Vaishya, Shankar Dhakal, Abhishek Vaish, A solitary osteochondroma of the scapula, *BMJ Case Reports* 2014; doi:10.1136/bcr-2013-202273
- [2]Melih Malkos, Ozgur Korkmaz, Ismail Oltulu, Cem Sever, Ahmet Murat Bulbul, Sercan Yalci, Osteochondroma of scapula with large bursa formation *EEXOT*, Volume 64, (3): 132-135, 2013
- [3]Lazar MA, Kwon YW, Rokito AS. Snapping scapula syndrome. *J Bone Joint Surg Am*.2009 Sep;91(9):2251-62. doi: 10.2106/JBJS.H.01347. Review
- [4]Frost NL, Parada SA, Manoso MW et al. Scapular osteochondroma treated with surgical excision. *Orthopedics* 2010; 33(11):804.
- [5]S S Suresh, Superomedial angle osteochondroma of the scapula as a cause of snapping scapula, *Kerala Journal of Orthopaedics*; Vol 25, No 1 (2012)
- [6]Calafiore G, Calafiore G, Bertone C, Urgelli S, Rivera F, Maniscalco P: Osteochondroma:report of a case with atypical localization and symptomatology. *Acta Biomed Ateneo Parmense* 2001; 72: 91–96.
- [7]Mohsen MS, Moosa NK, Kumar P. Osteochondroma of the scapula associated with winging and large bursa formation. *Med Princ Pract* 2006;15:387–90.
- [8]Griffiths HJ, Thompson RC, Galloway HR, Everson LI, Jin-Suh S: Bursitis in association with solitary osteochondromas presenting as mass lesions. *Skel Radiol* 1991; 20: 513–516.
- [9]Mohit Jindal, Delayed Presentation of Osteochondroma at Superior Angle of Scapula-A Case Report, *J Orthop Case Rep*. 2016 Jul-Aug; 6(3): 32–34.
- [10]Claudio Chillemi, Vincenzo Franceschini, Giorgio Ippolito, Roberto Pasquali, Renato Diotallevi, Vincenzo Petrozza and Carlo Della Rocca, Osteochondroma as a cause of scapular winging in an adolescent: a case report and review of the literature, *J Med Case Rep*. 2013; 7: 220.
- [11]Pérez D, Ramón Cano J, Caballero J, López L: Minimally-invasive resection of a scapular osteochondroma. *Interact Cardiovasc Thorac Surg* 2011, 13(5):468–470.
- [12]Aalderink K, Wolf B: Scapular osteochondroma treated with arthroscopic excision using prone positioning. *Am J Orthop (Belle Mead NJ)* 2010, 39(2):E11–E14.
- [13]Mark L. Wang, MD, PhD; Andrew J. Miller, MD; Brooke L. Ballard, MD; Michael J. Botte, MD, Management of Snapping Scapula Syndrome, *Orthopedics* July/August 2016 - Volume 39 • Issue 4: e783-e78