Case Report

Solitary osteochondroma of the scapula in late adolescence. A case report

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Abstract

Skeletal osteochondromas, also known as Osteochondrocartilaginous exostosis are the most common benign bone tumors, while they represent an overall of about 15% of all bone tumors. They can be isolated findings or part of syndromic pathologies. They are typically seen on long bones, while their occurrence on flat bones is rare. The main concern after their identification is malignant transformation therefore size and cartilage thickness are monitored until the maturation of the skeleton and therefore seize of growth (unless malignant). This case report presents a 16 year old girl diagnosed with a benign isolated osteochondroma of the left scapula. X-Rays and MRI scans were used for diagnosis and for monitoring the progression for one year, while a CT scan aided planning for surgical excision for cosmetic purposes. The tumor was removed and histology confirmed its benign nature. Apart from cosmetic proposes and malignancy indications for excision of benign osteochondromas include pressure effect on surrounding tissue, pain and fracture of stalk. In our case the tumor had a typically benign appearance; nevertheless histological examination is always the gold standard for diagnosis.

Keywords: Benign bone tumor, Osteochondroma, Scapula, Surgical treatment

Figure 1. Left Scapula Anteroposterior view.

Introduction

Skeletal osteochondroma or osteochondrocartilaginous exostosis represent the most common tumor of all benign bone tumors and 10-15% of all bone tumors¹. It is a benign cartilage-capped outgrowth, connected to bone by a stalk. It can be either isolated or as part of a syndrome (Hereditary Multiple Exostosis-HME) and its progression usually stops when the skeleton is mature, after the closure of the growth plate².

This lesion usually involves long bones 95%, especially near the knee 36%. It can rarely be found on flat bones,

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Figure 2. Left Scapula Y scapular view. Illustrated mass (yellow arrow).

Figure 3. Left scapula MRI with paramagnetic contrast agents. Illustrated mass (yellow arrow).

although they are a relatively infrequent location for osteochondroma with a 3-4,5% involvement of the scapula³. Even though osteochondroma is the most common neoplasm of the scapula, it occurs very rarely in the isolated form ie., not part of generalized disorders such as HME, especially in the ventral aspect of the scapula⁴. Malignant transformation of osteochondroma is the main concern and its incidence in the solitary type is 1%. Malignant change is characterized by sudden growth in tumor size after skeletal maturity is completed. The thickening of the cartilaginous cap is another suspicious criterion for malignant transformation⁵.

Case presentation

A 16 year old female visits the OPD complaining of a palpable tumor on the left scapula growing over the last 3 years. No history of antecedent trauma, weight loss, loss of appetite or any other unusual symptom. The left shoulder has full ROM and 5/5 strength, similarly to the right unaffected side. No sign of inflammation or swelling and the overlying skin was normal. X-Rays were performed that showed a mass in the medial border of the scapula (Figures 1, 2). A left scapula MRI using paramagnetic contrast agents followed and revealed a circularly shaped exostosis (Figure 3). The patient was sent home and regular OPD follow-up was arranged in order to monitor its development until skeletal maturity. After a year of regular visits the patient reported no difference in size and no new symptoms. Surgery was considered for cosmetic reasons. A new MRI scan (Figure 4) was performed with no significant difference and a CT scan with 3D reconstruction (Figure 5) was ordered for pre-operative planning.

Figure 4. Left scapula MRI with paramagnetic contrast agents. Illustrated mass (yellow arrow).

Surgery

A 5 cm incision was made parallel to the upper half of the medial border of left scapula. The trapezius was incised along with the skin and afterwards the supraspinatus fossa. The mass was exposed by retraction of the soft tissues and removed en block with osteotome. All divided muscle was re-approximated and the wound was closed in a standard fashion.

The size of the excised tissue (Figure 6) measured 5 cm * 2 cm * 2 cm and was sent for histological examination (Figures 7, 8), which confirmed the diagnosis. Sutures

Figure 5. Left scapula CT. 3D reconstruction. Illustrated mass (yellow arrow).

were removed on the 12th post-operative day. The left shoulder had full ROM and no swelling or other pathology.

Discussion

Osteochondroma is the most common benign tumor affecting usually long bones. Infrequently it can involve flat bones such as the scapula. More often it is painless but in case of size increase it can be painful due to soft tissue compression, skin stretching or pressure effect on nerves and muscles, as well as in the case of fracture through the stalk⁶. An anterior posterior and a Y-view X-Ray check is sufficient to demonstrate the lesion. MRI check is useful to exclude malignancy and a CT scan can be used for operative planning, for demonstrating the margins and the thickness of the cartilaginous cap (>2 cm malignancy, <2 cm benign, 1-2 cm uncertain). In our case it was 0.5 cm⁷. The patient did not have any signs of malignancy. After surgical excision the mass must be sent for biopsy no matter the benign appearance of the tumor.

References

1. Mavrogenis AF, et al. Skeletal osteochondromas Revisited., Orthopedics 2008;31-10.
2. Mirra JM. Bone Tumors, Clinical radiographic and pathologic correlations, pg. 315-7.
3. Frank RM, Ramirez J, Chalmers PN, McCormick FM, Romeo AA. Delayed presentation of osteochondroma on the ventral surface of scapula. Int J Shoulder Surg 2012;6(2):61-63.
4. Tungdim PH, Singh Ibomcha, Mukherjee S, Pertin T. Excision of Solitary Osteochondroma on the Ventral Aspect of Left Scapula Presenting as Pseudowinging in a 4-year-old Boy: A Rare Case Report. Journal of Orthopaedic case reports 2017;7(1): 36-40.

Figure 6. Mass excised.

Figure 7. Photomicrograph of hematoxylin- eosin stain of the excised mass. Figure Magnification 200. Figure magnification 1000 Cartilage cap thickness 0.5 cm.

Figure 8. Photomicrograph of hematoxylin- eosin stain of the excised mass. Figure Magnification 200. Figure magnification 1000 Cartilage cap thickness 0.5 cm.

5. Mohsen MS, Moosa NK, Kumar P. Osteochondroma of the scapula associated with winging and large bursa formation. Medical principles and Practice vol 15 no 5 pp 387-390, 2006.
6. Sarikaya B, Suluova F, Cetin BV, Sarikaya ZB. Endoscopically Assisted Resection of a Rare Mass: Intra-Articular Osteochondroma of Shoulder Originated from Scapula. Case report. Orthopedics Medical Principles and practice 2006; 15(5):387-90.
7. Mohit Jindal. Presentation of Osteochondroma at Superior Angle of Scapula - A Case Report. Journal of Orthopaedic Case Reports 2016;6(3):Page 32-34.