Symptomatic Scapular Osteochondromas: Case report

Ostéochondrome scapulaire: nouvelle approche chirurgicale

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RÉSUMÉ

L'ostéochondrome, ou exostose, est une excroissance ostéocartilagineuse de la surface externe de l'os avec une continuité avec la corticale osseuse. L'atteinte peut être unique ou multiples dans le cadre de la maladie exostosante. Nous rapportons le cas d'un patient porteur de la forme héréditaire et qui présente depuis 5 mois une déformation thoracique et une dyspnée progressive. L'imagerie était en rapport avec un volumineux ostéochondrome de la scapula responsable d'une déformation thoracique.
Le caractère bénin a été confirmé sur les données de l'histologie et la resection était réalisée par voie postérieure avec préservation.

Mots-clés

Ostéochondrome, scapula, résection, musculaire

SUMMARY

Osteochondroma is a developmental lesion rather than a true neoplasm. Osteochondromas are composed of cortical and medullary bone with an overlying hyaline cartilage cap and must demonstrate continuity with the underlying parent bone cortex and medullary canal. Osteochondromas may be solitary or multiple. We report the case of a patient carrying the here ditary form and who has presented a thoracic deformity and a progressive dyspnea for 5 months. Imaging was related to a bulky osteochondroma of the scapula responsible for thoracic deformity. Benign character was confirmed on the histology data and the resection was performed posteriorly with muscular preservation.

Key-words

Osteochondroma, scapula, resection

INTRODUCTION

Benign chest wall tumors are relatively uncommon, and few research studies of this group of tumors have been reported. [1,2]

Radiologic imaging is crucial to determine the anatomic origin the extent, the response to therapy, and the recurrence. The imaging findings of many of these lesions are nonspecific. However, the combination of imaging appearance, location, and clinical information may suggest a diagnosis.

CASE REPORT

A male patient, 24 years of age, with hereditary multiple exostosis (HME) complained of progressive chest wall deformity and dyspnea of effort for 5 months.

On physical exam, the scapula was elevated and displaced laterally. There was a prominent fixed and callous mass in the upper axilla, which became more prominent with shoulder abduction. Strength of the shoulder girdle muscles was normal. Exam of the right arm and hand showed normal motor and sensory function.

Anteroposterior chest radiographs showed a round sclerotic mass on the medial-superior aspect of the right scapula with chest wall deformity (Figure 1). CT scans demonstrated a mushroom-shaped bony protrusion on the ventral surface of the scapula.(Figure 2a) and the connection to the medullary cavity.(Figure 2b) The lesion measured 7.6x 8.3x 9cm. It was directed toward the chest wall, and compressed the second, the third, the fourth and the fifth ribs (Figure 2c). Respiratory function also was within normal limits. The preoperative diagnosis was osteochondroma of the scapula with secondary chest wall deformity.

Surgery was undertaken using a team approach with the orthopedic and thoracic surgeons. A posterior incision was made along an anatomic space in order to preserve the muscles. The scapula was trephined to create a small window and tumor was resected throw this window.

The tissue sample was sent for anatomopathological analysis, which confirmed the diagnosis of osteochondroma.

Post operative CT scans showed an almost total tumor removal (Figure 1e)

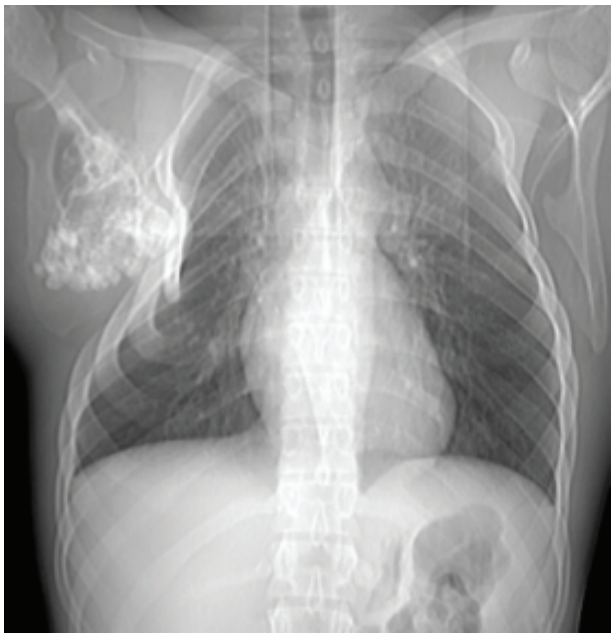

Fig 1 : Chest radiographs : a round sclerotic mass on the medial-superior aspect of the right scapula with chest wall deformity

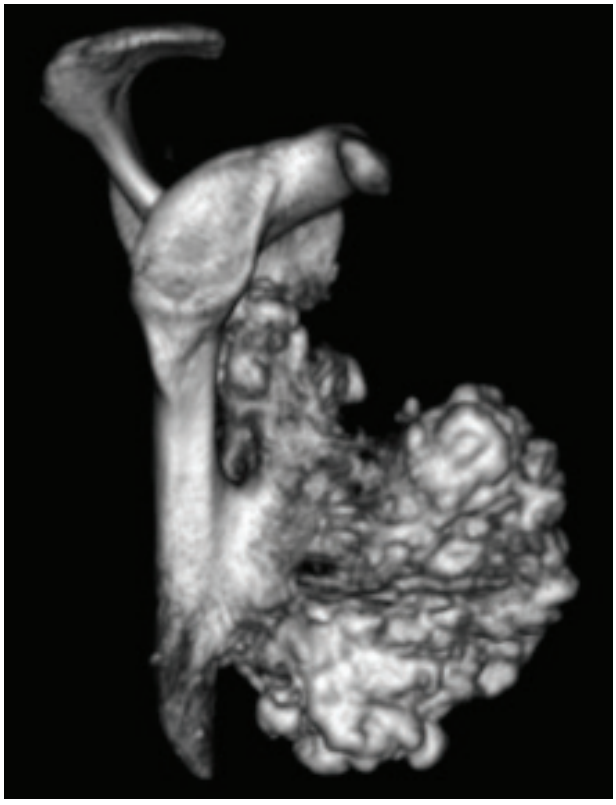

Fig 2a

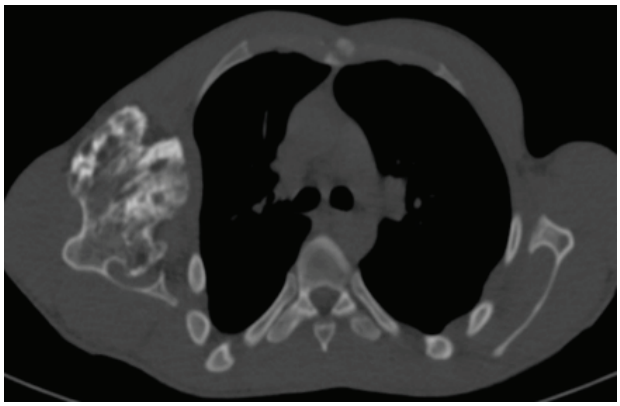

Fig 2b

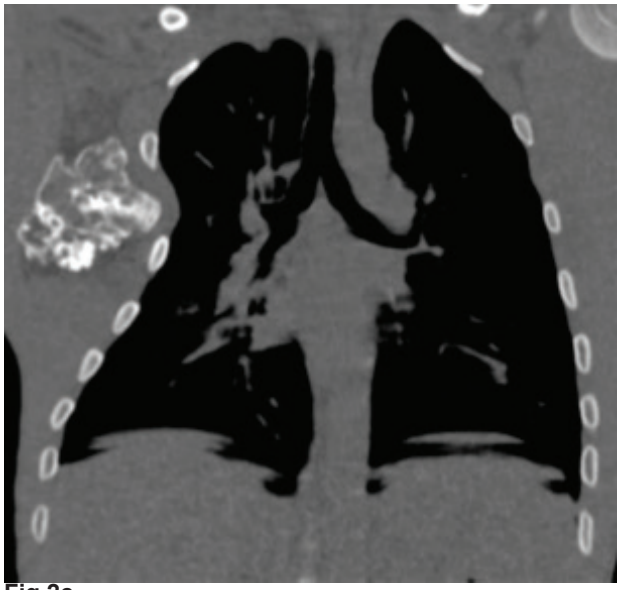

Fig 2c

Fig 2 : CT scans : a mushroom-shaped bony protrusion on the ventral surface of the scapula (a) with connection to the medullary cavity (b). The lesion compresses the second, the third, the fourth and the fifth ribs (c)

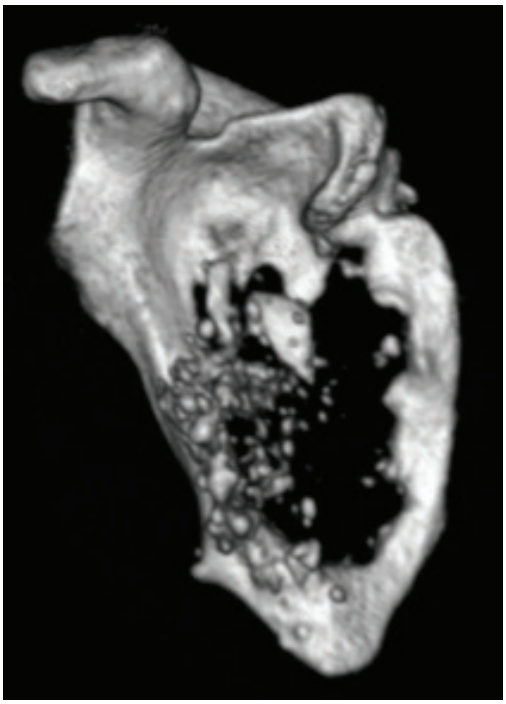

Fig 3 : Post-operative CT scans : an almost total tumor removal

DISCUSSION

Osteochondromas are developmental lesions that are thought to form when fragments of epiphyseal growth plates or cartilage herniate through the periosteal covering of bones. These cartilaginous fragments develop and undergo ossification and maturation. [3]

Osteochondroma is the most common benign tumor of the bone. It constitutes 10–15% of all bone tumors and 20–50% of benign bone tumors. [4]

Osteochondroma is the most common primary benign neoplasm of the scapula with an incidence of 4.6% [5]

Usually, it is a single lesion located on the anterior surface of the scapular body.

Osteochondroma occurs in young adults and has a male predilection. [1]*Charles S. White,*

Patients with osteochondroma complain of a snapping sensation when internally rotating and abducting their arm. [2]

In osteochondroma, progressive prominence of the scapula is common, as the ventral exostosis presses against the thoracic rib cage and may lead to a thoracic cage deformity in large osteochondroma.

Radiographs show characteristically pedunculated or

sessile lesion with a broad base and the medullary cavity of the lesion is connected to the medullary cavity of the underlying bone. Connections of the medullary cavities of the lesion and the underlying bone can also be assessed by MRI and CT. The margin of the osseous and cartilaginous components of the tumour can be well defined by CT and the relationship of the mass to the surrounding tissue can be demonstrated by MRI which simplifes the preoperative planning. The thickness of the cartilage cap can be evaluated with US and MRI. The cartilaginous cap is isointense to hyperintense on T1-weighted images and hyperintense on T2-weighted images without contrast uptake. [3] When 2 cm of cap thickness is used as the cutoff for malignant transformation, the sensitivities and specificities of MR are 100 and 98 %, and those of CT, 100 and 95 %, respectively [6]

Malignant transformation should also be suspected if there are a recurrence after total resection, growth after maturation of the skeleton system or sudden pain with increase of the lesion size. Radiologically, malignancy is suspected in case of altered surface delineation in comparison with previous radiographic studies, intralesional lytic areas, erosion or destruction of adjacent bones. [7] In the presence of a reactive bursa, false-positive interpretation by CT has been reported in two cases. MR and ultrasound are good adjuncts for differentiating thickened cartilage cap from presence of a bursa.

Benign bone tumors such as osteochondromas may be staged using the Enneking staging system for tumors of the musculoskeletal system. This system categorizes benign bone tumors as 1 (latent), 2 (active), or 3 (aggressive) based on radiographic features and growth behavior [8]. In this case, the tumor could be classified as active because it was progressively growing. Deformity dyspnea and painful abutment of the ribs were indications for removal of this patient's tumor.

The treatment of osteochondroma of the scapula is surgical removal of the tumor, including the entire cartilage cap, to prevent recurrence. Our surgical approach in this case was from an inferior and lateral approach. Common convention with this type of subscapular tumor is to approach it through a dorsal incision along the medial border of the scapula.

CONCLUSION

Osteochondroma is a benign bony lesion with cartilaginous cap occurring usually in long bones, but flat bones may also be involved, either isolated or as a part of a syndrome. Usually, they are asymptomatic, but appearance of symptoms such as mass effect may warrant surgical intervention. Long-term follow-up is advised to identify event of local recurrence or appearance of lesions in other sites.

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