CASE REPORT

Scapular Osteochondroma with Bursa Formation: A Rare Entity with Literature Review

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Cite this Case Report as: *Shaikh R, Gohar F. Scapular Osteochondroma with Bursa Formation: A Rare Entity with Literature Review. Ann Pak Inst Med Sci. 2018;14(4): 291-293.*

ABSTRACT

Osteochondroma is the most frequent benign tumor of bone that occurs predominantly in the long bone, but can arise from any bone which is preformed from cartilage. We hereby report a very case of scapular osteochondroma with bursa formation along with rib erosion in 18-year old male who referred to CT & MRI Centre with winged scapula and limited range of motion of his right shoulder. Plain x-ray showed a bony outgrowth of scapula associated with a soft tissue lesion. CT scan showed an osteochondroma arising from the ventral surface of the right scapula associated with a large bursa formation and adjacent rib erosion. Surgery and histopathology confirmed diagnosis with no evidence of malignancy. To best of authors' knowledge, very few cases of osteochondroma of scapula with bursa formation and rib erosion have been reported in the literature so it highlights the importance of considering this rare entity in the differential diagnosis for any adolescent presenting with winging of scapula.

Key words: Bursa formation, rib erosion, scapular osteochondroma, winged scapula.

Introduction

Osteochondroma is the most frequently observed benign tumor of skeleton that consists of cartilage and bone, accounts for about 35-46% of all benign neoplasm of bone.[1,2] They are commonly arising from metaphyseal region of long bones primarily around knee but these can be found in any bone preformed by cartilage.[1] Clinical presentation of osteochondromas depends on its size and location. Generally they are painless but symptoms may manifest as a consequence of complications such as mechanical problems due to mass effect, pseudowinging of scapula, fracture of bony stalk, nerve/muscle/vascular-impingement syndromes, malignant transformation of the cartilage cap and large bursa formation.[3,4] Bursa formation occur due to friction produced by compression or impediment of overlying tendinous structures.[5] Orlow introduced a new term 'exostosis bursata' in 1891,[6] which means bursa developing between osteochondroma and adjacent soft tissues.

We are reporting a rare presentation of scapular osteochondroma with bursa formation causing rib erosion and psuedowinging of scapula. To the best of authors' knowledge, scapular osteochondroma with bursa formation and rib erosion has been rarely reported.[7] Though scapular osteochondroma is rare entity but it should be considered in the differential diagnosis for any adolescent presenting with winged scapula.

Case Report

An 18-year right handed male presented with deformity of right scapula since last 6 months which showed progress since past 2 months. It was associated with mild pain and low-grade fever. During the last 4 months, progressive limitation of overhead activities had developed. There was no history of trauma or weight loss. He did not undergo any course of pharmacological or physical therapy. The past and personal histories were unremarkable. There was no significant family history. Routine

laboratory investigations were within normal limits. On clinical examination there is asymmetry of scapulae with elevated right side from the thorax and a hard non-tender bony swelling along the medial border of his right scapula. The skin over the swelling was normal. The swelling was fixed to scapula but not-tethered to the overlying skin. The sensory, motor, and reflex testing of his cervical spine and upper limbs were unremarkable. No other bony swellings were noted in his body. Plain radiograph in Y- and oblique views of right scapula showed a bony lesion arising from the ventral surface of the scapula associated with a soft tissue lesion. The cortex and the medullary cavity were continuous with the scapula (Figure 1).

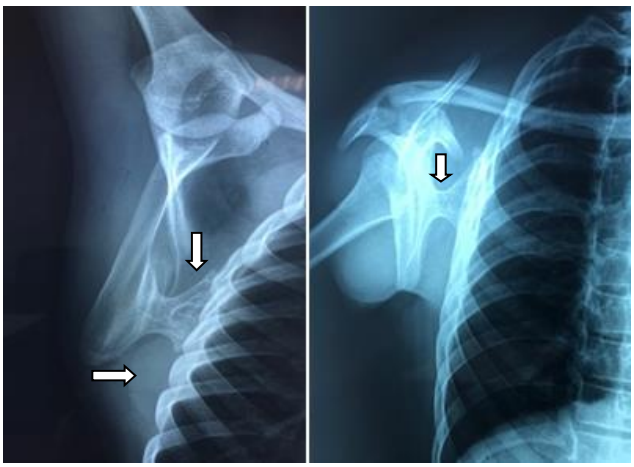

Figure 1. Y- and oblique views of right scapula showed a bony lesion arising from the ventral surface of the scapula (down arrow) associated with soft tissue lesion (right arrow).

Ultrasound was performed which showed a cystic lesion around osteochondroma along right lateral chest wall with no internal echoes or septae. No evidence of solid mass or calcification. No vascularity is seen on color Doppler ultrasound. CT scan confirmed a bony exostosis arising from the ventral surface of his right scapula associated with a large bursa formation without enhancing wall measuring 9.3x1.6x4.9cm extending from 3rd to 8th ribs causing pressure erosion of 4th rib (Figure 2). There was no cortical erosion or irregularity of osteochondroma. No evidence of associated solid enhancing soft tissue mass or pathological fracture. The patient was planned for MRI for confirmation of findings but due to claustrophobia he didn't follow the advice. Then patient underwent the surgery for resection of osteochondroma and bursa. The histopathology confirmed the findings with no evidence of malignancy. There was no evidence of recurrence at 6-month follow up.

Figure 2. CT scan (mediastinal and bone windows) confirmed a bony exostosis (down arrow) arising from ventral surface of right scapula associated with a large bursa formation (curved right arrow) and erosion of 4th rib (right arrow).

Discussion

Osteochondroma are most common benign primary bone tumors arising from metaphyseal regions of long bone commonly including proximal humerus, distal femur and proximal tibia and rarely from flat bones.[2,4] Those arising from the scapula account about 4% of all osteochondroma.[2,4,7] Very few cases of osteochondroma are reported that arise from the ventral surface of the scapula and result in painful abduction of shoulder, pseudowinging of scapula and large bursa formation with adjacent rib erosion,[4,7,8] similar to this patient. They are commonly seen in young patients of less than 30 years of age male:female ratio of >1.5:1,[4] as our patient is also male and young 17-year old. Usually these are asymptomatic but can present with variety of symptoms like non-tender painless cosmetic deformity,

fracture, bursa formation, arthritis, nerve/tendon/vessel impingement syndrome and malignant transformation.[3,4] Orlow coined a term 'exostosis bursata' when large bursa formations are associated with osteochondroma due to irritation of bursa by mechanical abrasion with shoulder movement.[6,9] Large bursa formation usually associated with osteochondroma arising from superior and inferior angle and along medial border of scapula since these locations are poorly shielded.[9] Sudden increase in size of bursa associated with osteochondroma can be misleading to malignant transformation of cartilaginous cap of osteochondroma, so it is very important to differentiate these two conditions for management. In such cases CT is necessary not only to determine the exact location of the osteochondroma and its relationship with the surrounding soft tissues but also to differentiate between bursa formation and malignant transformation, to enable accurate surgical removal which is the only adequate treatment.[5]

Winged scapula or scapula alata is defined as the prominence of the medial border of the scapula, could be dynamic or static, latter also known as pseudowinging of scapula. Osteochondroma is the most common tumor associated with pseudowinging of the scapula,[4] usually result from mechanical blockage of free movement.[8] This patient also presented with psuedowinging of scapula.

Plain radiography is the main diagnostic modality for characterization of bony lesion. In certain locations like osteochondroma of ventral surface of scapula, it may be difficult to identify the lesion or it may be missed on plain radiographs then CT scan or MRI is useful to establish a diagnosis as well as to localize the lesion especially when planning resection, [4,8] as CT was done in this patient.

Surgery is indicated when there is cosmetic concern or when it produces symptoms due to pressure over surrounding structures or when imaging features suggests a malignancy.[5] So our patient underwent the surgery for resection of osteochondroma and bursa due to pressure symptoms and cosmetic purpose. There was no recurrence up to 6-month follow up.

Conclusion

Osteochondroma of scapula is a rare entity which led to pseudowinging of the scapula highlighting the importance of including this entity in the differential diagnosis for any presentation of pseudowinging of scapula. The patients are mostly symptoms free but if the tumor is large enough and in proximity to the ribs, it can cause unusual pressure effects like rib erosion and bursa formation, as exemplified by this case. Timely diagnosis and complete excision of the tumor should be done in order to avoid recurrence and prevent complications.

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