CASE REPORT

Bursa Formation with Scapular Osteochondroma in Hereditary Multiple Exostosis

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ABSTRACT

Osteochondroma is the most common benign bone tumour present multiple hereditary exostosis (HME). Scapular osteochondroma associated with pain and bursitis is rarely reported in literature. Here, we describe a 49-year-old male with the diagnosis of HME who was admitted to the Department of Thoracic Surgery with a painful and rapidly enlarging mass behind the left scapula. Computed tomography and magnetic resonance imaging indicated a large bursa formation associated with chest wall mass. Pre-operatively, the mass was diagnosed as osteochondroma and resected. Pathological findings confirmed that mass was a large bursa formation due to scapular osteochondroma without any evidence of malignancy. Osteochondroma should be considered in differential diagnosis of chest wall tumours located at this specific site. We discuss this rare complication of HME and emphasize the importance of early diagnosis and differentiation from malignant transformation of osteochondroma.

Key words: *Multiple hereditary exostosis. Thoracic wall. Osteochondroma. Scapula. Bursa.*

INTRODUCTION

Osteochondromas represent the most common primary bone tumours reportedly representing 20 – 50% of all benign bone tumours and 10 – 15% of all bone tumours.[1] These are usually painless but symptoms may result from complications. Hereditary multiple exostosis (HME) is characterized by development of multiple osteochondromata in the immature skeleton.[2] Proximal humerus, distal femur and proximal tibia are most common sites by far; involvement of the flat bones has been described, and scapular lesions are not uncommon in patients with HME with large number of osteochondromata.[3] Patients with solitary osteochondroma have 3% risk of developing chondrosarcoma but this risk increases to 10 – 11% for patients with HME.[4] A reactive bursa secondary to an osteochondroma of the scapular is rare. Pain in a chest wall mass arouses the suspicion of malignancy. Imaging techniques are important in the visualization of anatomy and pathology particularly in complex surgical cases.[5]

We describe a patient with rapidly enlarging painful bursa with chest wall tumour in a patient with HME.

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CASE REPORT

A 49-year-old male admitted to the Department of Thoracic Surgery suffering from painfully enlarging and fluctuating cystic mass behind the lateral border of the scapula. This patient had been followed-up with the diagnosis of HME for the last 10 years. Diagnosis was made on development of multiple (right distal tibia, right distal femur and left proximal tibia) osteochondromata of the long bones. The cystic mass measured 4 x 10 cm. He had pain for 3 months without history of trauma.

Laboratory data were within normal limits. Computed tomography and magnetic resonance imaging showed a mass arising from the anterior surface of left scapula and a bursa formation behind the left scapula. The bursa was measured 13 x 10 x 3.5 cm and the mass measured 4.5 x 2.0 cm originating from the left thoracic wall. The pre-operative diagnosis was chest wall tumour. Under general anaesthesia, the patient was positioned prone. Careful dissection allowed the scapula to be lifted off the chest wall to expose both the osteochondroma and bursa. Both osteochondroma and inflamed bursa were resected. Pathological examination showed the mass to be large bursa formation with scapular osteochondroma and no evidence of malignancy. Fuzzy margins of the cartilaginous cap and lucent or poorly mineralized portion within the osteochondroma were not observed. The thickness of the cap was 0.5 cm (Figure 1a, 1b). The bursa contained mucinous fluid and its wall consisted of villous and fibrous bands of collagen and focal hyalin with infiltration of chronic inflammatory cells and vascular proliferation. Its inner surface was partially covered by lining resembling synovium. The exostosis was an osteochondroma and its cartilagineous cap

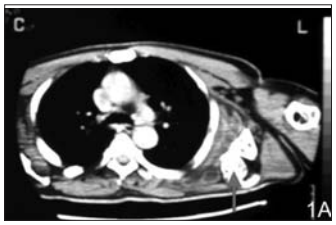

Figure 1a: Postcontrast image of CT scan showing exostosis anterior to the body of the left scapula and sub-scapular bursa. Red arrow points scapular osteochondroma.

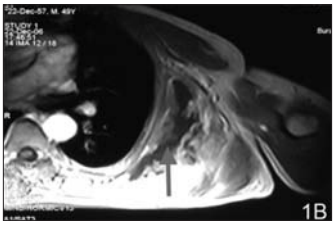

Figure 1b: MR image showing osteochondroma with continuity to the underlying scapula and sub-scapular bursitis. Red arrow points bursa formation.

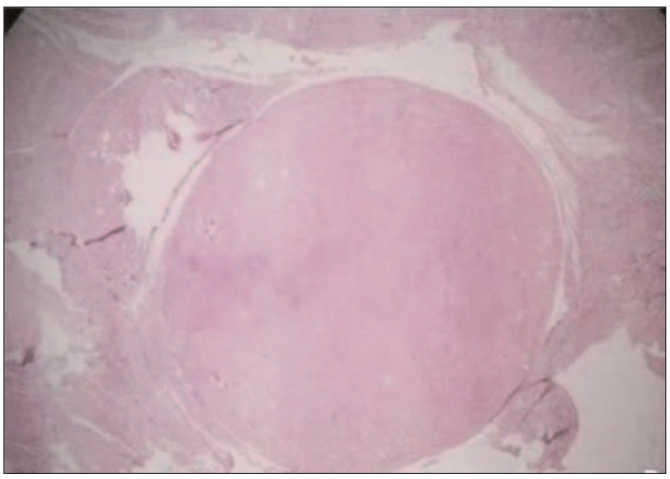

Figure 2: Hyalinization and infiltration of chronic inflammatory cells within the bursal wall (H.E x 50).

of osteochondroma had no evidence of malignant transformation (Figure 2). The patient was discharged 6 days after operation and a follow-up examination after 24 months showed no evidence of recurrence.

DISCUSSION

Primary chest wall tumours are classified by their primary component: soft tissue or bone. Work-up consists of a thorough history, physical examination and imaging to assess the anatomical location, size, composition, association with surrounding structures, and evidence of any soft tissue component. Primary chest wall tumours are uncommon tumours and represent less than about 2% of all those tumours identified in the whole body.[4] There is a wide range of possible differential diagnosis of a chest wall mass. In any chest wall mass it is important to establish the histological diagnosis to either confirm or exclude the presence of malignancy. The probability of malignant change is highest for palpable scapular exostoses relative to any other anatomic site.[6]

A bursa appears as a soft tissue mass overlaying the osteochondroma. Bursa formation may cause pain on the chest wall due to it pressing upon adjacent structures. Bursa formation due to osteochondroma of scapula is rare. Injury leading the development of bursa has been reported.[7] In this case, there was no history of trauma.

Plain radiographs are not sufficient to demonstrate the whole extent and detailed nature of the lesion. Computed tomography and magnetic resonance imagine are of value in demonstrating the homogeneous nature of the bursa contents as well as evaluating the exostosis itself for signs of malignant change. Bursa may contain new areas of chondroid mineralisation representing intra-bursal fragments that can simulate a thick cartilage cap with growth promoting characteristics of malignant transformation.[8] The presence of fluid-filled sac indicates bursa formation rather than a tumour. A non-mineralised or poorly mineralised mass of a large osteochondroma indicates the presence of malignant transformation in osteochondroma.[9] A cap thinner than 1 cm usually indicates a benign condition, whereas a cap between 1 and 2 cm may be considered questionable for malignancy and a cap thicker than 2 cm generally corresponds to malignant transformation.[9]

Recurrence rate of benign osteochondromas is 2% and this is presumably due to residual fragments of cartilage cap or periosteum following excision.[10] As in this case, both the bursa and osteochondroma should be resected to avoid recurrence. Bursa formation with scapular osteochondroma usually does not cause any morbidity but in patients with HME osteochondroma should be followed closely for its higher risk of malignant transformation. Surgery provides an excellent outcome.

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