

Aneurysmal Bone Cyst of Clavicle in a 13 Year Old Child: A Case Report

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ABSTRACT

Aneurysmal bone cyst is a benign tumor of bones especially long tubular bones and vertebrae and its peak incidence is in 2nd decade of life (10-20 years). Metaphyseal end of long bones are usually affected followed by spine and flat bones. Aneurysmal bone cysts involve clavicle bone very rarely and very few cases of involvement of clavicle bone have been reported in literature. In present study, we have reported a case of Aneurysmal bone cyst of lateral end of clavicle in a 13 year old girl child.

Keywords: Aneurysmal Bone Cyst; Radiograph; Giant Cell Tumor; Biopsy

INTRODUCTION

Aneurysmal bone cyst (ABC) is a benign tumor of bone which may cause destruction of bone.¹ In ABC, spongy or multiloculated blood-filled spaces of variable sizes are present and these spaces are separated by connective tissue septa containing trabeculae or osteoid tissue and osteoclast giant cells.² Aneurysmal bone cyst is about 1% of all benign bone tumors. About 80% of aneurysmal bone cysts are found in skeletally immature patients and peak incidence is in 2nd decade of life (10-20 years).

Aneurysmal bone cysts may involve any bone but long tubular bones like proximal humerus, distal femur, proximal tibia and vertebrae spines are the most common sites which are involved in Aneurysmal bone cysts.^{3,4} Pelvis and scapula are common location sites among flat bones. Aneurysmal bone cysts involve clavicle bone very rarely and very few cases of involvement of clavicle bone have been reported in literature.^{2,5} In present study, we have reported a case of aneurysmal bone cyst of lateral end of clavicle in a 13 year old girl child.

CASE PRESENTATION

History: A 13-year-old girl presented in the outpatient department with a swelling over the lateral end of right clavicle since 7 months. At the time of examination, swelling attained the size of an egg. Surface of swelling was smooth and on palpitation, it was mildly tender. There was no local rise of temperature and skin was not adherent to the swelling. Consistency of swelling was bony hard and margins of swelling were distinct. Local lymph nodes were not involved. There was full range of motion at the shoulder without any pain. Similar swelling was not present in any other parts of the body.

Radiographic (C- Arm) findings: Radiograph of the swelling

showed well-defined expansile osteolytic lesion and thin sclerotic margins was arising from the lateral end of the right clavicle. Blood investigations like ESR, CRP and serum alkaline phosphates were within normal limits. (Figure 1 & 2)

Histo-pathological findings: Biopsy from lateral end of clavicle was sent for histo-pathological analysis. On gross description, bony tissue showed grayish brown soft tissue piece. Bone tissue was brittle with central cystic cavity containing grayish brown haemorrhagic material. On microscopic examination sections showed multiple cystic spaces, few of which contains blood/ haemorrhage, separated by cellular fibrocollagenous septa containing fibroblasts, scattered giant cells and several fragments of woven bone. Occasional area of with blue reticulated chondroid like material was also seen. No necrosis, cytologic atypia or increased mitoses seen. As per histo-pathological report, findings were consistent with Aneurysmal bone cyst.

Management: In treatment of aneurysmal cyst, excision of the mass with a portion of normal bone was done. Shoulder was immobilized for three weeks followed by active movement and physiotherapy was done. Follow up of the patient was done at 3 weeks, 3 months and 6 months. The patient has full

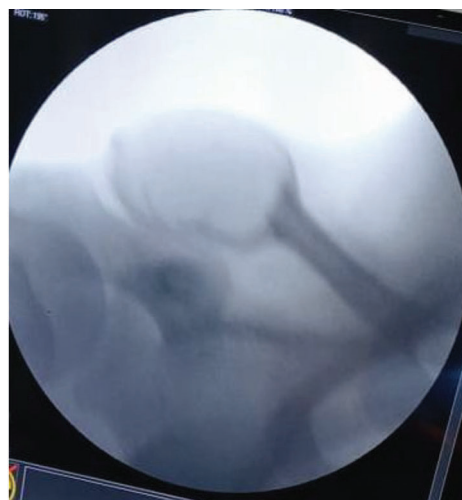


Figure-1: Intraoperative C-arm picture before excision

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Figure-2: Intraoperative C-arm picture after excision

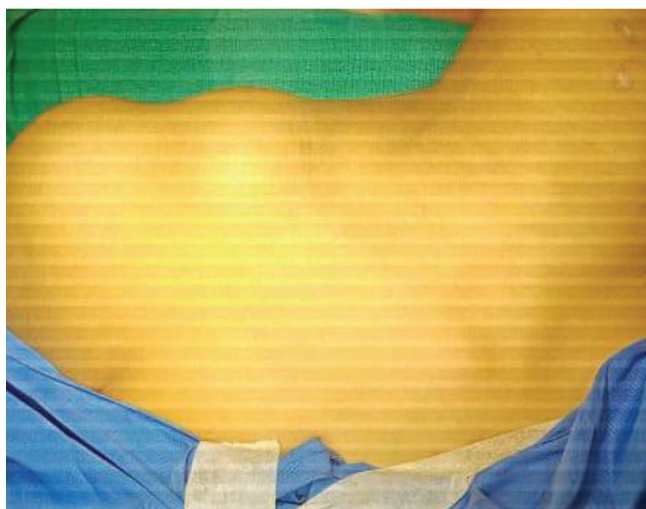


Figure-3: Swelling before the procedure

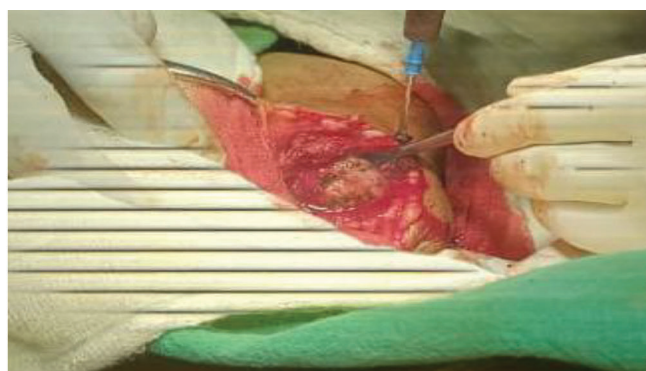


Figure-4: Intraoperative Swelling of the Cyst

range of movements with no functional problems. (Figure 3 & 4)

DISCUSSION

Jaffe and Lichtenstein⁶ on the basis of radiologic findings coined the term Aneurysmal bone cyst. Patients of Aneurysmal bone cyst generally presents with pain and swelling in the involvement area. ABC commonly involve metaphyseal region in long bones which rarely crosses the joint. C-arm picture shows an expansile lytic lesion with

blowout or ballooning distension of the periosteum and thin sclerotic margins. On radiograph, ABC may show soap bubble like appearance. On CT scan, multi-loculated cystic nature of benign tumor may be seen. MRI depicts the expansile nature of tumor and involvement of the nearby structures.⁷ It is postulated that it may arise from a local circulatory disturbance resulting in increased venous pressure and subsequent production of hemorrhage in the bone.⁸ Reason behind rare involvement of clavicle bone in Aneurysmal bone cyst is that in clavicle bone, there is low venous pressure.

However pathogenesis of ABC is unclear but some studies have found that in ABCs, there is fusion of the *TRE17/CDH11-USP6* oncogene which results in increased cellular cadherin-11 activity. Cadherin-11 arrests osteoblastic maturation in a more primitive state.

Giant cell tumor, chondromyxoid fibroma and telangiectatic osteosarcoma are other bone tumors which can confuse with Aneurysmal bone cyst.⁹ Giant cell tumor is less cystic and slowly growing tumor in comparison of ABC. Chondromyxoid fibroma is also slow growing tumor than ABC. Chondromyxoid fibroma and telangiectatic osteosarcoma have radiological picture quite similar to ABC but they can be differentiated on the basis of histological examination.

Curettage, excision, cryotherapy, radiotherapy, vascular occlusion etc are the methods of treating ABC. Cole WG et al.¹⁰ found complete excision of tumor as best modality of treatment in childhood. Factors like younger age, metaphyseal location etc are associated with increased risk of recurrence. According to Malghem J et al.¹¹ curettage and bone grafting is preferred method to reduce functional impairment in ABC cases. As per various studies, cure rate in cases of ABC is 90-95%. Embolization of the feeding vessel reduces the size of the tumor and allows lesser exposure and dissection during surgery. Adjuvant treatment is done in inaccessible tumors.

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