

Case Report

Orthopedics



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Aneurysmal Bone Cyst of Clavicle in a Six-Year-Old Male Child

Rushin P. Patel¹, Shakti Goel*², Pankaj R. Patel³

Abstract

Aneurysmal Bone Cyst (ABCs) is a cystic expansile lesion which is usually found in solitary locations in the metaphysis of long bones. The most common locations of ABC are long bones of lower limbs. There is little knowledge about the presence of this tumor in Clavicle. Here we present a case of a six year old male child who presented with complaint of swelling in left shoulder for four months. There was a dilemma in the diagnosis of the swelling due to its unusual presentation and appearance. The Fine Needle Aspiration Cytology was also inconclusive. The diagnosis of ABC was made only by excision biopsy. The Clavicle regenerated to nearly normal anatomy at 15 weeks follow up period. The patient is asymptomatic now and is able to perform all daily activities without any restrictions. The uniqueness of this case lies in the fact that this is the first case where ABC has been reported in Clavicular region in young Asian male of less than 10 years age.

Keywords: ABC, Bone tumor, Expansile lesion.

Introduction

Aneurysmal Bone Cyst is a cystic expansile lesion which is usually found in solitary locations in the metaphysis of long bones [1, 2]. This tumor is most often found in the second decade of the individuals [1, 3]. Histologically, they are diagnosed by numerous multinucleated osteoclasts like giant cells and presence of mononuclear stroma [1]. It is important to know the patients age and exact location along with tumor growth dynamics in order to meticulously diagnose ABC and differentiate it from other Giant Cell Tumor variants [1, 2]. In this case report there was a decision dilemma in diagnosis and management of the tumor due to its unusual place of appearance.

ABCs of the clavicle have been rarely reported. In this case report we have presented a case of Clavicular ABC which was found in a six year old individual. There was a dilemma in the diagnosis of the swelling due to its unusual presentation and appearance. The Fine Needle Aspiration Cytology was also inconclusive. The diagnosis of ABC was

made only by excision biopsy. The Clavicle regenerated to nearly normal anatomy at 15 weeks follow up period. The patient is asymptomatic now and is able to perform all daily activities without any restrictions.

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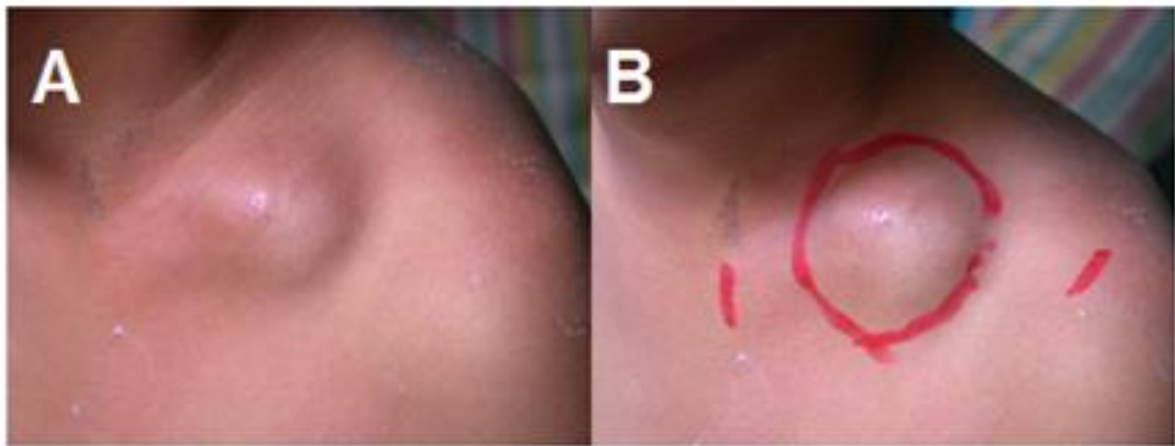
The case is being reported after the patient's consent. A six year old male child presented with complaint of swelling in left shoulder since four months. The swelling was gradually progressive and painless. On examination, it was found to be located in the left Clavicular region, non-mobile, hard in consistency and free from skin (Figure 1).

The overlying skin was normal and there was no trans-illumination that was noted. The swelling measured about five centimetres by three centimetres in dimension. The patient did not complain of any fever or weight loss at the time of presentation.

After a thorough examination, it was decided to take an X-ray and CT scan of the involved area (Figure 2). The radiological investigations indicated an expansile lesion in the middle third region of the left Clavicle. Fine Needle Aspiration Cytology (FNAC) was conducted, which was inconclusive.

Finally it was decided to excise the swelling and send it for biopsy. The patient underwent excisional biopsy of the lesion under general anaesthesia. On gross appearance, there was a cystic lesion with its expansile characteristics and egg shell crackling (Figure 3).

Figure 1. Pre-operative swelling in a 6 year old male child



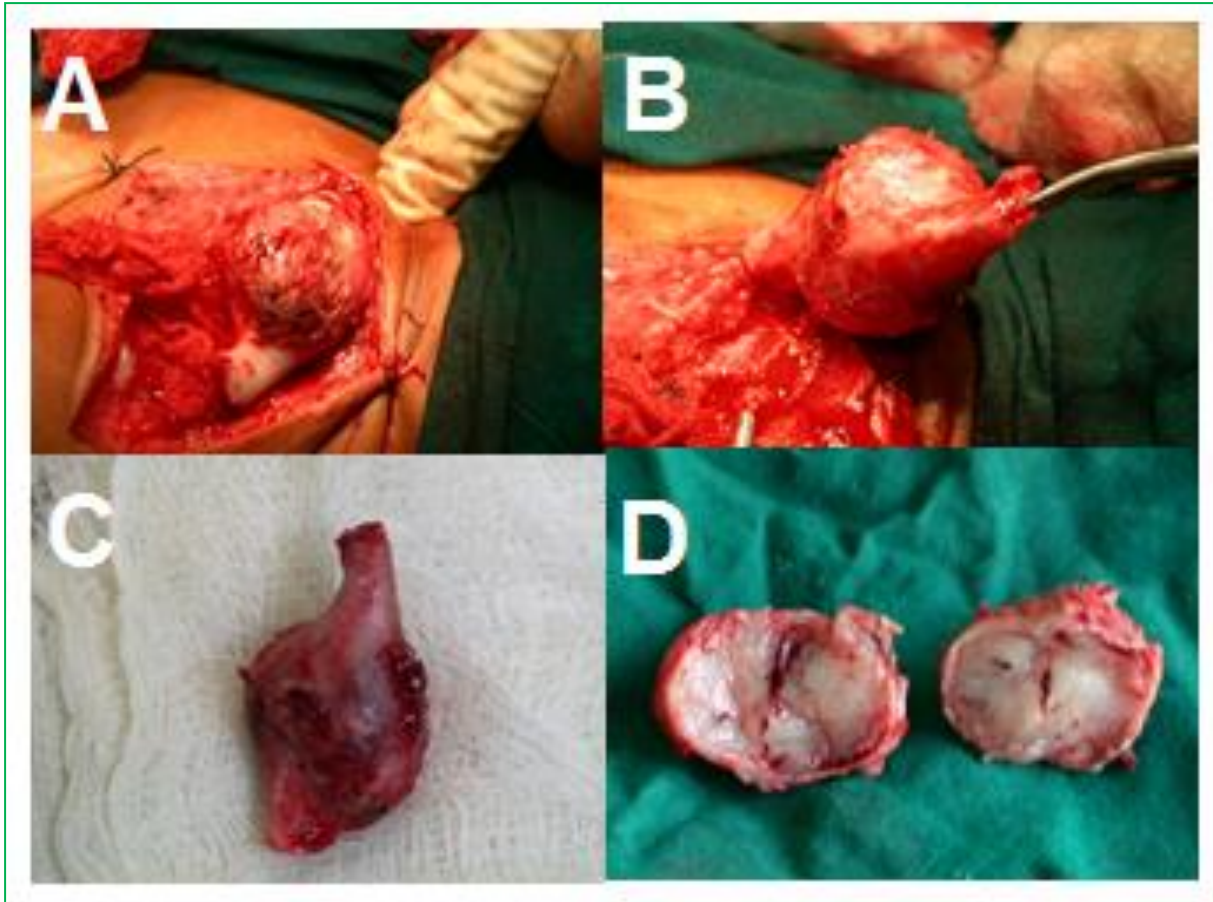
*The margins of the swelling and both ends of the left Clavicle have been demarcated.

Figure 2. X ray of the left Clavicle showing an expansile mass



*(A) X ray of the left Clavicle showing an expansile mass in the mid part. (B) CT scan of the involved area showing a large well defined, rounded expansile, multi-septate hypodense lesion in the middle of the left clavicle. Fluid–fluid levels are seen within the mass.

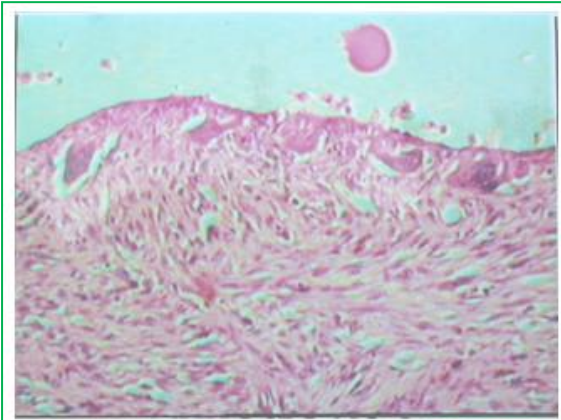
Figure 3. Gross Morphology of the ABC



*(A, B) Excisional Biopsy of the lesion. (C, D) On gross examination, the lesion had a cystic appearance with egg shell cracking.

The histopathology confirmed the diagnosis of Aneurysmal Bone Cyst (**Figure 4**).

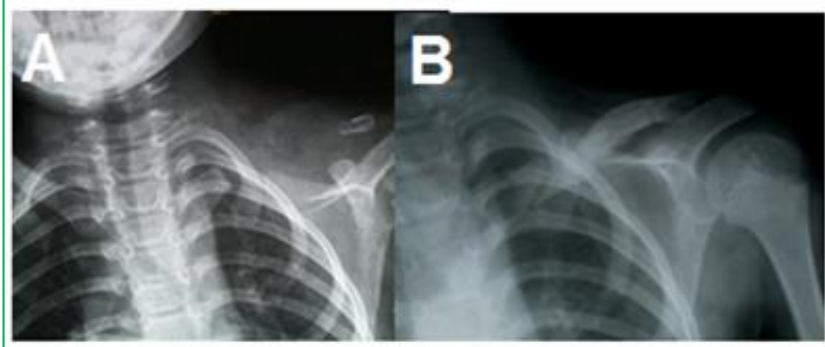
Figure 4. Histopathology of open biopsy



*The cyst revealed cystic vascular spaces, without endothelial lining, separated by fibrous septa and thin strands of bone.

The Post-operative X-ray showed complete remission of the lesion which was maintained even during the follow up period (**Figure 5 A**). Even in follow up x-ray of 15 weeks the clavicle again regenerated as nearly normal (**Figure 5B**). Post-operatively patient underwent vigorous physiotherapy for shoulder muscle strengthening and stretching exercises. The patient is pain free now, without any swelling and is able to perform all daily activities, four years following the primary procedure.

Figure 5. Post operative X-ray



*(A) Immediate post-operative image of the left clavicle after lesion excision. (B) Radiograph of the left Clavicle after 15 weeks follow-up period. The Clavicle has grown to normal appearance.

Discussion

As defined by WHO, ABC is a tumor like expanding lesion which consists of blood filled spaces. These are separated by septae of connective tissues and occasional giant cells. The term ABC was coined in 1942 by Jaffe and Lichtenstein [4].

The clinical and radiological findings of ABCs are unique and easy to identify [1]. The characteristic smooth swelling in younger population of bony erosion may indicate towards ABC. However such a lesion is generally found in the metaphysis of long bones [2]. The uniqueness of this case report lies in the fact that the appearance of ABC in clavicle in a six year old boy has not yet been reported. The lesion was excised and patient became asymptomatic after the procedure.

Little knowledge is available regarding the appearance of ABC in Clavicular region. A few studies have reported the presence of Giant Cell Variants and Aneurysmal Bone Cyst in mandible and spine [2,5-7]. This study is first of its kind where ABC was found in the Clavicular region in a six year old male child.

ABCs are 1.2 times more frequently found in males in the metaphyseal region of long bones [8]. In our

case report, the lesion was in the diaphysis of clavicle which is a rare entity. The aetiology of ABC is also not well understood. In a recent report, it was concluded that ABC of mandible can occur secondary to a pre-existing lesion [6].

ABCs often present with painful swelling however some are asymptomatic. Various radiological modalities can be used to diagnose ABC but a definitive diagnosis can be made via biopsy only [9]. In our case report, FNAC of the swelling was inconclusive and hence an open excisional biopsy was performed. Curettage, wide excision, arterial embolization etc. may be used to treat the lesion [3, 10]. Surgical excision and curettage has been reported to be an effective measure of treatment in majority of ABCs. In this case, complete excision of the lesion was done followed by a six week period of immobilization and shoulder sling.

Conclusion

ABC is a cystic expansile lesion usually found in the metaphysis of long bones of lower limbs. Here we have reported a rare case of ABC in clavicle of a six year old male child. The patient was treated by wide excision of the lesion. He became asymptomatic after the treatment and is able to

perform all daily activities at four years of follow-up.

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