

# Aneurysmal Bone Cyst of the Rib – A Rare Chest Wall Tumor

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## ABSTRACT

A 28 year old female presented with the complaint of painful chest wall swelling on the left side anteriorolaterally, for the past three years. Her Trucut biopsy was inconclusive. Incisional biopsy proved it to be aneurysmal bone cyst. It was excised and chest wall was reconstructed with propylene mesh and muscle flaps. Her post-operative recovery was smooth.

**Key words:** Aneurysmal bone cyst, chest wall tumor, chest wall reconstruction.

*How to cite this article:* Hussain N, Javed A, Wahab S, Deedar A. Aneurysmal bone cyst of the rib – a rare chest wall tumor. J Dow Uni Health Sci 2015; 9(2): 76-77.

## INTRODUCTION

Aneurysmal bone cysts (ABC) are rare, benign, expansile tumors comprising 1.3% of all primary bone tumors, commonly arising in metaphysis of long bones<sup>1</sup>. It is extremely rare in the ribs<sup>2,3</sup>. We report a case of ABC of the rib presenting in a 28-year-old female, which was successfully treated by surgical resection.

### Case:

A 28 year old female presented with a painful swelling of left chest wall for the past three years, gradually increasing in size. There was no history of discharge, fever, trauma or a similar swelling in the body. Examination revealed a hard, non-tender, immobile swelling, 7 x 8 cms, on the left lower anterolateral part of the chest with ill-defined margins, no signs of inflammation or discharge with a small scar of previous biopsy.

Chest X-ray showed expansile, lobulated, non-homogenous opacity arising from 7<sup>th</sup> to 10<sup>th</sup> ribs. CT scan chest revealed a calcified heterogeneous mass involving the left lower ribs and costal cartilages. Medially it extended into the lower thoracic and upper

abdominal cavity, abutting the left lobe of liver, dome of the diaphragm and stomach, displacing it to right side. Previously, two Trucut biopsies were inconclusive, performed before the patient presented to us. We did an incisional biopsy which confirmed the diagnosis of ABC.

The patient was planned for resection of tumor and reconstruction of the chest wall. The mass was found to be involving the 7<sup>th</sup> to 10<sup>th</sup> rib including costal margins, deeply adherent and involving the diaphragm, compressing the liver, stomach and omentum. The mass was excised along with ribs, costal margin and involved part of the diaphragm. Peritoneal cavity was closed and diaphragm repaired. Prolene mesh and muscle flap were used to reconstruct the chest wall defect.

At one year follow-up, the patient remained symptomless with satisfactory chest x-ray and CT scan, without evidence of recurrence.

## DISCUSSION

ABC was first described by Jaffe and Liechtenstein<sup>4</sup> as a rare benign pseudotumoral lesion of the bone. It has been observed in all sites of the skeleton but is commonly found in long bones and the vertebral column<sup>5</sup>, accounting for 5-7% of all primary bone tumors and 1.3% of all bones tumors<sup>4</sup>. In our case, it involved the 7<sup>th</sup> to 10<sup>th</sup> rib. ABC has been reported in all ribs but it is even more uncommon in the last three ribs of the chest wall<sup>7</sup>. ABC is rare in patients aged less than 30 years, 75% of these are seen in patients

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Fig. 1: Per-operative picture of tumor with excised ribs



Fig. 2: Tumor adherent with diaphragm, showing liver, omentum and stomach



Fig. 3: Reconstruction of the chest wall with mesh and muscle flap

less than 20 years with predominance seen in females<sup>8</sup>, as in our case. Most commonly seen presenting complains of patients with ABC of the rib are swelling

of the chest wall, chest pain, dyspnea, paraplegia and pathological fractures<sup>3</sup>. Our patient presented with a painful swelling of left sided anterior chest wall for the past three years. Treatment options for ABC include surgical excision, radiotherapy, embolization, sclerotherapy and to wait and watch protocol<sup>8</sup>. In our case, we performed surgical excision of the ABC which is the recommended treatment in such cases as it has the lowest recurrence rate.

ABC is a rare benign chest wall tumor thus, early diagnosis and complete excision gives good post-operative results with less morbidity and mortality.

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