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### **Aneurysmal Bone Cyst of Talus- A Case Report**

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#### **ABSTRACT**

Aneurysmal bone cyst of talus is an extremely rare lesion, less than 25 cases have been published till now. We report a primary aneurysmal bone cyst of talus in a 23 year old male that was managed by extensive intralesional curettage with hydrogen peroxide as an adjuvant and autologous, cancellous iliac crest bone grafting. The patient had excellent functional outcome and there was no recurrence at 18 months follow-up.

**KEY WORDS:** Aneurysmal bone cyst, talus, intralesional curettage, bone grafting.

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## **INTRODUCTION**

Aneurysmal bone cyst is a tumor like condition which is benign, consists of cystic cavities filled with blood and is locally destructive. Tarsal bones are rarely involved by aneurysmal bone cyst, less than 25 cases have been reported till now. We report an aneurysmal bone cyst of Talus in a 23 year old male that was managed by extended intralesional curettage and autologous iliac crest bone grafting. There was no recurrence at 18 months follow-up.

## **EXPERIMENTAL SECTION**

A 23 year old male, mechanic by occupation, presented to the outpatient department with complaints of insidious onset, dull aching pain in right ankle, since 4months. There was no history of swelling, fever, weight loss, trauma or similar complaints in any other joints of the body. General physical examination was unremarkable. On examination of right foot, there was no swelling; no local rise of temperature, tenderness was present over the head of talus and medial aspect of ankle. The distal neurovascular status was normal. Blood investigations were normal.



**Figure 1: Anteroposterior and lateral radiographs of ankle showing lytic lesion in head and neck of talus**

Revealed an expansile, lytic lesion with lobulated and well defined borders occupying the head and neck of right talus. No periosteal reaction or calcification was noted. Magnetic resonance imaging of the foot and ankle [Figure2] revealed an eccentric, cystic lesion in the right talus, which was hypointense on T1 weighted sequences and hyperintense on T2 weighted sequences. There was no extension into the subtalar joint or adjacent soft tissues.

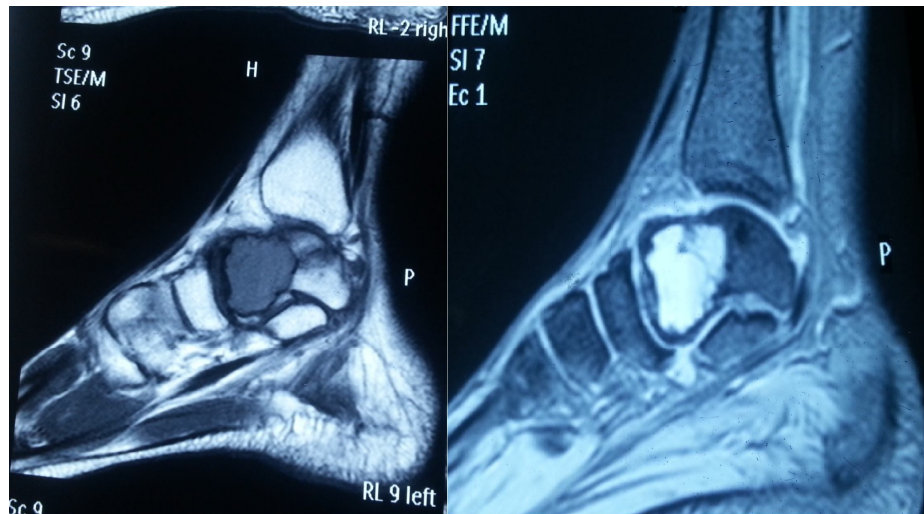


Figure 2: MRI ankle showing cystic lesion in talus.

Fine needle aspiration from the lesion was done which revealed numerous osteoclast giant cells in a hemorrhagic background.

On the basis of clinical, imaging and cytological findings a provisional diagnosis of aneurysmal bone cyst was made. We considered giant cell tumor, aneurysmal bone cyst and simple bone cyst amongst differential diagnosis. The nature of the lesion, the differential diagnosis, different treatment options and possible outcomes were discussed with the patient prior to obtaining and informed and written consent.

The patient was taken up for extended intra-lesional curettage with hydrogen peroxide as an adjuvant and autogenous iliac crest bone grafting. The talus was exposed by standard antero-medial approach to the ankle [Figure 3]. Per operatively, cortical expansion of medial aspect of head of talus was noted. A window was made on the medial surface of talar neck to facilitate curettage. The interior of the talus revealed presence of spongy blood filled mass. Thorough curettage was performed and the cavity was enlarged in all directions using a high speed burr and hydrogen peroxide was used as an adjuvant. The cavity was filled with autogenous cancellous bone harvested from right iliac crest.

Post operatively, the foot was immobilized in a below knee cast for 12 weeks.

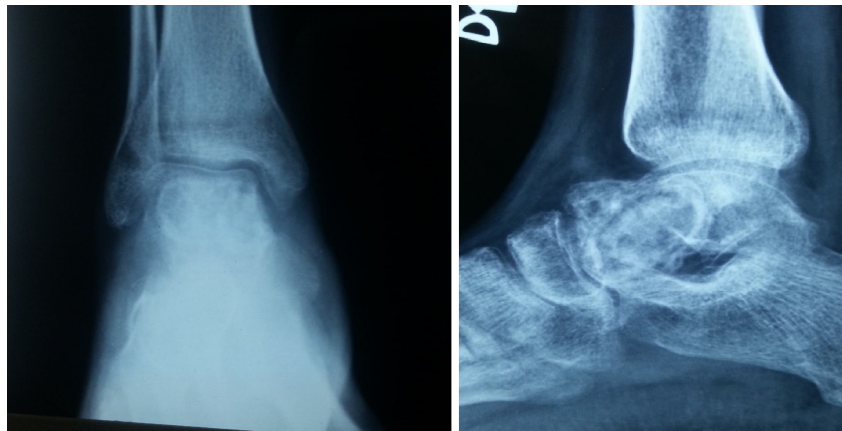


**Figure 3: Window made in bone exposing the cavity.**

Histopathological examination of the curettage material revealed blood filled cavities with fibrous septae without endothelial lining. Numerous osteoclast giant cells were noted. A diagnosis of Primary aneurysmal bone cyst was made.

Radiographs at 12 weeks showed good incorporation of the bone graft after which patient was permitted to bear weight [Figure4]

Initially patient had ankle stiffness, which improved with physiotherapy. There was no recurrence at 18 months follow-up [Figure5].



**Figure 4: Radiograph at 12 weeks.**

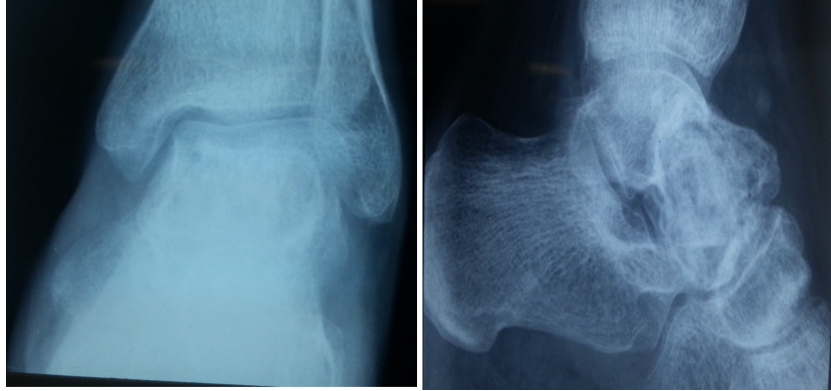


Figure 5: Radiograph at 18 months.

## DISCUSSION

Aneurysmal bone cysts are locally destructive, blood-filled reactive lesions of bone and are not considered to be true neoplasms<sup>1</sup>. It is usually seen in patients between 10-20 years of age and is slightly more common in females<sup>2</sup>. Any bone may be involved, but the most common locations include the proximal humerus, distal femur, proximal tibia and spine<sup>1</sup>. Talus is an extremely rare site for aneurysmal bone cyst<sup>3</sup>.

It has been said that aneurysmal bone cyst is associated with distinctive 17p13 translocations that result in up regulation of USP6, a deubiquitinating enzyme<sup>4</sup>.

An aneurysmal bone cyst can arise *denovo* but areas similar to aneurysmal bone cyst are seen in numerous other lesions, such as giant cell tumor, chondroblastoma, osteoblastoma, fibrous dysplasia, nonossifying fibroma and chondromyxoid fibroma<sup>1</sup>.

Giant cell tumors have been reported to occur in talus<sup>5</sup>, and can sometimes present with secondary aneurysmal bone cyst. The diagnosis of these lesions is very challenging since they share many common features<sup>6</sup>. In a typical aneurysmal bone cyst histological examination reveals large vascular spaces separated by strands of fibrous tissue in which there are numerous capillaries. Multinucleated giant cells are common around areas of hemorrhage; these giant cells are smaller and have fewer nuclei than those of a giant cell tumor<sup>7</sup>. The blood spaces are typically non-endothelialized<sup>8</sup>. Most of the giant cell tumors are found at the epiphyses of long bones<sup>9</sup>. Even though the histological

picture may be diagnostic of an aneurysmal bone cyst, a meticulous search should be made to rule out the secondary nature of such a lesion<sup>3</sup>.

Extended curettage and grafting is the standard treatment for aneurysmal bone cyst<sup>1</sup>. Total talemectomy along with tibio-calcaneal arthrodesis was performed for lytic lesions with extensive destruction of talus with no recurrence at 18months followup<sup>5</sup>. Some authors have used external fixation in place of traditional cast after curettage and bone grafting for aneurysmal bone cyst of talus<sup>10</sup>. With primary aneurysmal bone cysts, an excellent prognosis can be expected after intralesional curettage and bone grafting<sup>3</sup>.

## **CONCLUSION**

Aneurysmal bone cyst though rare should always be considered in differential diagnosis when diagnosing a case of lytic lesion of talus. Since it is difficult to differentiate talar aneurysmal bone cyst from giant cell tumor on the basis of imaging or fine needle aspiration alone, it is best to perform extended intralesional curettage and use of adjuvant in order to minimize recurrences. Even though histological picture may be diagnostic of aneurysmal bone cyst, secondary nature should be kept in mind and meticulous search be done to find such a lesion. The prognosis is excellent after intralesional curettage and bone grafting of primary aneurysmal bone cyst.

## **ABBREVIATIONS**

None.

## **CONSENT**

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

## **COMPETING INTERESTS**

The authors declare that they have no competing interests.

## **AUTHORS CONTRIBUTION**

<sup>1</sup> and <sup>2</sup> analyzed and interpreted the patient's data, evaluated clinically and radiologically, and operated the patient. <sup>1</sup> was responsible for follow-up and prepared the manuscript. <sup>2</sup> read and approved the final manuscript.

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