

## Case Report

# Aneurysmal Bone Cyst of Talus

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## Abstract

Aneurysmal bone cyst (ABC) of talus is rare benign, expansile, and osteolytic bone growth. Cyst contains blood mixed fluid lined with variable amount of osteolytic giant cells. This is common in epiphyseal ends of long bone and rare in small bones like talus. This 20 years' male having ABC of talus managed with wide intralesional curettage and autologous bone graft mixed with synthetic bone graft.

**Keywords:** Aneurysmal bone cyst, Bone graft, Osteolytic giant cells



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## Introduction

Aneurysmal bone cyst (ABC) is destructive tumor-like benign, expansile, and osteolytic bone growth with cyst filled of blood and is rare and unusual in bone like talus.<sup>[1,2]</sup> ABCs occur in the metaphysis of long bones though can occur in any bones, rarely occur in feet bones. Current hypothesis supports malformation of intraosseous arteriovenous channel with surrounding periosteum.<sup>[3,4]</sup>

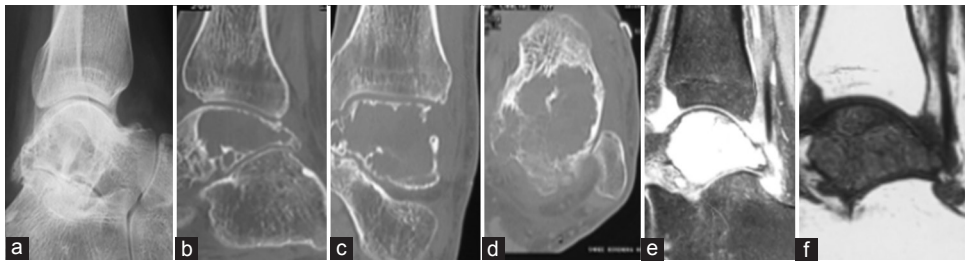
There are some case reports on ABC of talus in the literature though its rarity. There are no such reports available from Nepal. Here, we present a 20 years' male having ABC of talus managed with wide intralesional curettage and autologous bone graft mixed with synthetic bone graft to fill the wide cavity.

## Case Report

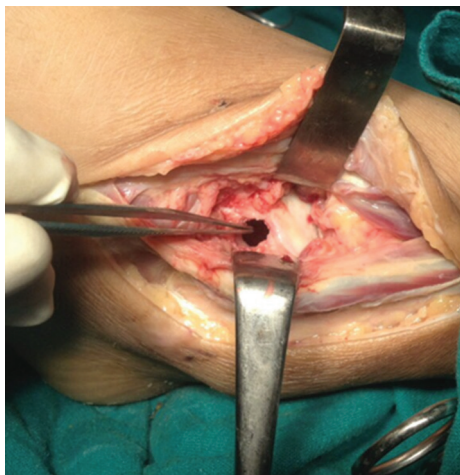
A 20 years' college student presented with pain and swelling of the left foot around ankle for 6 months which increased in the past 3 months. Pain is more in walking and exertion but no complete functional disability of ankle joint. He could go to college and was doing his activities of daily living though there was pain restricting his premorbid sports and outdoor

activities. The patient gives a history of ankle sprain following which symptom persisted and even in later period its severity increased and presented to this hospital. At presentation, his visual analog score (VAS) for pain was 6/10. His clinical examination of the left ankle revealed diffuse bony swelling on lateral aspect, about 2 cm dimension and associated with tenderness. There was mild restriction in dorsiflexion and plantar flexion in comparison to normal leg. Other history was unremarkable. Systemic examination, distal neurovascular examination, and other locoregional examinations and laboratory parameter were within normal range.

His X-ray of the left ankle joint [Figure 1(a)] revealed lytic lesion of the talus with some sclerotic changes with normal joint space. Hence, for further evaluation, we plan to go for computed tomography (CT) scan to define the lesion. His CT scan the left ankle [Figures 1(b-d)] revealed expanding lytic lesion of the talus involving dome, mid and posterior portion with cortical breach measuring 44\*41 mm in size with intact ankle joint. Being CT scan was inconclusive, we plan to workup with magnetic resonance imaging left ankle [Figures 1 (e,f)] which showed multiloculated well-defined lesion of varying sizes in talus showing T<sub>1</sub> hypointensity and T<sub>2</sub>



**Figure 1:** (a) Pre-operative lateral view of ankle showing lytic lesion of talus with sclerosis; (b) Sagittal; (c) coronal; (d) transverse slices of computed tomography ankle showing expanding lytic lesion of the talus involving dome, mid and posterior portion; (e) Pre-operative magnetic resonance imaging T<sub>2</sub> hyperintense; (f) T<sub>1</sub> hypointense, multiloculated well-defined lesion in talus



**Figure 2:** Intraoperative photograph showing curettage of lesion



**Figure 3:** Post-operative imaging after curettage and grafting

hyperintensity giving fluid-fluid level appearance suggestive of ABC.

Before going to definitive management, we plan to go for biopsy of the lesion and histopathological examination (HPE)

report of biopsy specimen showed necrotic bony fragment with fibrofatty tissue and occasional osteoclastic type of giant cells. Keeping the diagnosis as ABC of talus, we plan to go for curettage [Figure 2] and bone graft from iliac crest mixed with bone cement, based on recent management protocol for ABC of talus. Later in post-operative period, the final HPE of curettage specimen revealed cystic spaces with blood-filled cysts, at places lined with giant cells, finding consistent with ABC.

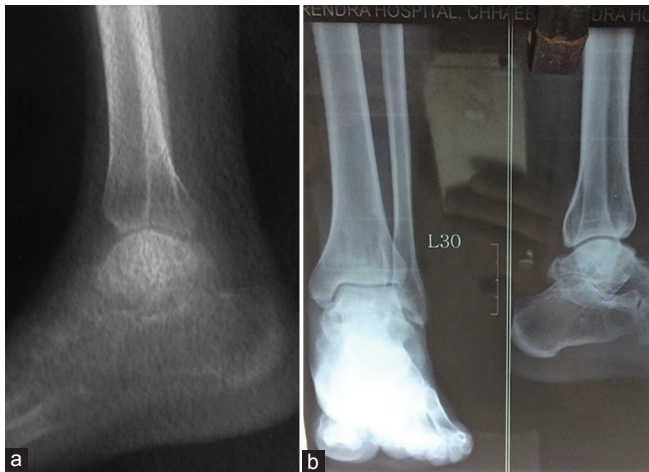
In post-operative period, he was provided with general post-operative care with antibiotic and analgesics. His VAS score for pain was 3/10 in the 7<sup>th</sup> post-operative day. He was discharged after suture removal in the 2<sup>nd</sup> week postoperatively and kept under regular follow-up. After surgical intervention, later, he was called on the 6<sup>th</sup> week postoperatively, 3<sup>rd</sup> month, 6<sup>th</sup> month, and 1-year follow-up during which period his pain and discomfort and simple X-ray were [Figures 3 and 4] taken to evaluate graft uptake. His VAS score was 1/10 in the 3<sup>rd</sup> month, then 0/10 thereafter. It is already more than a year postoperatively and the patient is doing absolutely fine in the last follow-up after a year post-operative.

**Pre-operative imaging**

Pre-operative lateral view of X-ray left ankle revealed lytic lesion with minimal sclerotic changes in talus. On further work-up with CT scan showed expanding lytic lesion of talus extending dome mid and posterior portion of talus with cortical breach (44\*41mm) with intact ankle joint space. On pre-operative MRI there was multiloculated well defined lesion in talus showing T1 hypointensity and T2 hyperintensity suggesting ABC.

**Discussion**

Ankle and foot tumors though rare pathology, it is not uncommon in large tertiary centers. Among these, benign lesions are much more common so physicians dealing with foot lesions have tendency to miss malignant lesion in early stage.<sup>[5]</sup> ABC is commonly encountered pathology, mostly of long bone.<sup>[3,6]</sup> Among benign non-tumorous lesion encountered in feet, it is not so uncommon in large setting, but this entity affecting talus is rare.<sup>[2,5-7]</sup> ABC is more common in



**Figure 4: Follow-up photographs (a) 6-week post-operative, (b) 1-year post-operative**

young individuals and is supposed to be due to arteriovenous malformation.<sup>[3,8]</sup>

Curettage with or without autologous or allograft bone graft is common modality, but only curettage has high rate of recurrence.<sup>[8]</sup> Other modalities of treatment include partial or complete talectomy and curettage with cauterization following bone cement to fill the cavity.<sup>[7,9,10]</sup> Although there are various options superiority of outcome of, one over another has not been studied at due to the rarity of the case. Although in our center, there is availability of arthroscopic facility in present days, we less frequently perform arthroscopy of ankle joint. In this case, due to thin cortex separating the cyst from the ankle joint, arthroscopic approach is not tried here.

### Conclusion

Although ABC of talus is rare benign lesion, it can be present in any health-care facility. The imaging modalities with the help of pre-operative biopsy can help to reach the diagnosis. Curettage of the lesion with autologous bone graft with or without synthetic bone is the convenient option for the management with functional recovery.

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