

## Unusual Localisation of Aneurysmal Bone Cyst

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### ABSTRACT

Aneurysmal bone cyst (ABC) is a benign cystic lesion of bone composed of blood-filled spaces separated by connective tissue septa. it usually affects the metaphyseal in long bone (70-90%) and then vertebrae (15% of cases) Talus is an infrequent site of ABC and may be confused with other benign bone tumors because of its behavior less aggressive and his prognosis more favorable than the classical proximal lesions. The curettage with or without bone graft showed a high success rate to treat ABC of the talus cryosurgery for a recurrent lesion and talectomy as the last resort in some cases.

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### Introduction

Aneurysmal bone cyst (ABC) is a benign bone tumor locally aggressive lesion that may arise as primary or secondary,

It usually involves metaphyseal in long bone (70-90%), the talus is an infrequent site of ABC and may mimic other benign bone tumors due to its behavior, less aggressive, the favorable prognosis, and its conservative treatment option (curettage and graft) usually considered.

### Observation

A 27-years-old man complained about a lateral retromalleolar pain after inversion sprain of the left ankle with mild perimalleolar edema, tenderness of the lateral aspect of the ankle, and difficulty walking were evident on physical examination. He did not have a history of any significant fever, weight loss, or any other complaints.

Radiography of the left ankle evidenced a mild swelling of the lateral soft tissue without fracture. However, the talus bone presented a lytic expanded lesion with trabeculations surrounded by a thin complete sclerotic margin with normal joint space (figure 1).



Figure 1. X-ray of the left ankle anteroposterior (a) lateral (b): expansile lytic lesion of the talus with septae

The patient advised avoiding activities that cause pain with classical symptomatic medicines and returning after recovery for a better exploration of the lesion accidentally discovered.

A computed tomography (CT) performed to assess the cortical continuity and extension of the lesion into soft tissue shows the same semiology as radiography (figure 2).

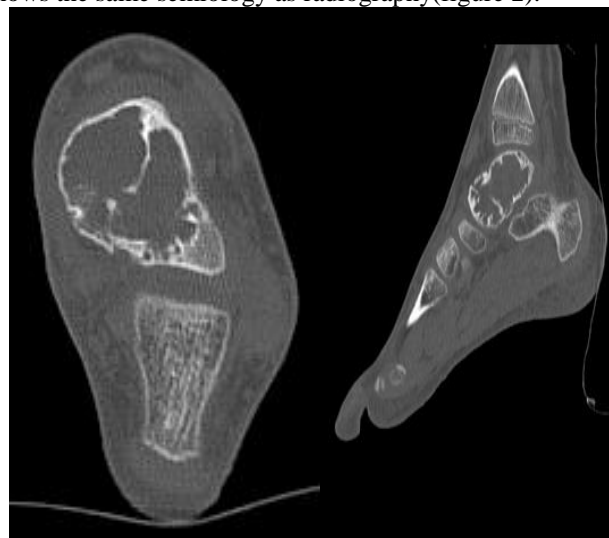
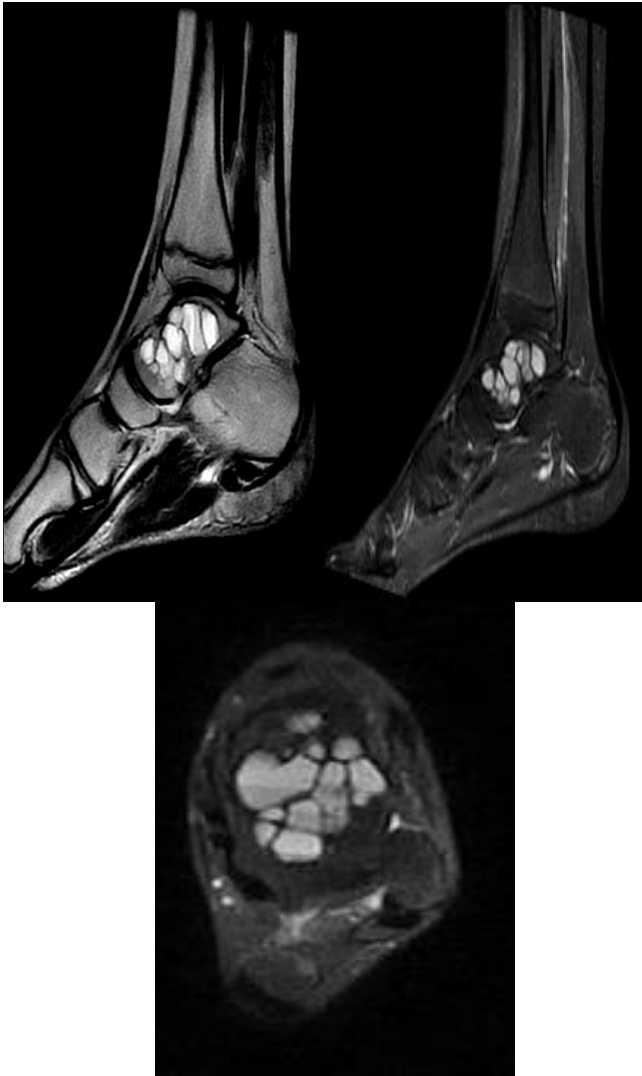


Figure 2. axial (a) and (b) sagittal images of computed tomography demonstrates septated, lobulated lytic lesion of the talus with significant thinning of the posterior cortex without signs of effraction neither periosteal reaction.

For further evaluation, we plan to go for magnetic resonance imaging (MRI) which shows cysts occupying the talus of two different signals intensity seen on all sequences, releasing fluid-fluid levels due to varying stages of blood products

There was no bone edema around neither extension into the soft tissue, the talo-navicular and tibio-talar joint spaces were intact (figure 3).

Based on the imaging findings, a provisional diagnosis of aneurysmal bone cyst was made.



**Figure 3 . T2-weighted magnetic resonance imaging sagittal (a), sagittal T2 proton density (b) and coronal (c) T2 proton density: Cysts occupying the majority of the talus with multiple fluid-fluid levels. The dependent fluid layer is slightly hyperintense compared to muscle, and, relative to the inferior layer, the superior layer is hyperintense, suggesting serous fluid. there is no surrounding edema or break or soft tissue extension**

The report of the biopsy specimen showed a necrotic bony fragment with fibrofatty tissue and blood-filled spaces without endothelial lining.

Keeping the diagnosis as ABC of the talus, and after discussing the histological and MRI aspect of the lesion, the diagnostic differentials, and different treatment options, the patient benefited from extended intra-lesional curettage and autologous bone grafting by cement.

Postoperative histopathological examination of the curettage material revealed. Findings consistent with aneurysmal bone cyst. The patient had no complaints on six months follow-up, and the radiograph showed no signs of recurrence of the lesion.

#### Discussion

ABC was described the first time in 1942 by Jaffe and Lichtenstein (1) and defined by the WHO in 1972 as a benign tumor-like expanding osteolytic lesion consisting of blood-filled spaces of variable size separated by connective tissue septa containing trabeculae or osteoid tissue and osteoclast giant cell (2)

ABC is a hyperplastic process responsive to a subperiosteal or intraosseous hemorrhage. It is a tumor-like lesion caused by hemodynamic alterations.

For Lichtenstein (1), Godfrey (3), and Clouch, local hemodynamic modification due to trauma is a factor determining the formation of aneurysmal bone cysts by venous obliteration or by the development of an arteriovenous shunt occurring on an immature hyper vascularized skeleton.

Buraczewski (4) and Donaldson (5) advance that aneurysmal bone cyst would be resulting from the growth of a bone with abnormal physiology marked by overgrowth and hypertrophy

ABC is a rare condition (1-4% of benign tumors), usually affects principally metaphyseal in long bone (10% are truly diaphyseal). The involvement of the talus is extremely rare, to our knowledge only four cases reported in the literature (6-7)

Symptoms are usually non-specific with moderate pain, swelling, and it may stay asymptomatic, the pathological fracture is uncommon (20%) and appears mainly in the spine.

The typical radiological aspect is an expanding, eccentric, and limited lytic lesion that may have trabeculations more visible in MRI, limiting cysts of different signal intensity with fluid-fluid levels seen on all sequences but most obvious on fluid-sensitive sequences (8).

Many differential diagnoses can be discussed :

→ Telangiectatic Osteosarcoma: it is the most important differential, since treatment and prognosis are different. it is radiographically similar to ABC with the same aspect of fluid-fluid levels on MRI; the bite difference is the presence of an incomplete sclerotic rim with a small area of cortical breakthrough or soft tissue mass

→ Giant Cell Tumor: Often extends to the subchondral bone; ABC rarely does, and MRI found a solid lesion with significant hypointensity on T2WI, we sign that ABC may arise in giant cell tumor (GCT), showing fluid levels

→ Simple Bone Cyst: is generally more central in location than ABC and Fluid-fluid levels may be present but less complex loculations and layering of blood products

→ Osteoblastoma: Differential difficulty primarily in vertebral lesions Expanded with thin cortex MRI generally shows a solid mass

→ Metastases: some may be hemorrhagic, such as renal cells, so we should look for primary.

The biopsy is the key to be sure of the diagnosis that must be systematically released before each surgical gesture

The curettage bone grafting is the preferred option to treat the ABC of the talus and to establish the normal anatomy, but it must be extended and complete to prevent a recurrence.

Partial or total talectomy along with tibiocalcaneal arthrodesis has also been considered for extensive lesions of the talus and soft tissue

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