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Original Research Paper

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ANEURYSMAL BONE CYST OF THE TALUS- A CASE REPORT

Dr. Ankur Deshwal	Classified Specialist, Department Of Orthopaedics, Command Hospital Wc Chandimandir.
Dr. Pravendra Singh	Assisstant Professor, Department Of Orthopaedics, Mmimsr, Mullana, Ambala.
Dr. Jashandeep Singh Chahal	Senior Resident, Department Of Orthopaedics, Mmimsr, Mullana, Ambala.
Dr. Samay Das	Junior Resident, Department Of Orthopaedics, Mmimsr, Mullana, Ambala.
Dr. Abhijeet Sandhu	Junior Resident, Department Of Orthopaedics, Mmimsr, Mullana, Ambala.

ABSTRACT Aneurysmal bone cysts (ABCs) localized in the talus are extremely rare. ABC or giant cell variants when located in the talus may be difficult to differentiate and tend to exhibit a less aggressive biological behavior with a more favorable prognosis than the more classical proximal lesions. Talectomy is not indicated as the primary treatment, curettage with or without bone graft has a high success rate, and cryosurgery should be reserved for a recurrent lesion.

KEYWORDS : Aneurysmal bone cyst, giant cell variants, talus cyst

INTRODUCTION

An aneurysmal bone cyst (ABC) is a benign, tumor-like bone condition characterized by blood-filled cystic cavities within the bone, which can be locally destructive. The occurrence of ABC in the talus is extremely rare, with fewer than 20 cases reported in the PubMed database up to 2013. When ABC or its giant cell variants are found in the talus, they can be challenging to differentiate and generally show less aggressive behavior with a more favorable prognosis compared to those found in more typical proximal locations. Talectomy is not recommended as the first line of treatment; instead, curettage, with or without bone grafting, is highly successful, while cryosurgery should be considered only for recurrent cases.

Case Report

A 27-year-old male presented with a gradually worsening pain in the left ankle, which had developed insidiously without any preceding trauma. The pain was significant enough to cause a limp during walking. On physical examination, there was no visible swelling of the ankle, but tenderness was noted on palpation. The range of motion (ROM) in the ankle was both painful and restricted, although there were no neurological or vascular deficits observed.

Imaging studies were conducted to further evaluate the condition. An X-ray revealed a lytic lesion located at the superolateral dome of the talus. Subsequent MRI confirmed the presence of a lytic lesion, with a differential diagnosis pointing toward an aneurysmal bone cyst (ABC).

Given the findings, a preoperative diagnosis of a lytic lesion of the talus, likely an aneurysmal bone cyst, was made. The patient underwent surgical management, which involved the curettage of the lesion and bone grafting from the ipsilateral iliac crest.

The procedure was performed using a posterolateral approach to the talus. During surgery, sanguineous fluid was drained from the lesion, and it was noted that the margins of the lesion were thinned out.

Following the surgery, the patient was placed on a rehabilitation plan that involved non-weight-bearing ambulation for six weeks to allow for adequate healing of the grafted bone and the treated lesion.

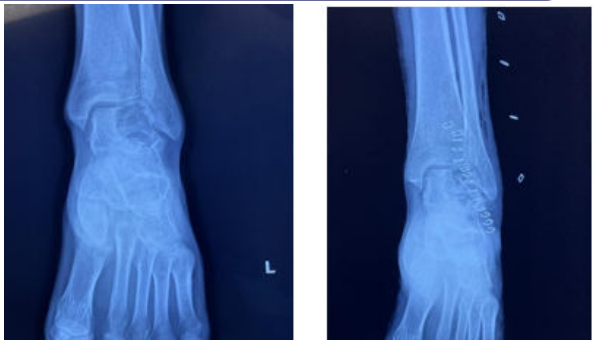


Figure 1 - Preoperative X-ray of ankle – anteroposterior – Nonexpansile lytic lesion of the body of the talus with Septae
Figure 2 - Immediate postoperative X-ray of the ankle

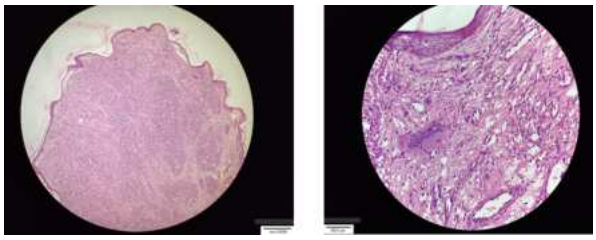
DISCUSSION

An aneurysmal bone cyst (ABC) is a benign bone condition that resembles a tumor. Many experts believe it results from local circulatory disturbances rather than being a true neoplasm. ABCs typically occur between the ages of 10 and 20, with a slight preference for females. They are most commonly found in the vertebrae, flat bones, and the metaphysis of long bones. The talus is an uncommon location for ABCs, with the most frequent tumor in this area being an intraosseous ganglion cyst. ABCs are associated with distinctive 17p13 translocations that lead to the upregulation of USP6, a deubiquitinating enzyme.

ABCs can be classified as "primary" when they arise independently or "secondary" when they develop alongside another tumor. Secondary ABCs may be associated with conditions such as fibrous dysplasia, osteoblastoma, chondromyxoid fibroma, nonossifying fibroma, chondroblastoma, osteosarcoma, chondrosarcoma, unicameral bone cyst, hemangioendothelioma, and metastatic carcinoma.

Differentiating talar giant cell tumors (GCTs) from ABCs can be challenging in imaging studies. However, the presence of mononuclear stromal cells and the regular distribution of giant cells suggest a diagnosis of GCT, with GCT giant cells being larger and containing more nuclei. The preferred treatment for localized talar lesions is intralesional curettage and bone grafting. In cases where there is extensive talar

destruction or involvement of soft tissue or the subtalar area, partial or total talectomy with tibiocalcaneal arthrodesis may be required. Cryotherapy combined with curettage or excision of the talus is recommended for recurrent cases. In the case discussed, thorough curettage and corticocancellous bone grafting were effective, aligning with the less aggressive nature of such lesions.



Lesion under the microscope blood-filled spaces with septae and multinucleated giant cells lining the spaces

Figure 5 - Six months follow-up

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