

Essential Bone Cyst Of The Calcaneus In A Child: A Case Report

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Abstract:

The essential bone cyst is a benign tumor in children, preferentially affecting the upper end of the humerus and femur. The localization at the level of the calcaneus is rare. The objective of this work is to highlight the diagnostic and therapeutic problems of this localization. We present a case of an essential bone cyst of the calcaneus in an 18-year-old patient who experienced unilateral left talalgia, progressing gradually over one month. A standard radiography and a CT scan showed an appearance favoring an essential bone cyst. The treatment consisted of curettage and filling with autograft harvested from the iliac crest. The histopathological study confirmed the diagnosis.

Key Word: essential bone cyst, calcaneus

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I. Introduction

The essential bone cyst is a benign growth disorder and not a true bone neoplasm. It is a lytic lesion located at the metaphyses, near a fertile growth cartilage. The authors report a case of essential bone cyst of the calcaneus, analyzed in light of a literature review.

II. Case Report

We report the case of a 14-year-old patient with no significant pathological history, who presented unilateral right talalgia three months ago, exacerbating with walking. This symptomatology progressed gradually, with preservation of the general condition. The clinical examination revealed tenderness upon palpation of the calcaneal tuberosity, without swelling or skin signs. The rest of the physical examination was unremarkable.

The standard radiography revealed a lytic image in the shape of a triangle straddling the two tuberosities of the calcaneus, without trabeculation, periosteal reaction, or cortical breach (figure 1). The MRI showed a multiloculated cystic formation in the calcaneus, containing fine bony septa as well as liquid levels. The external approach to the calcaneus allowed the discovery, after trepanation, of a cavity filled with serohematic fluid with the presence of false membranes of a whitish color. A sample of the fluid was taken for cytological study.

We then proceeded to empty the cavity and fill it with an autograft harvested from the ipsilateral iliac crest. A complete unloading of the affected limb was recommended. The histopathological study showed a membrane made of well-vascularized cellular connective tissue, suggestive of an essential bone cyst. After six months of follow-up, there were no signs of recurrence with good integration of the grafts on the control radiography.



Figure 1: Standard Radiograph Showing A Triangular Lytic Lesion Without Periosteal Reaction Or Cortical Breach



Figure 2: Control Radiograph After Six Months Showing Good Integration Of The Graft.

III. Discussion

The essential bone cyst is a benign lytic lesion that is primarily encountered during the growth period and is characterized by the formation of cysts associated with inflammation of the bone tissue, leading to loss of elasticity. It was first described by Jaffe Lichten in 1942(3). The metaphyseal side of a fertile growth cartilage is the preferential site. The most common locations are the upper end of the humerus (50.2%) and the femur (28.1%) (7).

The bone cyst of the calcaneus is rare, representing 2.5% of the locations (7). Pain, which is the usual revealing symptom, can evolve over several months or even years, while swelling is less frequent. The occurrence of a pathological fracture is exceptional in the essential bone cyst of the calcaneus (5).

The radiographic appearance of the essential bone cyst of the calcaneus is quite characteristic; it is an osteolytic lesion, without trabeculation, with a finely outlined cortical margin. There is no periosteal reaction or calcifications within the tumor mass (4). In case of doubt, CT and MRI can eliminate an aneurysmal cyst, which is the main differential diagnosis and presents liquid levels within the cavity (7).

Two other lesions may be confused with the essential bone cyst of the calcaneus:

The false cyst of the calcaneus is not pathological; it is a radiological image obtained by the arrangement of bone trabeculae that delineate a zone of lower density under the articular surface of the anterior subtalar joint. The lipoma of the calcaneus, whose fatty content can be easily identified by magnetic resonance imaging (MRI).

Nevertheless, only histopathological examination can confirm the diagnosis. Microscopically, the intrakystic wall is made of newly formed bone of periosteal origin. The membrane lining the walls of the cyst consists of loose connective tissue, with some hemosiderin deposits, fatty bodies, and rare osteoclasts (6).

IV. Conclusion

The treatment of the essential bone cyst of the calcaneus, which is a benign lesion, should be as simple and non-invasive as possible. Since the calcaneus bears the loads transmitted by the talus while standing, treatment is always surgical and involves curettage followed by filling the residual cavity with cortico-spongius bone harvested from the iliac crest.

Different teams (2,8) are currently injecting bone marrow from the patient harvested from the pelvis into the cysts, with encouraging results.

The use of osteoconductive biomaterials (tricalcium phosphates, hydroxyapatite, bio-glasses) is currently under evaluation (7).

Recently, the essential cyst of the calcaneus can be treated endoscopically (1).

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