(International Print/Online Journal)

SJIF IMPACT FACTOR: 5.565
PUBMED-National Library of Medicine ID-101739732

ISSN (Print): 2209-2870
ISSN (Online): 2209-2862

International Journal of Medical Science and Current Research (IJMSCR)
Available online at: www.ijmscr.com
Volume 5, Issue 6 , Page No: 257-259
November-December 2022

IJMSCR

Case Report- Unicameral Bone Cyst Of Calcaneum

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Type of Publication: Case Report
Conflicts of Interest: Nil

Abstract
Unicameral bone cyst of calcaneum is an intramedullary, unilocular cystic bone lesion .It most commonly occurs during first two decades of life in proximal humerus or femur.Calcaneum is an unusual site for the cyst. we report a case of a 16 year old female who came with left heel pain since 6 weeks .On histopathology showed spicules of bone strip of fibrocartilaginous tissue, Multiple foci of cholesterol granuloma, focal collections of inflammatory cells . Cyst wall also showed pink amorphous cementum like material.

Keywords: unicameral bone cyst, calcaneum, simple bone cyst

Introduction

Unicameral cyst or simple bone cyst was initially reported by Virchow in 1891 as a "cystic structure"[1]. It is an intramedullary, unilocular cystic bone lesion lined by fibrous membrane and filled with serosanginous fluid[2]. Unicameral cyst most commonly occur during first two decades of life in proximal humerus or femur[3]. The unusual site for the cyst is calcaneum[4]. They are most commonly found at the base of the calcaneal neck and appears radiolucent and sharply demarcated on x-ray[5]. The patient usually presenting with pain or pathological fracture are biopsied[6].

Case Presentation

A 16-year-old female presented to orthopedics OPD with complaint of left heel pain for 6 weeks. She noticed that pain started after twisting injury of left ankle 2 months back. She was treated with NSAIDS from a hospital outside but pain reappeared with walking. It was a dull aching type, graded as 6/10 on numeric rating scale, aggravated on walking and running and was relieved with rest. There was no diurnal variation, rest or night pain. There was no history of associated trauma, joint disorders or any other swelling. Patient had no history of fever, chronic cough, significant weight loss, relevant family history or any comorbidities.

Examination

On local examination, there was tenderness present over dorsolateral aspect of left hind foot including peroneal tuberosity and plantar aspect of calcaneum. The inversion and eversion movement of hind foot was decreased. There was no associated neurovascular deficit.

Investigations

X-ray ankle and foot- There is a well-defined lytic lesion at base of calcaneal neck just inferior to the anterior portion of posterior facet. Lesion occupied near anterolateral calcaneal wall with approximately width of one third length of calcaneum. There was lateral cortex thinning and no periosteal bone formation.

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Fig 1

MRI left foot- The presence of well-defined lytic lesion was confirmed, approximately 30x22x20mm in the anteroinferior part of calcaneus. Hypointense in the sequence enhanced in T1 and hyperintense in the sequence with fat suppression.

Fine needle Aspiration Cytology- Paucicellular smear showed predominantly inflammatory infiltrate composed of lymphocytes and macrophages, and few osteoclastic giant cells.

Cell Block: Section shows predominantly fibrinohaemorrhagic material and diffuse inflammatory infiltrate composed of lymphocytes along with few macrophages. Occasional giant cells and cholesterol clefts noted. No stromal elements seen in the section studied. No areas of spindle cell proliferation noted in biopsy.

Fig 2

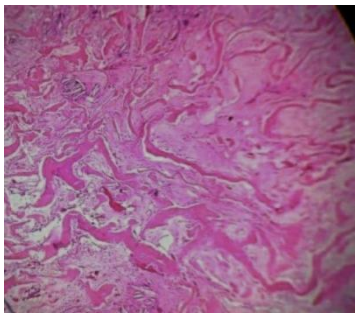


Fig 3

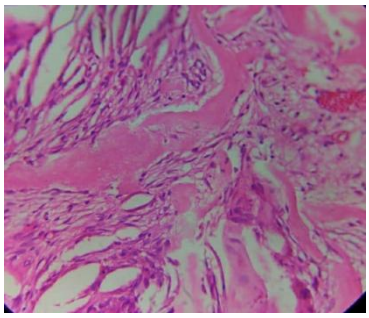


Fig 4

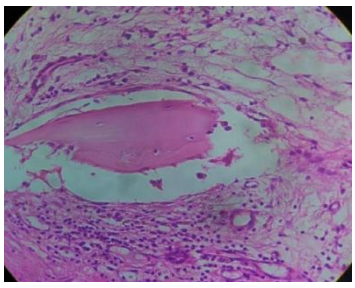
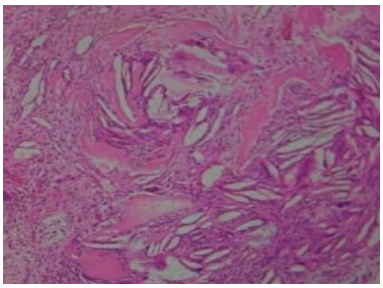


Fig 5



Biopsy- The specimen is curreted bone chip of left calcaneum. The gross specimen appears multiple pale white bony fragments in aggregate measuring 1.5x0.5x0.6 cm.

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On microscopy ,section showed spicules of bone strip of fibrocartilaginous tissue(fig 1). Multiple foci of cholesterol granuloma(fig 5), focal collections of inflammatory cells are also noted(fig 4). Cyst wall also show pink amorphous cementum like material. (fig 3).

Discussion

The simple bone cyst in calcaneum is an unusual location. In a case series from Mayo clinic, only 5 out of 145 were located in this site[3]. The males are affected more frequently than females and commonly presents with heel pain as in our case. Patients rarely present with fractures because of their location in non weight bearing region of calcaneum. And they are found incidentally on radiographs obtained for other conditions[5]. Eventhough cases are reported in children and adults, it occurs typically in adolescents or in twenties[5].

The differential diagnosis includes pseudocyst, aneurysmal bone cyst, Interosseous lipoma, Interosseous ganglion cyst, epidermoid ganglion cyst, nonossifying fibroma, cystic fibrous dysplasia or a cyst secondary to tumor[2,5].

The cyst wall lacks epithelium lining and contain osteoclast type multinucleated giant cells. As reported in our case the wall contains cementum like pink amorphous material. It was earlier reported as calcified fibrin and blood clots but the ultrastructural examination revealed collagen bundles and matrix vesicles as components[7].

In our case the cytology report showed predominantly lymphocytes and macrophages. Occasional giant cells and cholesterol clefts were also noted. In a case report by Van Linthoudt[8] et al reported occasional findings of macrophages with cholesterol collections and speculated hemorrhage into cyst as etiology[8]. The case by L Brannon Thomas et al revealed a simple bone cyst with extensive cholesterol clefts[9].

Conclusion.

In our case young female had unicameral bone cyst at an unusual location of calcaneus. On evaluation of cystic bone lesion the understanding of unicameral bone cyst is important.

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