



Critical Bone Cyst of Calcaneum- A Case Report.

KEYWORDS

Solitary bone cyst; calcaneum; critical; curettage; bone cement.

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ABSTRACT Solitary bone cysts are asymptomatic and occur most commonly in medullary cavity of long bones. Short bones like calcaneum are uncommonly involved by solitary bone cysts. We present a case of critical bone cyst in calcaneum treated by intralesional curettage and bone cementing.

Introduction

Unicameral bone cysts are lesions for which little is known concerning their etiology and natural history. They are relatively common in the humerus, femur, and tibia, but quite uncommon in the calcaneum.¹ Unicameral bone cysts are benign, fluid filled lesions that typically occur in the metaphyseal-diaphyseal regions of long bones within the first 10 years of life.² They represent approximately 3% of all bone tumors that are analyzed by biopsy, and their prevalence in males is twice that in females.^{3,4} Unicameral bone cysts are typically asymptomatic until a stress fracture occurs, which accounts for more than 80% of diagnosed cases.⁵

We present a case of critical cyst in calcaneum treated by curettage and bone cementing.

Case report

A twenty four year old male, driver by occupation presented with pain in the left heel, on and off since three months, not associated with activity. The pain had increased in intensity since one week following a trivial trauma. No history of fever. Patient was able to bear weight on his left lower limb. On examination there was antalgic gait, poorly defined swelling of size 4 cms in diameter over the lateral border of the left hind foot 3 cms below the lateral malleolus. Swelling was tender, soft in consistency without signs of inflammation [Figure 1]. The heel and medial border of the hind foot were non-tender. Movement of the ankle full range and painless. Eversion and inversion – full range, terminally painful. No neurovascular deficits of the left foot. Radiological examination showed a well defined minimally expansile lytic lesion in the anterior part of the left calcaneum with sclerotic margins. The lesion had a narrow zone of transition with the surrounding bone. There was no evidence of calcification within the lesion [Figure 2].

With these features a differential diagnosis of solitary bone cyst, giant cell tumor or aneurysmal bone cyst was made and patient was worked up for surgery.

Surgical procedure: The lesion was approached through a transverse 5 cms incision centring 2 cms below the tip of the lateral malleolus. The lateral wall of the calcaneum was exposed. There was no cortical thinning noted. A cortical window of 0.8 cm diameter was made [Figure

3]. 20ml of brownish fluid was drained and the cyst wall thoroughly curetted. After giving a saline wash, 20gm of bone cement was used to fill up the cyst cavity [Figure 4]. Wound was closed in layers. The cyst fluid was sent for cytological examination and the curetted wall was sent for Histopathological examination. Below knee slab was applied with non-weight bearing mobilization.

Postoperative x-ray showed cyst well filled by bone cement [Figure 5]. Histopathological report showed thin lining of fibrous tissue with giant cells and hemosiderin pigment which confirmed the diagnosis of solitary bone cyst. Patient was followed up at 1 month, 3 months, 6 months and 1 year and evaluated clinically and radiologically for recurrence.

Discussion

Solitary bone cysts are quite uncommon in the calcaneum.¹ They are benign, fluid filled lesions that typically occur in the metaphyseal-diaphyseal regions of long bones within the first 10 years of life.² They represent approximately 3% of all bone tumors that are analyzed by biopsy, and their prevalence in males is twice that in females.^{3,4} Unicameral bone cysts are typically asymptomatic until a stress fracture occurs, which accounts for more than 80% of diagnosed cases.⁵ Nikolaos G Lasanianos et al observed spontaneous healing of pathological fracture over a critical-size calcaneal cyst⁶. Pogoda et al found curettage with bone grafting and curettage with bone cementing gave equally good results over 36 months follow-up in solitary bone cyst of calcaneum⁷. Park et al studied 23 unicameral bone cysts of the calcaneum treated by lyophilized irradiated chip allogeneic bone with autogenous bone marrow and percutaneous injection of irradiated allogeneic demineralised bone powder with autogenous bone marrow and found equal results in both groups, although recurrence was higher compared to bone grafting or cementing. No infections or pathological fractures were observed during the follow-up period of 48 months.⁸ Endoscopic curettage of a calcaneal unicameral cyst and endoscopically assisted filling of the lesion with calcium phosphate bone cement injected percutaneously by Mainard D et al found no recurrence even after 12 months.⁹ Pogoda et al described critical cysts as those which are symptomatic with sagittal width more than 30% of the intra-calcaneal width or coronal width 100% of the intra-calcaneal width. Non-critical cysts as those which are asymptomatic, with sagittal width less than 30% of the intra-calcaneal width and coronal width less than 100% of the intra-calcaneal width.¹⁰

Our patient was symptomatic with 70% of sagittal intra-calcanal width and 80% of coronal intra-calcanal width. So we made a diagnosis of critical calcaneal cyst, did curettage and bone cementing of the cyst. There was no recurrence even after 24 months of follow-up.

Conclusion

Though fairly uncommon, critical cysts in calcaneum require early diagnosis and treatment in the form of curettage with either bone grafting or bone cementing.

Consent:

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

Competing interests

The authors declare that they have no competing interests.

Figures

Figure 1: Clinical picture showing swelling in lateral aspect of left hind foot.



Figure 2: X-ray lateral view of calcaneum showing well defined lytic lesion in calcaneum with narrow zone of transition.



Figure 3: Clinical picture showing window made in lateral aspect of calcaneum.



Figure 4: Clinical picture after packing cavity with bone cement.



Figure 5: Post operative x-ray antero-posterior and lateral view showing cavity well filled with bone cement.



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