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Management of aggressive giant cell tumor of calcaneal bone: A case report

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ABSTRACT

INTRODUCTION: Prevalence of giant cell tumor (GCT) at atypical locations like bones of the feet are rare, seen in <1% of cases. GCT may have aggressive features, including cortical expansion or destruction with a soft-tissue component. Difficult diagnosis most often followed with complicated management and high recurrence rate remains a challenge that is rarely reported.

PRESENTATION OF CASE: We presented a case of forty-six-year-old male patient with giant cell tumor of the right calcaneus Campanacci 3 with secondary aneurysmal bone cyst (ABC). Wide excision total calcaneoctomy, followed by reconstruction bone defect using femoral head allograft and soft tissue coverage with sural flap had been done.

DISCUSSION: Conservative surgery with careful curettage and placement of bone cement should be considered the treatment of choice when feasible. However, aggressive GCTs may require wide excision and reconstruction or may be amputation. We decided to do salvage surgery since: traditionally curettage is not possible, adequately wide resection of local tumor could be achieved, neurovascular bundle was not involved, and also bone and soft tissue reconstructions could be done. In addition, he refused for amputation.

CONCLUSION: Wide excision total calcaneoctomy, bone allograft reconstruction and soft tissue coverage with sural flap is a good option for surgical management in aggressive GCT of calcaneus instead of amputation.

1. Introduction

Giant Cell Tumor (GCT) of bone is a benign neoplasm which consists of mononuclear stromal cells and characterized by multinucleated giant cells that exhibit osteoclastic activity. The tumor is typically appeared as an eccentric lytic lesion with a well-defined but non-sclerotic margin which can extend near the articular surface. However, GCT may have aggressive features, including cortical expansion or destruction with a soft-tissue component. Fluid-fluid levels, consistent with secondary formation of aneurysmal bone cyst (ABC), are seen in 14% of cases. GCT can mimic or be mimicked by other benign or malignant lesions at both radiologic evaluation and histologic analysis [1,2]. Most GCTs occur in the long bones of the lower extremity especially around the knee [1,3]. The bones of the feet are considered atypical locations which is extremely rare and tumor diagnosis in these circumstances is often confusing [2,3].

The treatment of bone GCT remains a challenge,since there are no clinical, radiographic or histological aspects that allow one to accurately predict the trend of a single lesion to recur or to metastasize. Enneking's and Campanacci's classifications are helpful in planning the initial surgical treatment. Traditionally, GCT of bone has been treated surgically with curettage and placement of cement (polymethyl-methacrylate). However, the recurrence rates have been relatively high, ranging from 15% to 25% [2]. The trend of treatment in aggressive GCT cases, is heading towards limb salvage and amputation is reserved for recurrences and only rarely done [1,2]. In this report, we presented a case of 46-year-old male who was diagnosed with GCT of the right calcaneus Campanacci 3 with secondary aneurysmal bone cyst and was treated in our center by wide excision, bony reconstruction using femoral head allograft and sural flap.

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Fig. 1. Clinical pictures of the right heel showed a 7 × 10 × 6 cm lobulated mass over the right heel: (A) Lateral view. (B) Posterior view.

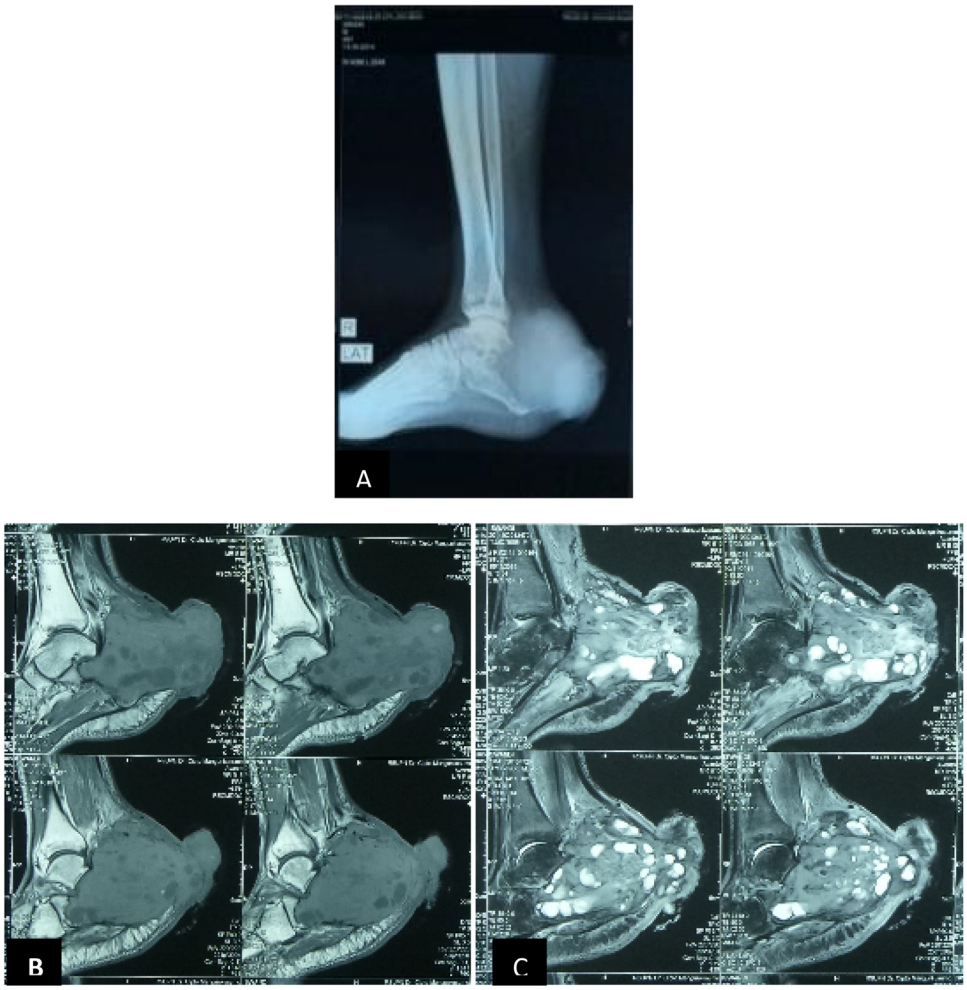

Fig. 2. A: lateral view radiograph of ankle showed a radiolucent lesion occupying the right calcaneous. B: magnetic resonance imaging was consistent with solid mass derived from calcaneal bone expanding to the soft tissue. C: there was small area of cystic component, most probably secondary aneurismal bone cyst.

2. Presentation of case

A 46-year-old male presented with right heel lump. The lump had been existed since 8 months prior and initially the size was as small as a marble, soft and painless. The patient did not have any history of trauma or infection. There was no history of such case or any mass before in his families. He went to a local general practitioner, who managed the patient conservatively for two weeks. After 4 months the lump was still persistent and he went to internist in another general hospital. He was told that the lump was due to the uric acid and was prescribed uric acid-lowering drugs and at the follow up the uric acid level had decreased, but the lump still did not show improvement. Then, he consulted to a general surgeon and diagnosed as bone tumor. An open biopsy then was performed and the histopathologic examination showed to be GCT of tendon sheath. Unfortunately, the mass was getting bigger and became fungating through the biopsy tract, so the patient was difficult to walk. Subsequently, he was referred to Cipto Mangunkusumo Hospital.