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A Rare Case of Chondromyxoid Fibroma of Calcaneum: A Case Report

Shekar Mudramaiah[1], Pavith Janardhan T[1], Ajay Krishna[1]

Abstract

Chondromyxoid fibroma is a rare benign primary tumour occurring in the calcaneum. We report a case of a 23-year-old woman with 3 months history of sudden onset right heel pain with no history of trauma, pain was exacerbated by movement such as walking and standing. A radiographic examination of the right foot and ankle revealed a lesion in the posterior part of the calcaneum. The calcaneum was further evaluated using an MRI scan which a revealed a lytic lesion with clearly defined borders. The lesion was treated with curettage, illiac bone grafting and cementing. Three months after surgery, the graft was consolidated with bone cement in place. There was no sign of recurrence at the one-year follow-up, and the patient had adequate ankle range of motion. Even though the tumour is rare, there is need for physician to recognize its radiological features and offer appropriate treatment options.

Keywords: Chondromyxoid fibroma, Lytic lesion, Benign primary tumour

Introduction

The uncommon benign primary bone tumour known as the chondromyxoid fibroma (CMF) is made up of immature myxoid mesenchymal and cartilaginous tissue. In young patients, it prefers the metaphyseal region of long tubular bones in the lower limbs [1]. It has a low malignant transformation rate of less than 2% and a significant local recurrence rate. Although the CMF tumor's cells do not metastasize, they might nonetheless infiltrate the tissues around them [2]. We present a case of calacaneum chondromyxoid fibroma.

Case Report

A 23-year-old woman presented with 3 months of sudden onset of right heel pain. She described her pain as dull aching and throbbing and exacerbated by movement such as walking, standing, and the pre-swing phase of the gait. On examination, other symptoms included decreased mobility, limping, and tenderness. There was no previous history of trauma. NSAIDS, oral medications, and immobilisation were previously tried without any success. A physical examination revealed no deformities but an antalgic gait. A radiographic examination (Figure1) of the right foot and ankle revealed a 3.5 x 3.0 cm geographical lesion in the posterior part of the calcaneus. The calcaneus was evaluated using an MRI scan (Figure 2) which a revealed a lytic lesion with clearly defined borders. The patient provided informed consent for surgical intervention and surgical excision of the lesion was planned. The tumour was removed during surgery under spinal anaesthesia. Intra operatively we noticed the characteristic gross appearance of the lesion which was composed of sclerotic substance. The lesion was extended and curetted via lateral approach and it was filled with an iliac crest bone graft with bone cement. The patient was given a plaster of Paris (POP) slab for two weeks after surgery which was converted to below-knee plaster cast for 6 weeks after the stitches were removed. Following cast removal after 6 weeks, partial weight-bearing was initiated. After twelve weeks, full weight-bearing was initiated. Three months after surgery, the graft was consolidated with bone cement in place. There was no sign of recurrence at the one-year follow-up, and the patient had adequate ankle range of motion with inversion of about 20° to 25° and eversion of about 5° to 10°. We obtained an excellent score in American orthopaedic foot and ankle score (AOFAS). Histology revealed fibro collagenous stroma and myxochondroid islands with spindle to oval mononuclear cells.

Discussion

Chondromyxoid fibroma is a benign, aggressive local tumor of cartilaginous origin and it accounts for fewer than 0.5% of all bone tumors [3]. It is characterized by lobules of spindle or stellate shaped cells with abundant myxoid or chondroid intracellular material [4]. It accounts for approximately 1% of all the bone tumors. CMF is usually

[1]Sanjay Gandhi Institute of Trauma & Orthopaedics, Bengaluru, Karnataka, India.

Address of Correspondence :
Dr. Pavith Janardhan T
Fellow in Arthroplasty, Sanjay Gandhi Institute of Trauma & Orthopaedics, Bengaluru, Karnataka, India.
E-mail: pavithjanardhan2301@gmail.com

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PRE OP XRAY

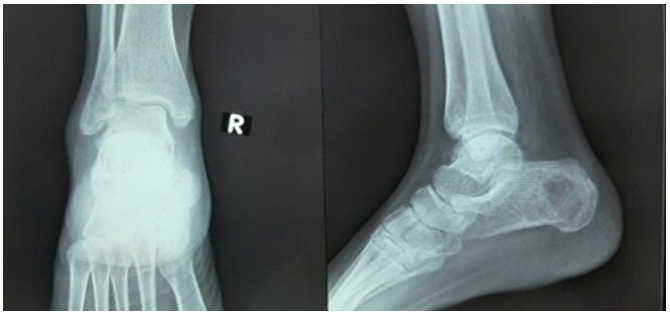

Figure 1: X-ray of Right Ankle anterior posterior and lateral view showing the lytic lesion

MRI

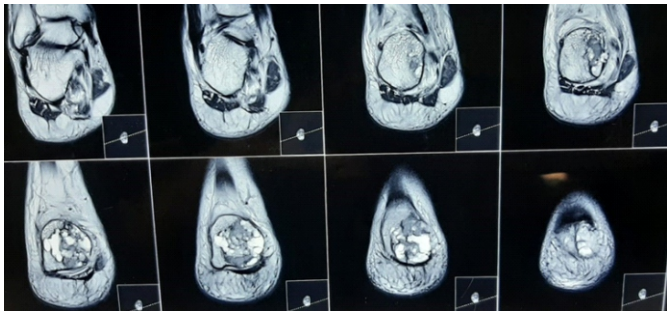

Figure 2: MRI of Right ankle showing lytic lesion with clearly defined borders

INTRA OP PICTURES

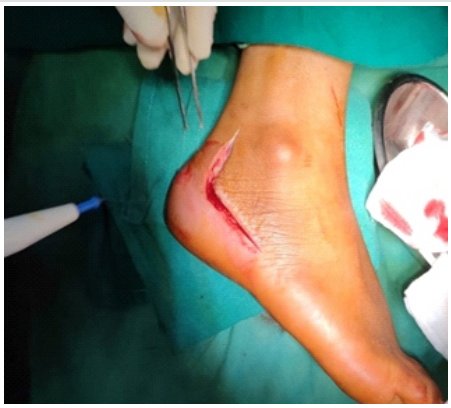

Figure 3: Intraoperative image showing incision through lateral approach

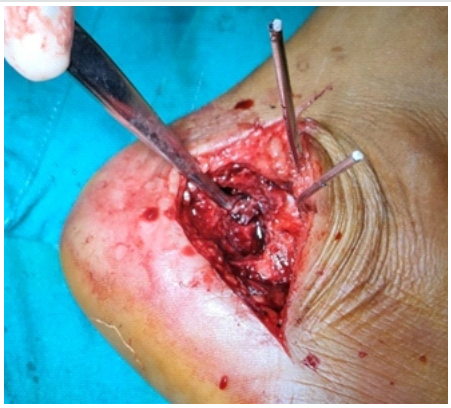

Figure 4: Intraoperative image showing curettage of the lesion

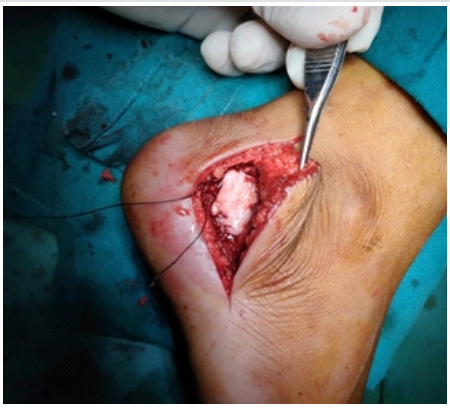

Figure 5: Intra-operative image showing filling of the defect with cement and bone graft

POST O

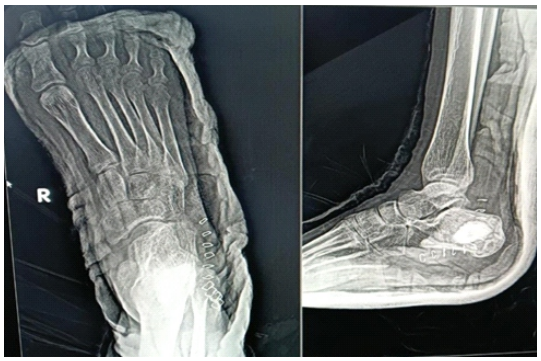

Figure 6: Immediate post-op X-ray of Right foot and ankle showing complete excision of the lesion along with reconstruction with graft and cement

ONE YEAR FOLLOW UP PICTURES

Figure 7: One year follow up image showing heel flat on the floor, heel touch standing and toe touch standing

seen in metaphyseal region of long bones, tibia being most common followed by femur and fibula [5], Occurrence of CMF in the calcaneum is very rare [6, 7]. It is predominantly seen in males during 2nd/3rd decade.

CMF clinically presents with slow growing swelling with mild or no pain which is dull aching and increasing with exertion.

The diagnosis is usually made by combination of findings from plain radiographs, MRI or CT scans and Histopathology. On radiograph it appears as eccentric, lytic lesion with thin sclerotic rim and trabeculations in large cysts [8]. MRI is usefull in assessing the tumor extension. Histopathology is the gold standard investigation. The typical features of CMF are hypocellular centers and hypercellular boundaries, Osteoclast-like giant cells are at the lobular peripheries, lobular pattern with stellate-shaped cells in a chondroid or myxoid framework in the center.

The differential diagnosis of this tumour includes giant cell tumour, chondroblastoma, chondrosarcoma, enchondroma, and aneurysmal bone cyst [9], but it is the histological features that differentiate these tumors.

Treatment options include intralesional curettage with bone grafting and additional cementation if required, Complete resection of the tumour bed is very important to prevent recurrence [10]. Azami et al. treated a 22-year-old patient with CMF in the calcaneus with curettage and bone grafting [11]. Roberts et al. treated two patients with CMF in the calcaneus by curettage and bone grafting [12]. Radiation treatment for this tumour is contraindicated, with exception being surgically inaccessible tumours. Malignant transformation of CMF is rare and is seen in 1-2% of cases.

Conclusion

Chondromyxoid fibroma is an uncommon benign bone neoplasm. It primarily affects the metaphysis of long bones, most commonly the proximal tibia. Calcaneus location is extremely rare and difficult to identify.

Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his/her consent for his/her images and other clinical information to be reported in the Journal. The patient understands that his/her name and initials will not be published, and due efforts will be made to conceal his identity, but anonymity cannot be guaranteed.

Conflict of interest: Nil **Source of support:** None

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