

*Case Report*

## Chondroblastoma of Calcaneum: A Case Report

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### ABSTRACT

Chondroblastoma is a cellular, vascular and cartilaginous tumour of young adults destroying the cancellous bone. It mainly occurs in second decade of life in males predominantly the involved areas being ends of long bones about the knee and upper humerus. Chondroblastoma of calcaneum is a rare condition. We present a case of chondroblastoma of calcaneum in a 18 year old male in a rural set up treated with curettage and bone cementing. The patient resumed daily activities in 4 months and there has been no recurrence in the follow up of 2 years.

**Key words:** chondroblastoma, curettage, calcaneum.

### INTRODUCTION

Chondroblastoma is a cellular, vascular and cartilaginous tumour of young adults occurring about epiphyseal lines and characteristically contain multiple calcium deposits. [1-4] It generally occurs before the closure of epiphyseal lines in the age group of 10 to 20 years mainly in males. [1,2,5] Chondroblastoma is mostly a benign tumour but may turn malignant in rare cases. Chondroblastoma of calcaneum is a rare condition. [1-5]

### CASE REPORT

An 18 years old male patient, student by occupation, came to the outpatient department of orthopaedics in our hospital in a rural set up with chief complaints of pain in left heel and difficulty in walking. There was no history of trauma. On physical examination patient had tender swelling of left heel which made it difficult for us to examine the motor function of his left foot and ankle.

After radiological evaluation of both heels for comparison, we found a well delineated area of rarefaction in the left calcaneum. MRI of left calcaneum was done which showed hypointense lesion on T1 weighted image and hyperintense lesion on T2 weighted image suggesting a nonvascular tumour involving almost whole of the cancellous portion of calcaneum not breaching the cortex probably a chondroblastoma or giant cell tumour.

Basic haematological investigations were within normal limits. During the surgery patient was given supine position after administration of spinal anesthesia. Calcaneum was exposed using standard lateral transverse approach after application and inflation of pneumatic tourniquet. A small cortical window of approximately 4cm × 2cm created on the lateral cortex of calcaneum by removing thin layer of cortex. Complete curettage was done through this cortical window followed by burring of the

lesion. The curetted material was sent for histopathological examination. The cavity created was washed with copious normal saline. The cavity was packed with simplex 2.0 bone cement and it was allowed to set in for 12 minutes. The thin layer of cortex that was removed to create cortical window was sewn back in place using absorbable sutures. The incision was closed in layers and dressing was done after the pneumatic tourniquet was deflated. Patient was allowed to walk non weight bearing from postoperative day one after he could tolerate pain. Sutures were removed after 12 days. Serial X-rays were taken once every two months for next six months to rule out recurrence of the tumour in calcaneum. Partial weight bearing was allowed after six weeks followed by full weight bearing by 12 weeks. Patient is doing extremely well on follow up and is able to do all his routine daily activities.



Figure 1. Lateral xray of left calcaneum showing a lytic lesion.

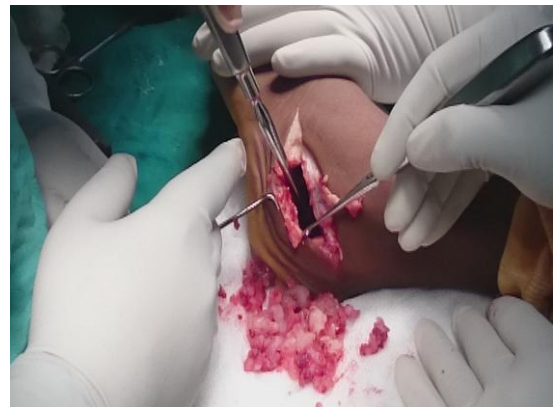


Figure 2. Intraoperative photo showing the created cortical window and the curetted material.

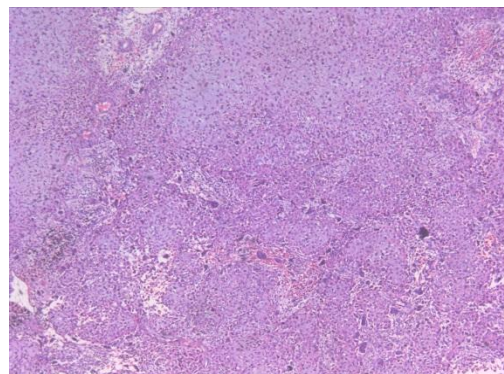
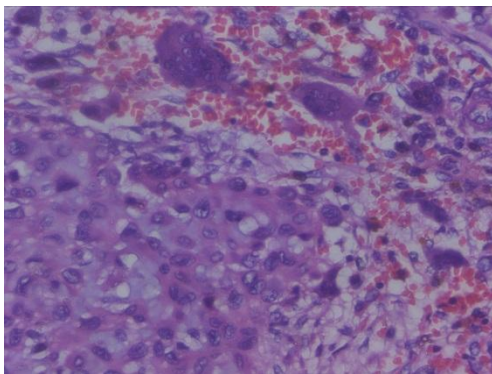


Figure 3. Microscopy slides of the curetted material depicting cartilage tumour cells i.e. polyhedral chondroblasts arranged in sheets and multinucleated giant cells.



Figure 4. Postoperative xray showing the cavity filled up with cement.

## DISCUSSION

Chondroblastoma is a benign cartilaginous tumour occurring in young males predominantly in second decade of life has various ways of presentations and there are varying opinions about treatment of this tumour. [1,3,6]

Jaffe and Lichtenstein described chondroblastoma first in 1942. [4] They considered this tumour as benign although rare pulmonary metastases have been described in literature. [4,7] The presenting signs and symptoms of this tumour are

pain, swelling, limp and occasionally joint effusion. Differential diagnosis for chondroblastoma is giant cell tumour. [7-9] Most commonly affected bones are distal femur, proximal tibia and proximal humerus. Chondroblastoma of calcaneum is relatively a rare condition. [1,2,10]

Radiological appearance of this tumour is rarefaction or lytic lesion in the cancellous bone with sclerotic rim. [11] Cortex is thinned out but not penetrated. As contrast to giant cell tumour which has regular well defined regular margins, chondroblastoma has irregular, fuzzy margins. Intralesional mottled area with increased density throughout the tumour represent calcium deposits.

On gross appearance tumour is dark red, hemorrhagic and tissue appears friable within which calcium deposits appear like yellow zones with few necrotic bone spicules and bluish white nodules suggesting cartilaginous origin of the tumour. [7,8,10]

Microscopic appearance is closely packed round or polyhedral chondroblasts with large vesicular nuclei and intermittent focal areas of calcification which stain with Rio Hortega stain along with reticulin fibers giving classic chicken wire appearance. [11-13]

Treatment options are almost always thorough curettage of the lesion followed by autologous bone grafting or filling of the defect with bone cement. [6,8,14]

## CONCLUSION

On concluding note, we suggest that extended curettage, burring of the lesion through a small cortical window, packing of the defect with bone cement followed by suturing back the cortical window and adequate period of non-weight bearing mobilisation and subsequently full weight bearing

mobilisation is an excellent treatment option for chondroblastoma of the calcaneum.

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