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Case Report

A giant cell tumour of distal end of the tibia: a rare case report

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ABSTRACT

A tumor that is locally aggressive is a giant cell tumor (GCT). The distal end of the femur, proximal end of the tibia, distal end of the radius, and proximal humerus are common locations. Presenting the case of a 52-year-old man who has a giant cell tumor in the unusual position of the lower end of the right tibia. Patient came with complaints of pain and swelling in the right ankle. The tissue's histopathology reveals spindle-shaped mononuclear cells suggestive of GCT and multinucleated giant cells with homogenous vesicular nuclei. Curettage and bone cement were used to treat the patient and fill the defect.

Keywords: Giant cell tumour, Curettage, Bone cement

INTRODUCTION

Giant cell tumors (GCT) of the bones are a rare neoplasm that account for 4% of all primary tumors of the bone and roughly 10% of malignant primary bone tumors, with severity ranging from borderline to high grade malignancy. Patients usually span the age range of 20 to 55, with the largest age incidence occurring in the third decade of life and a modest female predominance (1.2: 1).[1] In skeletally mature individuals, it is a locally aggressive tumor involving the ends of long bones. Common clinical symptoms include pain in the afflicted bone, edema, and a reduction in the range of motion in the joint next to it.[2] The primary diagnostic methods for giant cell tumors of the bones are radiological examinations (plain X-rays and CT scans) performed at the lesion site.[2]

GCT is treated with an emphasis on local management while maintaining joint function. This can be accomplished by either making use of bone cement to package the defect or by packing the cavity of the removed tumor with morselized iliac corticocancellous bone during intralesional curettage.[3]

CASE REPORT

A male patient, 52 years old, complained of pain and swelling in his right lower leg. The patient visited a bone setter a year ago for treatment of moderate discomfort and swelling following a twisting injury to his leg. The swelling persisted, but the agony did. The swelling started to enlarge and was accompanied by excruciating discomfort that got worse when walking. No prior history of fever, night terrors, weight loss, or appetite loss. There was a history of four to five massage treatments.

Upon inspection, there was swelling over the distal portion of the leg, measuring approximately 6×4 cm, with smooth, well-defined edges. Over the swelling, the skin appeared normal. The area over the distal tibia was tender. Ankle motions were normal. No neurovascular impairment at the distal end.

The X-ray (Figures 1 and 2) revealed a well-defined expansile lytic lesion at the right tibia's distal end, along with a thinned-out cortex that may indicate a giant cell tumor at the tibia's distal end. The anatomy of a subarticular expansile lytic lesion in the lower end of the right tibia is shown in the CT ankle (Figure 3). Absence of metastatic evidence.

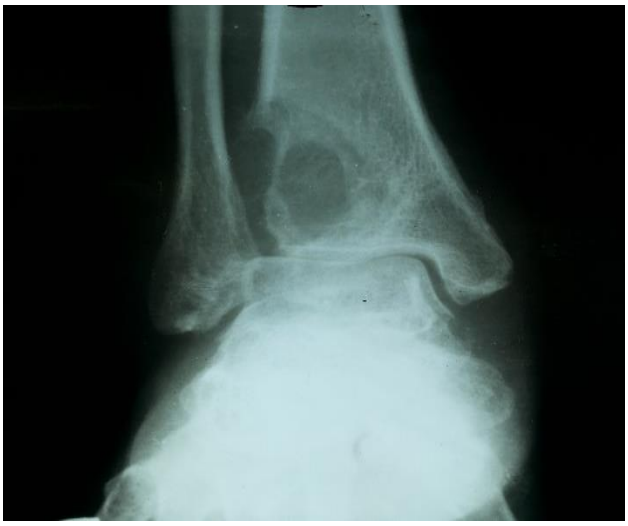

Figure 1: X-ray AP view.

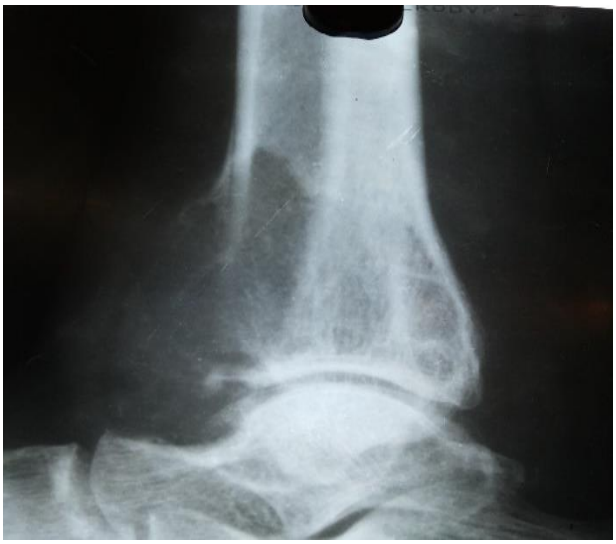

Figure 2: X-ray lateral.

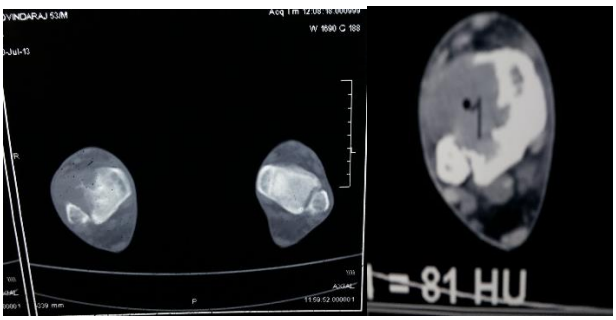

Figure 3: CT ankle.

The patient was informed about the condition and the standard investigations carried out prior to surgery. Intralesional excision and curettage were used to treat the patient, and bone cement was used to fill the cavity. Upon examination, the tumor appeared reddish-grey, had a friable nature, and was breaching the lateral cortex of the distal tibia while the periosteum was still intact. A histological study revealed the presence of a giant cell tumor. The tissue's histopathology reveals spindle-shaped mononuclear cells suggestive of GCT and multinucleated giant cells with homogenous vesicular nuclei (Figure 4). For six weeks, the patient was kept immobilised in a below knee slab, and then partially weight bearing is allowed. After a year of follow-up, the patient showed no signs of a local tumor recurrence and was walking independently with full range of ankle movements comfortably without pain.

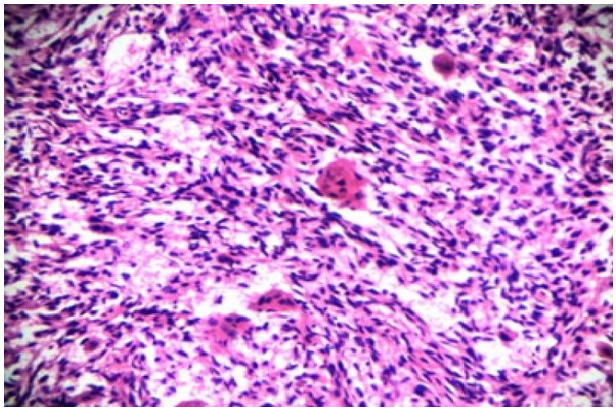

Figure 4 Histopathology.

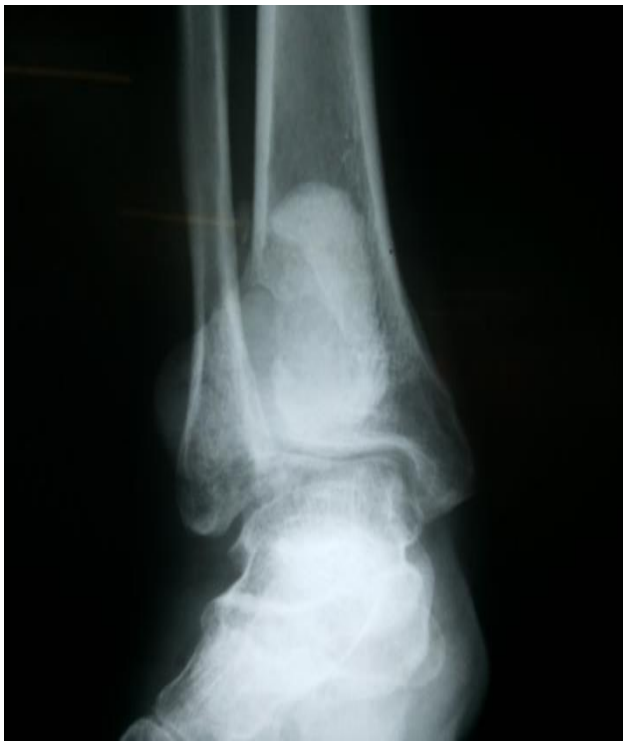

Figure 5: Immediate post op.

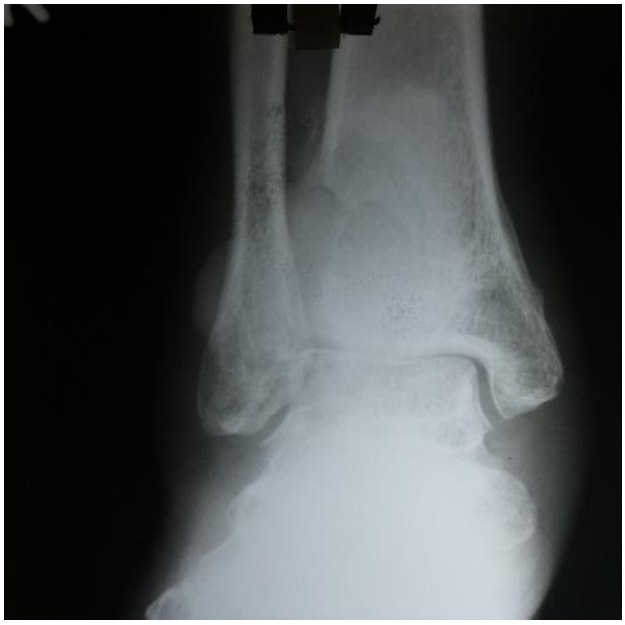

Figure 6: Six months post op.

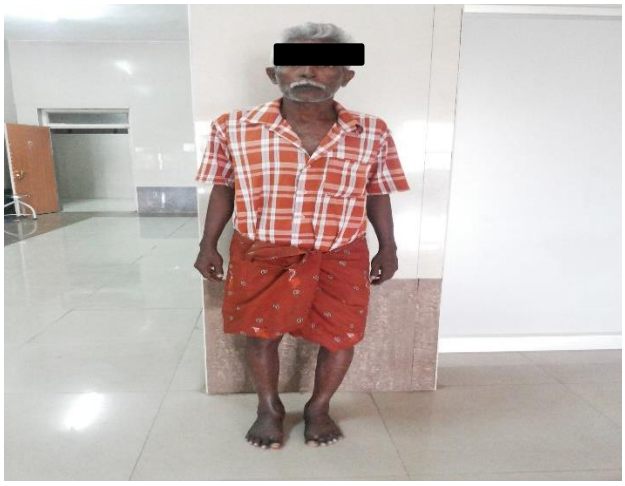

Figure 7: Post op weight bearing.

DISCUSSION

Locally aggressive giant cell tumors can sometimes be malignant. The noteworthy trait of the benign variety of GCT is that, despite its otherwise benign nature, it can metastasize, on rare occasions. A sarcomatous growth that is either largely juxtaposed to a typical benign focus or develops at the site of a previously treated and documented focus after a protracted interval is considered the malignant type of GCT.[4,5]

For GCT of bone, curettage and extensive resection have been accepted methods of treatment.[6] Adjuvants like phenol and hydrogen peroxide, used in percentages ranging from 5% to 80% following curettage, may also be beneficial in reducing the likelihood of recurrence following curettage.[7,8] However, a few recent investigations have cast doubt on the ability of adjuvants and filling agents to lower the incidence of giant cell tumor recurrence. It appears that the use of adjuvants is not as significant a predictor of surgical outcome as adequate tumor excision.

The Trieb et al study showed that there is no significant difference in the local recurrence rate of giant cell tumors in long bones treated with or without phenol.[9] In a report published, Bini et al. treated a giant cell tumor using cementation and curettage. It is hypothesized that the polymethylmethacrylate exothermic reaction causes localized hyperthermia, which leads to the necrosis of any leftover neoplastic tissue, but it does not spread to normal tissues to cause local problems.[10] It is not ruled out that the polymerization of polymethylmethacrylate could have a localized chemically harmful effect. Research indicates that while cement addition can slow down the pace of recurrence, there is a larger chance that the joint will eventually need to be replaced. In an effort to lessen recurrence, cytotoxic drugs like methotrexate and adriamycin have been added to bone cement and other drug delivery methods.[11,12]

The patient had curettage and bone cement was used to pack the cavity. The patient had good postoperative outcomes with no functional issues or recurrences. We recommend that it is an appropriate course of treatment for lower tibia GCT.

CONCLUSION

We reported a patient who had good post-operative outcomes with no functional issues or recurrences after we packed the cavity using intralesional curettage and bone cement. We conclude that this approach is an excellent alternative for treating lower tibia Campanacci 2 and 3 GCT lesions. Curettage and cementation are among the best GCT treatment options due to the cement's mechanical and cytotoxic qualities, as well as its safety and ease of handling.

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