Case Report

Giant Cell Tumor of Distal Fibula: 7.5 Years Follow-Up After Enbloc Resection and Reconstruction

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Abstract

Distal Fibula is an extremely rare site for a Giant Cell Tumor. Tumors at this location, especially active and aggressive ones are difficult to manage. In most situations en bloc resection is required and thus subsequent reconstruction of the ankle anatomy becomes essential to provide a stable ankle with pain free mobility. Here we report a successful management of such a tumor with a long term follow-up of seven and a half years.

Key Words: Giant cell tumor, Osteoclastoma, Distal fibula, Reconstruction, Autologous bone graft.

Introduction

Cooper in 1818 first described Giant cell tumors (GCT) of the bone.[1] GCT (Osteoclastoma) represents approximately 5% of all primary bone tumors.[2,3] More than half of these lesions occur in the third and fourth decades of life.[3] GCTs are benign tumors with potential for aggressive behavior and capacity to metastasize. The most common locations, in decreasing order, are the distal femur, the proximal tibia, the distal radius, and the sacrum.[4] Fifty percent of GCTs arise around the knee region. Giant Cell Tumor of distal fibula is very rare with incidence of less than 1%.[5] Treatment of aggressive tumors at this location is challenging and has been rarely reported in literature. Reconstruction of the lower fourth of fibula after resection is essential for maintenance of ankle stability.

Case Report

A 23 year old male patient presented with swelling on the lateral aspect of left ankle of two months duration, which was slowly increasing in size and was associated with pain on weight bearing. Clinical examination revealed a bony hard swelling over the lateral malleolus which was tender on palpation. His X-rays of the ankle showed a well defined, purely osteolytic and expansile lesion with extensive cortical thinning corresponding to Campanacci stage II.[6]

Considering the active stage of the tumor, en bloc resection of distal fibula with reconstruction of the ankle mortise using ipsilateral non - vascularized proximal fibula was carried out. The autologous fibula graft was fixed with plate osteosynthesis and the syndesmosis stabilized with a screw. Histopathological examination of the resected specimen confirmed the diagnosis of Giant Cell Tumor. Patient was mobilized with protected weight bearing using support for 8 weeks. The syndesmotic screw was removed 2 months after the reconstructive surgery.

Discussion

Osteoclastoma of the lower end of fibula is rare.5 Aggressive variants of GCT pose a treatment challenge to the surgeon. A few cases have been reported on these types of benign lesions and therefore no clear guidelines are available to manage GCT at these sites, especially when the tumors are active. [7,8]

The lower one fourth (10cms) of fibula forms a vital portion of the ankle mortise and is essential for ankle stability. Reconstruction of lower one fourth of fibula following resection is required for providing a stable ankle mortise, especially when the patient is young and active.

Treatment of Giant Cell Tumors is always surgical and en bloc resection was the preferred procedure for our patient. Curettage, when done alone is associated with high recurrence of about 60 %, while local recurrence after extended curettage is approximately 10-20 %.[9] Cryosurgery is associated with a high rate of a local wound healing problems and hence is not a widely used technique.[10]

Reconstructing the ankle mortise after resection of the lower end of fibula can be achieved by using either a tricortical iliac crest graft or a graft from the upper fourth of fibula, like in our patient.[11] The bone graft needs to be stabilized with plate fixation, preferably a narrow Dynamic Compression Plate, as done in this case. The reconstruction is permanent once the fibular

graft gets incorporated (Fig 1). Recurrence of the tumor usually occurs within the first couple of years but late recurrences have been reported.[12]

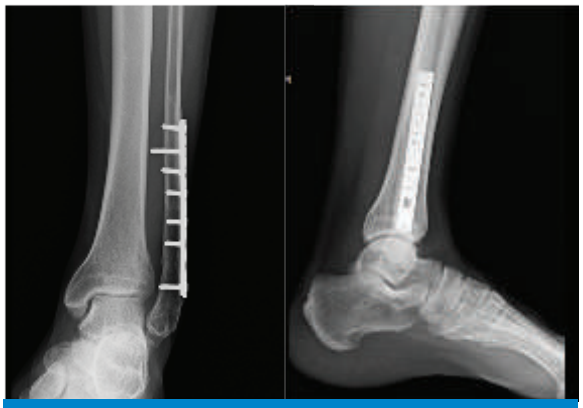

Fig 1 - shows excellent graft incorporation and a well reconstructed ankle mortise which is free from arthroses at 7.5 years

In our case, at 7.5 years following the reconstruction, patient was free of local tumor recurrence and had good clinical outcome (Fig 2) without any signs of ankle instability, loss of function (Fig 3) or osteoarthroses of the ankle. There was no donor site morbidity.

Fig 2 - demonstrates a well preserved ankle movements.

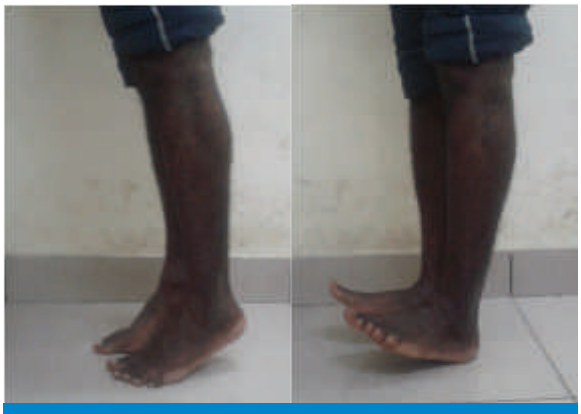

Fig 3 - Shows good functional restoration.

Conclusion

The method of reconstruction of lower fibula to provide a stable ankle joint using an autologous non-vascularized proximal fibula is a good treatment option of this uncommon lesion in terms of recurrence and functional outcome.

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