Function after Wrist Arthrodesis with Non-Vascularized Fibular Graft in Distal Radius Giant Cell Tumor: Case Series

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ABSTRACT

Giant cell tumor (GCT) of bone, the most common benign locally aggressive bone tumor, accounts for 4% to 5% of all primary bone neoplasms and 20% of benign bone tumors. The distal radius is the third commonest site of involvement in about 10% of GCT cases. Due to the high recurrence rate after curettage of the more progressed lesions, most surgeons prefer en bloc resection followed by reconstruction. Cases: Three distal radius GCT Campanacci III cases underwent en bloc resection and wrist arthrodesis with non-vascularized fibular graft. The mean follow-up period was nine months (6-12 months). Patients were evaluated with the Disabilities of the Arm, Shoulder, and Hand (DASH) score. Results: Union had been achieved in 2 patients, and implant removal was done. One patient needs cancellous bone grafting after implant removal—no sign of recurrence after one year. DASH score showed moderate disability. Conclusion: Autogenous non-vascularized fibular graft reconstruction can be considered a reasonable option after en bloc resection of distal radius GCT.

Keywords: Giant Cell Tumor, non-vascularized bone graft

Introduction

Giant cell tumors (GCTs) are benign, locally aggressive bone tumors commonly seen in locations of cartilage and/or bone deficits. They are characterized by poorly marginated neoplastic cells surrounded by osteoclast-like giant cells, and the disease often recurs post-curettage. GCTs are often multifocal and may present as either single or mixed lesions. The pathogenesis of GCT remains uncertain, but it is thought that they may arise from undifferentiated mesenchymal cells that have undergone osteoclast-like cell transformation.

GCTs are more common in young and middle-aged adults, with a peak incidence between 20 and 45 years of age. They commonly affect the ends of long bones, particularly the distal femur, proximal tibia, distal radius, and proximal humerus. The distal radius is the third most common site of involvement, accounting for about 10% of GCT cases. Due to the high recurrence rate after curettage of more progressed lesions, most surgeons prefer en bloc resection followed by reconstruction.

Cases

Three patients with GCT of the distal radius Campanacci III underwent en bloc resection and reconstruction with non-vascularized fibular graft.

ABSTRAK


Kata kunci: Giant cell tumor, non-vascularized bone graft
Figure 1. Case 1: Female, 29 years old.
(A) Mass on the right distal radius;
(B) Radiographs shows geographic lytic lesion with sharp zone of transition.

Figure 2. Case 2: Female, 47 years old.
(A) Large shiny mass on the right distal radius;
(B) Radiographs shows lytic lesion with marked bone destruction.
fibular graft and wrist arthrodesis. The mean follow-up period was nine months (range, 6-12 months). Bone tumor resection was done until 2 cm to the normal bone. The shaft of the fibula was taken and fixated with a reconstruction plate to the 2nd metacarpal. Wrist extension in 200 - 400 position. The patient was then followed and evaluated with the Disabilities of the Arm, Shoulder, and Hand (DASH) score.

Discussion
Three patients had good conditions. Union had been achieved in 2 patients, and implant removal was done. One patient needs cancellous bone grafting after the removal of the implant. One patient needs a flap. No sign of recurrence after 1 year of follow-up. All patients have limited wrist motion and forearm supination—no injuries in the donor site. DASH score showed moderate disability in all three patients.

Conclusion
Autogenous non-vascularized fibular graft reconstruction can be considered a reasonable option after en bloc resection of GCT in the distal radius.

REFERENCES