

**FC-084****Intercalary allograft reconstruction after resection of primary bone tumors**

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Introduction: The treatment of bone tumors in diaphyseal / metadiaphyseal sites of long bones (with joint preservation) has several options including massive intercalary allografts, autografts (vascularized or non-vascularized fibular autograft, extracorporeal irradiated bone autograft), endoprosthetic replacement (intercalary spacer), cementoplasty with osteosynthesis and distraction osteogenesis. Reconstruction using massive intercalary bone allografts is the method of choice in case of curable primary bone tumor resections for us.

Methods: Our retrospective study reviewed 41 patients treated by intercalary allograft reconstruction after resection of primary bone tumors in the years 2000-2014. The group consists of 27 men and 14 women with mean age at the time of diagnosis 27 years and mean follow-up (from primary surgery) for 7 years. The diagnoses were Ewing/s sarcoma (14), chondrosarcoma (9), osteosarcoma (8), adamantinoma (6), OFD-like adamantinoma (2), aneurysmatic bone cyst (1) and giant cell tumor (1). The site of tumor were tibia (19), femur (16), humerus (4), radius (1) and ulna (1). We evaluated radiological and functional results of reconstruction, the incidence and risk factors for failure and complications, as well as the possibilities of failure solutions.

Results: 14 patients (35%) were successfully treated without any complication. 8 patients (20%) had local recurrence, metastatic disease has developed in 6 patients and 3 patients died because of progression of disease. The major complications of reconstruction were nonunion (51%), fracture of osteosynthetic material (24%), fracture of allograft (10%), allograft resorption (10%) and infection (7%). The average number of surgical revision for each patient was 1,2 (0-6). Extraction of osteosynthetic material, dynamization of intramedullary nails and open biopsy for suspected local recurrence were not counted. 7 patients (17%) underwent amputation, 6 of them for local recurrence and 1 for infection. Besides routine revisions (reosteosynthesis, spongioplasty,.) we used vascularized fibular autograft in 4 cases, new allograft in 3 cases, implantation of revision TKA (using the original allograft) in 1 case and implantation of tumorous type of THA in 1 case (after allograft infection and explantation) for solving of reconstruction-related complications.

Conclusion: The intercalary bone allograft reconstruction is the method of choice, however it is connected with high rate of complications.