



P15:105

Bilateral fibula graft - Biological reconstruction with after resection of primary malignant bone tumors of the lower limb

Per-Ulf Tunn¹, Dimosthenis Andreou¹, Carmen Tiedke¹, Frank Traub¹, Mario Kuhnert¹, Maya Niethard¹

¹ HELIOS Klinikum Berlin-Buch, Germany

Background: Biological reconstruction of osseous defects due to resection of lower limb malignant bone tumors aims at a permanent solution. This paper deals with bilateral vascularized fibular grafts (BVFG) as a method for reconstruction of metadiaphyseal defects of the femur and tibia in young patients suffering from malignant bone tumors of the lower limb.

Methods: This reconstruction technique was used in 11 patients (5 female, 6 male, mean age 14.0 years, femur n=5, tibia n=6) undergoing metadiaphyseal resection of lower limb malignant bone tumors between November 2000 and December 2011. The median length of the defect to be bridged was 16.0 cm (range 8-24.5 cm). In the six cases of tibial reconstruction, the ipsilateral and contralateral fibula was swivelled into the osseous defect. The fixation of the fibular grafts was achieved by standard plating. For the reconstruction of femoral defects, two free vascularized fibular grafts were used. All patients with an Ewing's sarcoma and an osteosarcoma had multimodal treatment according to the EURO-E.W.I.N.G 99 or COSS-96 protocol. Median follow-up was 63 months.

Results: R0 status was achieved in 10 cases. One resection of an adamantinoma resulted in an R1-resection showing no evidence of disease at follow-up of 12 months. None of the patients experienced local recurrence during follow-up. 2 patients died due to distant disease during follow-up. Full weight-bearing on the affected leg was permitted after a mean of 8 months (range 4-18 months). Complications occurred in five patients (bleeding from anastomosis n=1; fibular graft fracture (conservative treatment) n=1; infection and non-union n=1; plate failure and delayed union n=2). None of the complications led to failure of the biological reconstruction or to amputation. The MSTS scores was provided with a mean of 87% (range 67-100%).

Conclusion: Biological reconstruction of osseous defects is always desirable when possible. Good functional and durable results can be obtained using BVFG for the reconstruction of metadiaphyseal defects of the femur and tibia.

E-mail (main author): per-ulf.tunn@helios-kliniken.de