

The vascularised free-fibular graft for limb salvage after bone tumour surgery: a multicentre study.

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Background

Vascularised free-fibular grafts (VFFG) are a useful surgical technique in limb salvage after tumour resection. The primary objective of this multicentre study was to identify factors predicting for failure and complications of VFFGs following tumour resection.

Methods

Consecutive patients from four tertiary centres for orthopaedic oncology, undergoing VFFG-reconstruction after tumour resection between 1996-2011 were identified.

Demographic and pathological data, surgical factors (including method of fixation and defect length) and the use neoadjuvant or adjuvant therapies were recorded. Complications, duration of restricted weight bearing, graft-hypertrophy & time to union were identified from post-operative records and plain radiographs.

Descriptive statistics and logistic regression were used to assess predictors of failure.

Results

52 primary and 22 secondary reconstructions, with a mean follow-up of 77 months were studied. 69 patients had successful limb salvage after VFFG (93%), all of which united and 94% showed graft hypertrophy.

Time to union differed between upper (28 weeks) and lower limb (44 weeks). Fracture occurred in 15%, and non-union in 19% of cases. 35 patients (47%) had at least one complication, with significantly more complications in lower limb reconstructions, non-bridging osteosynthesis, and in skeletally immature patients. These complications resulted in revision surgery in twenty-six patients (35%).

Conclusion

VFFG is a successful and durable technique for bone defect reconstruction after tumour resection, but is accompanied by a significant risk of complications that may require revision surgery.