

Vascularized Fibula Grafting for the Treatment of Bone Defects

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Objective

To determine if a correlation exists between length of a vascularized fibula graft and primary union at proximal and/or distal junctions.

Introduction

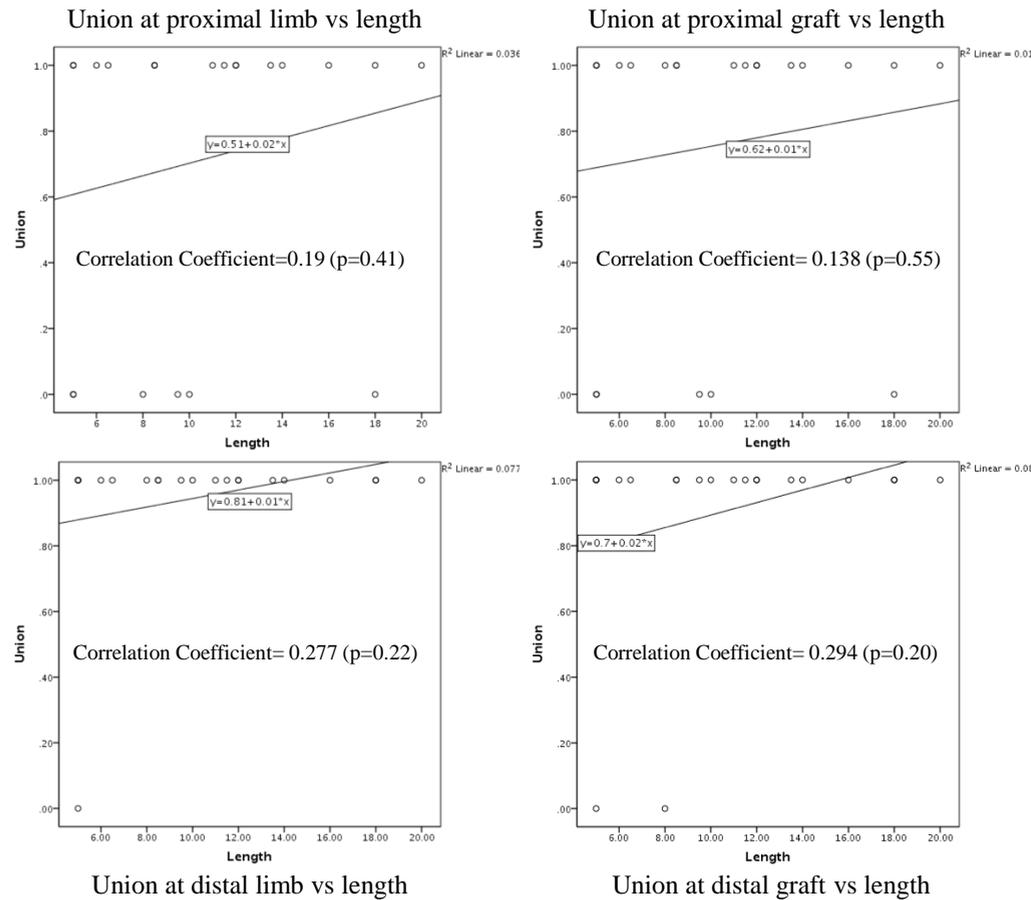
- ✦ Vascularized fibula grafting (VFG) is utilized to treat skeletal defects greater than 5-6 cm resulting from trauma or resection of pathologic tissue
- ✦ Primary union for treatment of bone defects have ranged from 41-100%
- ✦ Few studies looked at factors contributing to nonunion of the graft, and none at the relationship of length of the graft and union

Methods

- ✦ Retrospective chart review of 21 patients who underwent VFG
- ✦ Radiographs assessed for union of graft at proximal and distal junctions
- ✦ Assessed relationship between length of graft and rate of primary union
- ✦ Rates of union at proximal and distal limb and proximal and distal graft were determined

Results

- ✦ 71.4% complete union, average of 8.7 months
- ✦ Respect to limb, union rate 95.2% at distal junction vs 71.4% at proximal junction (p=0.038)
- ✦ Respect to graft, union rate 90.5% at distal graft vs 76.2% at proximal graft (p=0.214)
- ✦ No correlation between length and union rates



Key: 0-nonunion, 1-union

Location and indication for VFG

Ext	# of Pts	Tumor	Infx	Trauma	Avg Len (cm)	Primary Union	Overall Union
Upper	11	3	4	4	8.8	6/11 (55%)	8/11 (73%)
Lower	10	6	3	1	12.7	9/10 (90%)	9/10 (90%)
					p=0.054	p=0.15	p=0.59

Table 1. Average length and union rates were not significantly different between upper and lower extremity grafts.

Conclusions

- ✦ Factors contributing to nonunion of vascularized fibula grafts are not well known.
- ✦ Union reliably occurs at least at one end of the graft. In other words, complete nonunion of the graft is rare.
- ✦ If nonunion occurs, it likely occurs at the proximal limb.
- ✦ No correlation was seen between union rates and orientation of fibula graft.
- ✦ Length of VFG does not appear to have a correlation with the rate of primary union.

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