Functional Outcome after Reconstruction of Traumatic Soft Tissue Defects in the Lower Half of the Leg with Distally Based Medial Hemisoleus Muscle Flaps

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Abstract

Background: Data regarding donor-site morbidity, post-operative clinical course, and functional outcome after hemisoleus muscle flap reconstruction are rare. The aim of this study was to determine the clinical and functional outcome of distally-based medial hemisoleus flaps used for the reconstruction of defects in the lower half of the leg.

Methods: Consecutive patients with lower leg defects who received treatment between 2011 and 2013 were analyzed retrospectively. Patient data analyzed included epidemiological, clinical and management details, including complications.

Results: Mean age of the patients was 48±7 years (mean±sem). 92% were male and 8% were female. Mean defect size was 36±3 cm^2 (mean±sd). All soft tissue defects were secondary to trauma. Flap survival was complete in 12/13 patients and partial in 1/13 patients. There were no flap losses. After a follow-up of 6±2 months (mean±sem), there were no further reports of recurrent defects, deep venous thromboses or inversion deformities. The maximal plantar flexion force in the ankle joint of the operated leg was 77% compared with the unaffected side. Strength endurance was reduced by approximately 19% in the operated leg compared with the unaffected side.

Conclusions: Medial hemisoleus flaps should be included in the armamentarium for reconstruction to provide durable closure of small to middle-sized traumatic lower leg defects. The strength loss and functional impairment are considerable but may not be exclusively attributable to the muscle transfer but rather the result of the preceding trauma. These flaps are limited in length and width and cannot always cover large defects, particularly after major trauma.

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