Quantitative and Qualitative Evaluation of Sural Nerve Graft Donor Site

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Summary

This study was designed to evaluate sensory and motor impairments after sural nerve harvest using the single longitudinal incision technique. The sensory recovery in the donor site was assessed by the patient's subjective evaluation. The presence of mechano-electrical stimulation was documented, and the results were analyzed statistically. The presence of mechanical stimulation was recorded in 25% of the cases. The results of sensory defect were recorded as either grade 1 or 2, indicating a loss of sensation in the distal part of the foot. The mean duration of sensory deficit was reduced by 93% from 14 weeks to 7 weeks after a half-year follow-up period. A subjective improvement in sensory function was noted in all cases. The results of sensory function were compared with the preoperative functional and sensory status. No significant change in sensory function was observed.

Key Words: Quantitative, Qualitative, Sural nerve graft

Introduction

The sural nerve is the most common donor for nerve grafting. Critics of the sural nerve grafting procedure concerned that regenerating axons were not capable of traversing two neurotomy sites to establish functional recovery. Based on multiple animal studies, the presence of two neurotomy sites is recognized to be a disadvantage. However, when performed under favorable conditions, result of sural nerve grafting is better than techniques with only single neurotomy under unfavorable conditions.

The sural nerve is also the common site for nerve biopsy as part of the work up in patients with peripheral neuropathy, and to monitor treatment in diabetic patients. Despite widespread use of the sural nerve, there is scarce attention paid to problems of the donor site. Donor site morbidity is an important consideration for selecting an autologous nerve for standard nerve grafting. Functional deficit must be acceptable, and is usually limited to loss of non-critical sensation.

The majority of literature reports available on nerve grafting only address the recovery across the nerve graft. Studies on donor site morbidity were usually based on subjective evaluation such as degree of numbness, pain, cold sensitivity and overall satisfaction. This study is designed to quantitatively evaluate the area of sensory deficit and subjective outcome after sural nerve harvest.