

The Vascularized Vastus Lateralis Nerve Graft for Immediate Facial Nerve Reconstruction

Andres Rodriguez, Sora Linder, Nikolaos Agrogiannis, Gangadasu Reddy, Shai Rozen

Department of Plastic and Maxillofacial Surgery, Uppsala University Hospital, Sweden and Department of Plastic Surgery, UT Southwestern Medical Center, Texas, US

Introduction

In the setting of ablative head and neck surgery in the periauricular area the resulting defect often requires a combined reconstruction of soft-tissue and facial nerve.

In this study we investigate the vascular anatomy of the vastus lateralis nerve to be use as a vascularized nerve graft in combination with an ALT-flap and present its application in a clinical case

Methods

In five cadavers the vastus lateralis motoric nerve (VLMN) and its vascular pedicle were dissected and measured. In two vascularized VLMN a radiopaque contrast was injected, CT-angiography with three-dimensional reconstructions was performed to visualize nerve's vascular supply.

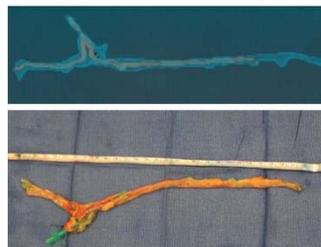
The VLMN graft has then been applied in a clinical case in combination with an ALT flap for immediate facial nerve reconstruction and the outcomes are described.

Anatomical Study

-Division of the VLMN into an oblique proximal and a descending distal branch in 70% of the dissections.



-Mean maximal length of 8.4 ± 4.5 cm for the oblique division and 15.03 ± 3.87 cm for the descending division.
-3D CT-angio confirmed perfusion of the VLMN by the by branches from the descending branch of the lateral femoral circumflex artery.



Results

Case Report

67 year-old patient diagnosed of a squamous cell cancer in the external auditory canal required oncological resection and reconstruction with a ALT free flap along with a vascularized VLMN (facial nerve to buccal and marginal branches)and Masseter Nerve Tranfer to one zygomaticus mayor branch.



Defect



ALT flap with VLMN



Nerve Reconstruction



Immediate Postop Result

6 months smile postoperative restoration was observed with full preservation of knee extension



Conclusion

The vascularized vastus lateralis nerve in combination with the ALT-flap is a technical reliable alternative in immediate reconstruction of composite defects in the periauricular area including the facial nerve.