

The Vascularized Vastus Lateralis Nerve Graft for Immediate Facial Nerve Reconstruction

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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

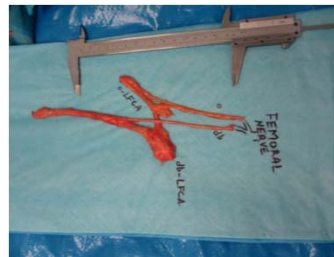
Methods

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.

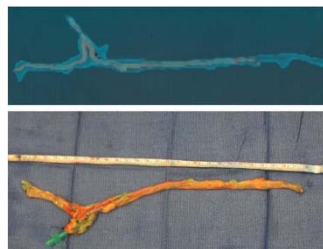
The VLMN graft has then been applied in a clinical case in combination with an ALT flap for immediate facial nerve reconstruction and the outcomes are described.

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.



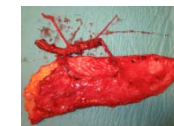
Results

Case Report

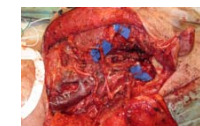
67 year-old patient diagnosed of a squamous cell cancer in the external auditory canal required oncological resection and reconstruction with a ALT free flap along with a vascularized VLMN (facial nerve to buccal and marginal branches)and Masseter Nerve Tranfer to one zygomaticus mayor branch.



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.