Acta Otorrinolaringol Esp. 2014;65(1):33–42

Acta Otorrinolaringológica Española

www.elsevier.es/otorrino

ORIGINAL ARTICLE

Free Flap Reconstruction in the Head and Neck. Indications, Technical Aspects and Outcomes☆

José Luis Llorente,[a,*] Fernando López,[a] Vanessa Suárez,[a] Ángel Fueyo,[b] Susana Carnero,[b] Clara Martín,[b] Victoria López,[c] Daniel Camporro,[b] Carlos Suárez[a]

[a] *Servicio de Otorrinolaringología, Instituto Universitario de Oncología del Principado de Asturias, Hospital Universitario Central de Asturias, Oviedo, Asturias, Spain*
[b] *Servicio de Cirugía Plástica, Hospital Universitario Central de Asturias, Oviedo, Asturias, Spain*
[c] *Servicio de Anestesiología, Reanimación y Terapia del Dolor, Hospital Universitario Central de Asturias, Oviedo, Asturias, Spain*

Received 3 August 2013; accepted 7 August 2013

KEYWORDS
Free flaps;
Head and neck reconstruction;
Hypopharynx reconstruction;
Skull base reconstruction

Abstract
Introduction and objectives: The use of microvascular free flaps (MFF) has become a common method of head and neck reconstruction because of its high success rates and better functional results. We report our experience in reconstructing complex defects with MFF.
Methods: We analysed a series of 246 patients who underwent reconstruction using MFF in our Department from 1991 to 2013.
Results: A total of 259 interventions were performed in 246 patients. The most common reason for surgery was tumour recurrence (46%), followed by primary tumour resection (25%). The hypopharynx (52%) and the craniofacial region (22%) were the most frequently reconstructed sites. The free flaps most commonly used were the radial forearm free flap (41%) and the anterolateral thigh free flap (35%). Overall success and complication rates of 92% and 20% respectively were reported.
Conclusions: The microvascular free flap is a reliable and useful tool for reconstructing complex head and neck defects and continues to be the reconstructive modality of choice for these defects.

☆ Please cite this article as: Llorente JL, López F, Suárez V, Fueyo Á, Carnero S, Martín C, et al. Reconstrucción de cabeza y cuello mediante colgajos libres microvascularizados. Indicaciones, aspectos técnicos y resultados. Acta Otorrinolaringol Esp. 2014;65:33–42.

* Corresponding author.
E-mail address: llorentependas@telefonica.net (J.L. Llorente).

2173-5735/$ - see front matter

PALABRAS CLAVE
Colgajos libres;
Reconstrucción de cabeza y cuello;
Reconstrucción de la hipofaringe;
Reconstrucción de la base de cráneo

Reconstrucción de cabeza y cuello mediante colgajos libres microvascularizados. Indicaciones, aspectos técnicos y resultados

Resumen
Introducción y objetivos: La utilización de colgajos libres microvascularizados (CLM) se ha convertido en un método de reconstrucción frecuente en el área de cabeza y cuello debido a sus elevadas tasas de éxito y a sus mejores resultados funcionales. Presentamos nuestra experiencia en la reconstrucción de defectos complejos con CLM.
Métodos: Se presenta una serie de 246 pacientes que requirieron una reconstrucción con CLM entre 1991 y 2013.
Resultados: Se realizaron 259 intervenciones en 246 pacientes. El motivo más frecuente para la realización de la cirugía fue la presencia de una recidiva tumoral (46%), seguido de la resección primaria del tumour (25%). Las regiones más frecuentemente reconstruidas fueron la hipofaringe (52%) y la región craneofacial (22%). Los CLM más usados fueron el colgajo antebraquial radial (41%) y el anterolateral de muslo (35%). El 92% de los CLM fue un éxito y la tasa de complicaciones fue del 20%.
Conclusiones: La utilización de CLM es un método fiable y útil para la reconstrucción de defectos complejos de cabeza y cuello, y su uso sigue siendo la modalidad reconstructiva de elección en estos casos.

Introduction

The progressive development of microsurgical techniques, the variety of available flaps, the high success rates and the optimal results obtained have helped to establish microvascular free flaps (MFF) as the standard method for the reconstruction of complex defects in the head and neck region.[1]

Reconstructive surgery represents a major challenge for head and neck surgeons due to the varying characteristics of patients, the associated morbidity and the defects that must be corrected. MFF represent the first choice for the reconstruction of most defects in the head and neck region following cancer surgery. Defects related to osteoradionecrosis, trauma and sequelae of facial paralysis are also susceptible to being treated with MFF. One of the advantages of MFF compared to local and regional flaps is their versatility in terms of surface, volume, composition and vascularisation. MFF allow surgeons to successfully address most reconstructive needs, so they are used for a variety of defects and in multiple anatomical regions. As a result, they enable the immediate reconstruction of defects that could not previously be reconstructed and allow broader oncological resections, improving local control of the disease and the prognosis of patients, and reducing sequelae and patient morbidity, compared to the period before the routine use of MFF.[1]

The number of interventions requiring the use of MFF has increased in our hospital in recent years, making it a routine and normalised procedure in cases where it is necessary to perform complex head and neck reconstructions. The effectiveness of the procedure, the teamwork between surgeons and anaesthesiology specialists and the standardised perioperative care of these patients have been highlighted as crucial factors in the implementation and consolidation of this technique. The purpose of this study was to present our experience in the reconstruction of head and neck defects using MFF.

Materials and Methods

We reviewed the surgical registry of our Otolaryngology Service between 1991 and January 2013, and gathered data from 246 patients who required reconstruction with MFF. We excluded from the study those patients with less than 6 months of postoperative follow-up.

The indications for performing a reconstruction with MFF were as follows: (a) complex defect of the head and neck region not susceptible to reconstruction using local or regional flaps; (b) reconstruction in patients in whom other local or regional flaps had failed; (c) patients with severe sequelae after (chemo)radiotherapy (RT) in whom the upper aerodigestive tract had to be reconstructed; (d) failure of a prior MFF; and (e) choice of treatment by the surgeon.

The primary objective was to carry out a descriptive study of the sample. The secondary objectives were to calculate the rates of MFF viability and complications.

The mean follow-up period was 26 months (range: 6–337 months).

Surgical Procedure

All patients were administered prophylactic antibiotic therapy, which was subsequently continued for at least 7–10 days. Likewise, thromboprophylaxis with low molecular weight heparins was administered until ambulation. Generally, patients underwent an Allen test prior to surgery (to assess the integrity of the ulnar artery), to confirm if in case it was advisable to use a radial forearm free flap (RFFF). If an anterolateral thigh free flap (ATFF) was used, the perforating vessels and the vascular axis were located previously using a Doppler probe.

The surgery was performed by 2 teams (otolaryngologists and plastic surgeons). Except for special situations, surgery was performed sequentially, as follows: