

Comparison of morbidity after reconstruction of tongue defects with an anterolateral thigh cutaneous flap compared with a radial forearm free-flap: a meta-analysis

H. Chen¹, N. Zhou^{*}, X. Huang², S. Song³

Guangxi Medical University College of Stomatology, No.22 Shuang-Yong Road, Qing-Xue District, Nanning, Guangxi 530021, China

Accepted 15 July 2016

Available online 8 August 2016

Abstract

Currently the radial forearm fasciocutaneous flap and the anterolateral thigh flap are among the most popular free flaps used for reconstruction of oral soft tissue. However, there is controversy about their efficacy after reconstruction of tongue defects because of their respective intrinsic properties, so we have compared them in reconstruction of tongue defects using meta-analysis. We conducted a search in Pubmed, EMBASE, OVID, Science Direct, the Cochrane Library, and Chinese National Knowledge Infrastructure, which covered all papers published before January 2015. Twelve clinical papers, that included 366 patients with 198 radial forearm flaps and 168 anterolateral flaps, met the criteria. Relevant data were extracted and analysed using systematic meta-analyses. The results showed that the incidence of localised numbness at the donor site of the radial forearm flap postoperatively was significantly higher and satisfaction with the appearance of the donor site significantly lower than in the anterolateral thigh group. There were no differences in flap survival, incidence of vascular crises in the flap, complications, satisfaction with the appearance of the tongue, or the postoperative clarity of speech and swallowing ability. Results suggested that the anterolateral thigh flap is the ideal soft tissue flap for reconstructing defects in the tongue, as there was minimal numbness at the donor site and patients were much more satisfied. Further research is needed to address details of the site and the extent of surgical defects as well as the relations between dissection of the radial flap and repair of the skin graft.

© 2016 The British Association of Oral and Maxillofacial Surgeons. Published by Elsevier Ltd. All rights reserved.

Keywords: Radial forearm flap; Anterolateral thigh flap; Tongue cancer; Tongue reconstructive complications; Meta-analysis

Introduction

Oral squamous cell carcinoma of the tongue develops in the thin flat cells that cover its surface,^{1,2} and about 40% of

all patients referred for treatment require resection of the tongue to varying degrees.³ This should be reconstructed immediately after complete excision of the tumour. Oncological surgery of the oral and oropharyngeal region should allow complete resection of the tumour with minimal morbidity, so that the function is preserved and the region adequately reconstructed.⁴ Free flaps have been in clinical use for decades, but during the last few years survival has improved as a result of refinements to surgical technique and instrumentation that have allowed free flaps to become the gold standard in oral reconstruction.⁵

The radial forearm fasciocutaneous flap is one of the most popular free flaps in oral reconstruction, and is raised from the volar region of the forearm and based on the radial artery and

^{*} Corresponding author. Guangxi Medical University College of Stomatology, Nanning, Guangxi, China, No.22 Shuang-Yong Road, Qing-Xue District, Nanning, Guangxi 530021. China. Tel.: +86 771 5352512; fax: +86 771 5356491.

E-mail addresses: bh.chenhong@126.com (H. Chen), nzhou.gxmu@gmail.com (N. Zhou), wanyingchun218@hotmail.com (X. Huang), chenliyo99@gmail.com (S. Song).

¹ Tel.: +8613307790803.

² Tel.: +8613877989390.

³ Tel.: +8613977920292.

vena comitans pedicle. Despite its usefulness and feasibility, harvest of the flap implies sacrifice of an important vessel (the radial artery) and appreciable donor site morbidity.^{5–7}

Currently the primary concerns of surgeons are the function and appearance of the recipient and donor sites, because the survival of free flaps has risen to more than 90% at most centres.^{8,9} The anterolateral thigh flap, which is based on the septocutaneous vessels or musculocutaneous perforators from the descending branch of the lateral circumflex femoral artery¹⁰ has also gained popularity in soft-tissue reconstruction.^{11–14} It has some advantages over the radial forearm flap, such as low donor site morbidity, availability of different tissues with large amounts of skin, and adaptability as a sensate or flow-through flap (with the possibility of harvesting a long pedicle with vessels of suitable diameter),^{9–11} and the thickness of the flap is adjustable up to the subdermal fat level, which allows it to be used as a thin or ultrathin flap.^{12–14}

However, the heterogeneous functional data reported in recent publications about speech and swallowing after microvascular reconstruction of the tongue prompted the present study. In addition, clinically controversial and inconclusive results were obtained from patients' donor site complications, so we made an evidence-based, quantitative, meta-analysis to address this controversy with reasonable statistical power.

Material and methods

Search strategy to identify suitable studies

We searched PubMed, EMBASE, OVID, Science Direct, Web of Science, CINAHL electronic database, The Cochrane Library, and the Chinese National Knowledge Infrastructure (CNKI) without language limitation, and covered all papers published before January 2015 with a combination of the following keywords: radial forearm flap; anterolateral thigh flap; tongue cancer; tongue defect; complication. We evaluated potentially suitable publications by checking their titles and abstracts and then examined the most relevant publications more closely. We also screened reference lists of the selected papers for other potentially useful articles that we may have missed in the initial search. The following criteria were used to select papers for meta-analysis: papers that described studies that compared radial forearm free flaps with anterolateral thigh flaps; case-control or cohort studies; papers that described malignant defects in the tongue and their complications; papers that gave the size of the sample, odds ratios (OR), and their 95% CI, or enough information to infer the results; and methods of data collection and analysis that were statistically acceptable.

Accordingly, the following exclusion criteria were also used. Papers were excluded if the design and description of the experiments obviously differed from those of the selected papers (not designed as case control or cohort studies); the

source of cases and controls and other essential information were not presented; and they reviewed or duplicated other publications.

After searching, we reviewed all papers in accordance with the defined criteria, and data were extracted and entered into a database. Information was extracted by two reviewers independently. For conflicting evaluations, agreement was reached after a discussion.

Statistical analysis

The OR of comparison of complications of the radial forearm flap and the anterolateral thigh flap after reconstructions of the tongue were estimated for each study. For detection of any possible biases in sample sizes, the OR and its 95% CI for each study were plotted against the number of participants. We used a chi square-based Q test to assess heterogeneity. If the result of the heterogeneity test had a probability of less than 0.05, OR were pooled according to the fixed-effect model (Mantel-Haenszel). Otherwise, the random-effect model (Der Simonian-Laird) was used. The significance of the pooled OR was calculated by the Z-test. Hardy-Weinberg equilibrium was assessed with Fisher's exact test. Publication bias was assessed by fail-safe number for $p = 0.05$ ($N_{fs0.05}$).⁹ Additionally, I-square value is another test of heterogeneity.⁷ The significance of differences were assessed with the aid of the software programs Review Manager 4.2 (Cochrane Collaboration, Copenhagen, Denmark) and SAS 8.1 (SAS Institute Inc, Cary NC, USA).

Results

Demographics and reconstructive outcomes

A total of 472 papers were initially identified that concerned radial forearm and anterolateral thigh flaps for reconstruction of tongue defects, of which 411 were excluded because they did not compare the two flaps (Table 1). Of the remaining 62 papers, 12 clinical papers that included 366 patients with 198 radial forearm flaps (54%) and 168 anterolateral flaps (46%) were independently selected by each reviewer for inclusion in the final meta-analysis.^{14–25} We established a database into which we entered the information extracted from each paper. The outcomes of the meta-analysis with a fixed-effect model are shown in Table 2, which shows an absence of heterogeneity among the studies.

Survival of flaps

We analysed the heterogeneity of survival of the flaps in the 366 cases.^{14–25} The test value was chi square = 1.39 with four degrees of freedom (df) and $p = 0.85$, in a fixed-effect model. The I-square was 0% on the donor sites morbidity, suggesting an absence of heterogeneity between studies. Overall OR for the survival of the radial forearm compared

Download English Version:

<https://daneshyari.com/en/article/5638517>

Download Persian Version:

<https://daneshyari.com/article/5638517>

[Daneshyari.com](https://daneshyari.com)