

Clinical Paper
Reconstructive Surgery

Vertical platysma myocutaneous flap reconstruction for oral defects using three different incision designs: experience with 68 cases

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L. Huang, X. Gao, T. Su, C.-H. Jiang, X.-C. Jian: Vertical platysma myocutaneous flap reconstruction for oral defects using three different incision designs: experience with 68 cases. Int. J. Oral Maxillofac. Surg. 2017; xxx: xxx-xxx. © 2017 International Association of Oral and Maxillofacial Surgeons. Published by Elsevier Ltd. All rights reserved.

Abstract. This study evaluated the effects of three different incision designs for the vertical platysma myocutaneous flap (VPMF): apron, MacFee, and T-shaped. This flap was used for the reconstruction of intraoral defects following cancer ablation in selected patients. Sixty-eight cases of VPMF reconstruction were assessed: the apron incision was used in 28, MacFee incision in 22, and T-shaped incision in 18. With regard to postoperative outcomes, there were 26 cases of flap survival and two of partial necrosis with the apron incision; 20 of survival and two of partial necrosis with the MacFee incision; 15 of survival and three of partial necrosis with the T-shaped incision. Success rates were 92.9%, 90.9% and 83.3%, respectively, for VPMF with the apron, MacFee, and T-shaped incisions. A wound healing disturbance in the neck was seen in three cases of VPMF with the apron incision and one case with the MacFee incision. The MacFee incision had the best aesthetic effect, and the postoperative neck scar was more obvious for the T-shaped incision. It is recommended that VPMF with the MacFee or apron incision be used for the reconstruction of larger buccal mucosa and floor of the mouth defects, while VPMF with the T-shaped incision should be used for smaller intraoral defects, especially tongue defects of the lateral surface.

Key words: vertical platysma myocutaneous flap; reconstruction; intraoral defect.

Accepted for publication 20 July 2017

Vascularized free skin flaps, such as the radial forearm flap and anterolateral thigh flap, have come to play a dominant role in the restoration of intraoral defects. However, under certain circumstances, free flaps are not always the best choice. For instance, the use of free flaps puts the compromised patient at high risk of a time-consuming procedure¹. Also, considering the donor site morbidity and extra microsurgery techniques required, free flaps are not always suitable for smaller defects². Accordingly, the vertical platysma myocutaneous flap (VPMF) provides an interesting and attractive option, since it has many advantages such as ideal thickness and pliability, easy acquisition, a short operation time, and no requirement for a second donor site.

The prototype VPMF, introduced by Farr et al. in 1969, comprised a cervical island of skin from which the epidermis on the flap pedicle was removed³. In 1978, Futrell et al. described a new design of cervical flap via an apron incision in

which the pedicle skin is preserved, and the term 'platysma myocutaneous flap' was used for the first time⁴. In order to secure a better cosmetic result postoperatively, Coleman et al. then showed the procedure of harvesting the VPMF with a MacFee incision⁵. However, the design of the skin paddle of the VPMF is limited with the apron or MacFee incision. Generally, it has to be a horizontal ellipse. Saito et al. used a T-shaped incision to make a vertical elliptical skin paddle, which provides more versatility for rotation, with less tension and kinking².

In this study, the three incision designs for the VPMF were used: apron, MacFee, and T-shaped. The selection of the incision design depended on the characteristics of each patient's platysma-related cervical dissection and the recipient site. This article reports the authors' experience with 68 patients, who each received a personally designed VPMF for the restoration of intraoral defects following oral cancer ablation.

Materials and methods

A total of 68 patients were treated using a VPMF to cover defects due to oral cancer resection in the Department of Oral and Maxillofacial Surgery, Xiangya Hospital, Central South University during the period February 2011 to December 2015. The patients were 66 men (97.1%) and two women (2.9%), aged between 33 and 75 years (mean age 53.4 years).

Among these patients, 45 had T1cN0M0 primary oral squamous cell carcinoma and the remaining 23 had T2cN0M0. The final surgical specimens showed neck node metastasis in five cases. The primary sites of malignancy were the buccal mucosa in 38 patients, floor of the mouth in 11, the lateral surface of the tongue in 10, the mandibular gingiva in seven, and the retromolar trigone in two. A modified radical neck dissection was performed in 35 cases, and a supraomohyoid neck dissection in 33.

In this study, the criteria that had to be fulfilled for the application of the VPMF



Fig. 1. VPMF with the apron incision. (A) The apron incision design in a patient suffering from carcinoma of the buccal mucosa. (B) Continuity of the facial artery was maintained. (C) The flap was separated from the entire cervical flap by sharp dissection in the plane between skin and platysma. (D) The postoperative neck scar. (E) Intraoral photograph obtained 8 months after the operation.

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