

CASE REPORT

Oral Commissure Defect Reconstruction with Modified Biflanged Submental Artery Island Flap

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ABSTRACT

Reconstruction of defects in the commissure region with buccal and lip defects is difficult to reconstruct with regional flap. A case report of a case reconstructed with a new design of the submental flap is described with its advantages.

Keywords: Oral cancer, Commissure, Submental flap.

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INTRODUCTION

Reconstruction of defects in the commissure of oral cavity is always challenging. Several reconstructive options are available with the use of both local flaps and free flaps. The local flaps are often inadequate as single flap can cover only one side of the defect, either the portion of the lower lip or the portion of the upper lip whereas double flaps are cumbersome. The locoregional flaps which can be used are tongue flap, nasolabial flap, forehead flap, infrahyoid flap and submental flap. Free flap has the advantage of being pliable, moldable tissue, but has the disadvantage of mismatch in color, technical expertise and more time required.

Submental artery island flap (SAIF) has been used for reconstruction of various defects in oral cavity. This flap which is based on the submental artery is a local flap, which is easy to harvest and less disfiguring. We have modified the use of submental flap to reconstruct a commissure defect by using a biflange at the nonhair-bearing area.

CASE REPORT

A 50-year-old gentleman presented with ulcerative lesion in the left commissure of 2 months duration. He

was a chronic beedi smoker for past 25 years with 10 to 15 beedies per day. On clinical examination, he had an ulceroproliferative lesion of 3 × 2.5 cm size involving the oral commissure and extending to left side of upper lip, lateral portion of lower lip and buccal mucosa (Fig. 1). There was a non-homogenous leukoplakia in the lower lip at the edge of the lesion. Biopsy of the ulcerative lesion was well-differentiated carcinoma. There were no significant lymph nodes in the neck. He underwent wide excision of the lesion with 1 cm margin and ipsilateral selective neck dissection. The defect included 2 cm of upper lip, 2 cm of lower lip, commissure and 4 × 2.5 cm of buccal mucosa (Fig. 2). Reconstruction was done with biflanged submental artery island flap. The flap was designed based on the ipsilateral submental artery. A vertical design of the flap with an ellipse of 4 × 3 cm size at the midline of the submental region from hyoid to the mentum. The inferior part of the flap was extended below the level of the hyoid for 2 cm with two flanges to repair the upper and lower lip (Fig. 3). The flap was raised after dissecting the submental and submandibular levels. The flap was then taken into the defect through a paramandibular dissection lateral to mandible. The rest of the neck dissection was completed. Oral feeds were started on third postoperative day and there was good oral competence. Adjuvant radiotherapy was not given as the histopathology was pT2N0 with no adverse factors. On follow-up, the patient has a good cosmetic outcome with a well-maintained commissure (Figs 4 and 5). Hair growth was seen in the buccal part of the flap which decreased after 6 months. The flap gave good commissure contour with good cosmesis and oral competence (Fig. 6). The mouth opening was allowing more than three finger between incisors (Fig. 7). The donor site healed well and was well hidden under the submental region (Fig. 8).

DISCUSSION

Oral commissure reconstruction is challenging as symmetry and oral competence are to be restored. Various attempts had been made with large number of options for many decades.^{1,2} Local flap from the buccal region, cervical region and face was used previously.³⁻⁸ Radial forearm and anterolateral thigh free flap have been found to be very useful.⁹⁻¹³

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Submental artery flap was first described by Martin et al in 1993 and was used in defects after oncological resection by Sterne and Hall in 1996.^{14,15} There have been many reports regarding the oncological safety of the flap.¹⁶ In selected patients, the SAIF has been found to be safe option.

Submental artery island flap is based on the submental branch of facial artery. It is usually used as a pedicled flap. The submental artery branches about 27.5 mm from the origin of the facial artery, just deep to the submandibular gland. The diameter of the submental artery is 1.7 mm at the origin and the total length of the submental



Fig. 1: Preoperative carcinoma of left commissure with extension to upper lip, lower lip and buccal mucosa



Fig. 2: Defect after excision of lesion



Fig. 3: Flap marked in the submental region with biflange marked in nonhair-bearing area



Fig. 4: Flap raised based on submental artery as an island flap



Fig. 5: Flap inset to the defect with the biflanged portion for the lip and commissure



Fig. 6: Postoperative good cosmesis with competence of commissure



Fig. 7: Postoperative good mouth opening



Fig. 8: Healed scar in the submental region

artery is about 58.9 mm. It runs in a groove medial to submandibular gland superficial to mylohyoid muscle deep and inferior to the body of mandible. The artery ends behind the symphysis just lateral to midline. The branches of the submental artery are: to submandibular gland, to platysma, mylohyoid, digastric, periosteum of mandible, small branch to subplatysmal fatty layer, one to four cutaneous perforators based on which the skin paddle can be raised. Submental vein drains into facial vein which lies superficial to artery and runs along the same course.

The advantage of a SAIF is that the flap is easily available, easy to harvest and no donor site morbidity, whereas the disadvantages are the hair growth seen in male patients and restriction of size of donor in thin patients. The contraindication for harvesting a SAIF is the presence of nodal metastasis at level IA or IB.

CONCLUSION

Submental artery island flap with a modification by extending to make biflange is a viable option in reconstruction of the commissural defects in elderly patients with cancers of commissure without nodal metastasis.

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