



## VERRUCOUS CARCINOMA OF THE LOWER LIP TREATED WITH SUBMENTAL FLAP: A CASE REPORT

### Oral & Maxillofacial Surgery

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### ABSTRACT

Perioral reconstruction following oncologic resection presents formidable challenges owing to the functional and cosmetic demands of the lip and oral commissure. We describe the surgical management of a 70-year-old woman with verrucous carcinoma involving the right oral commissure, bilateral lip segments, left buccal mucosa, and overlying mental skin. Wide local excision produced a large composite defect that was reconstructed in a single stage using a submental artery island flap (SAIF) with a 13 cm × 5 cm skin paddle. No microsurgical technique was required. At one month follow-up, the patient demonstrated satisfactory lip seal, adequate mouth opening, and acceptable donor-site appearance. This report highlights SAIF as a practical, technically accessible reconstructive option for complex perioral defects, with particular relevance in resource-limited healthcare settings.

### KEYWORDS

Verrucous Carcinoma, Submental Artery Island Flap, Lip Reconstruction, Oral Commissure, Perioral Defect, Head And Neck Oncology

### INTRODUCTION

Verrucous carcinoma of the oral cavity is a well-differentiated, locally destructive neoplasm whose predilection for the lips and buccal mucosa renders it particularly challenging to manage surgically. When tumour extent involves the oral commissure and adjacent perioral structures, curative resection may generate a composite defect that simultaneously disrupts oral continence, compromises midfacial contour, and eliminates the dynamic muscular sling responsible for labial competence. Reconstruction of such defects therefore carries a dual burden: functional restoration of lip seal and oral aperture on one hand, and cosmetic rehabilitation of a highly visible facial unit on the other.

The reconstructive algorithm for large perioral defects must account for several tissue-specific requirements. The replacement tissue must be thin and pliable enough to avoid excess bulk at the commissure, which would otherwise predispose to labial incompetence and persistent drooling. It must carry a dependable vascular supply, cover adequate surface area to resurface both the cutaneous and mucosal layers, and ideally match the colour and texture of native perioral skin. Donor-site morbidity should be minimised. Free tissue transfer, in particular the radial forearm flap, satisfies most of these criteria; however, the attendant operative duration, microsurgical skill requirements, and need for specialised monitoring infrastructure limit its applicability in resource-constrained or high-anaesthetic-risk patients.

The submental artery island flap (SAIF), introduced by Martin et al. in 1993,<sup>1</sup> draws on the territory supplied by the submental branch of the facial artery to deliver well-vascularised, thin skin from the submental triangle into a wide variety of head and neck defects. Its harvest is technically straightforward, avoids microsurgical anastomosis, and leaves a scar concealed within the natural submental crease. Although its contribution to intraoral reconstruction is well established in the literature,<sup>2,3,4</sup> reports specifically examining its role in large lip and commissure defects remain sparse. We present a case that demonstrates the efficacy of SAIF in achieving single-stage reconstruction of an extensive perioral defect arising from verrucous carcinoma excision, with satisfactory functional and cosmetic outcomes.

### CASE REPORT

A 70-year-old woman presented with a warty, exophytic growth centred on the right oral commissure, histologically confirmed as verrucous carcinoma<sup>5</sup> on incisional biopsy. Clinical examination revealed tumour extension to the upper and lower lips, right buccal mucosa, and the overlying skin of the mental region (Figure 1). Staging with contrast-enhanced computed tomography of the neck and chest confirmed no cervical nodal involvement and no evidence of distant metastatic disease.



**Figure 1: Preoperative photograph showing the exophytic verrucous carcinoma involving the right oral commissure, bilateral lip segments, right buccal mucosa, and mental skin.**

After multidisciplinary oncologic review, the patient underwent curative-intent wide local excision under general anaesthesia. Resection encompassed the right oral commissure, segments of the upper and lower lips, right buccal mucosal lining, and the involved mental skin, yielding clear histological margins. The resultant defect measured approximately 9 × 7 cm and involved full-thickness loss of the perioral soft tissues with direct communication to the oral cavity.

Reconstruction was performed immediately in the same operative sitting. A right-sided SAIF was planned with a skin paddle of 13 cm × 5 cm overlying the submental triangle. The anterior belly of the digastric muscle was incorporated within the flap to protect the submental vascular pedicle during harvest. The flap was raised and transposed through a subcutaneous para-mandibular tunnel without skin-bridge division (Figure 2). It was inset into the defect with the long axis oriented antero-posteriorly, with the deep surface providing mucosal coverage and the skin surface restoring the external cutaneous lining. Primary closure of the submental donor site was achieved over a closed-suction drain after meticulous haemostasis.

Recovery was uneventful. Nasogastric feeding was replaced by supervised oral intake on the fourth postoperative day; the patient tolerated soft diet without aspiration or spillage. At one-month review, flap viability was complete, the lip seal was competent, and mouth opening was functionally adequate for mastication and speech (Figure 3). The submental donor scar was inconspicuous within the natural skin crease.



**Figure 2: Immediate postoperative photograph demonstrating the submental artery island flap (13 cm × 5 cm) inset into the perioral defect, with suture lines intact.**



**Figure 3: One-month postoperative result showing complete flap integration, competent lip seal, and a well-concealed submental donor-site scar.**

## DISCUSSION

This case demonstrates that SAIF can serve as a single-stage reconstructive solution for large composite perioral defects without recourse to microsurgical free tissue transfer. The flap's anatomical characteristics — a reliable submental vascular pedicle, inherently thin skin paddle, and arc of rotation that comfortably reaches the lips and commissure — make it well matched to the unique functional and aesthetic demands of this region.<sup>1,2</sup>

Oral commissure reconstruction is unforgiving of bulk. Even modest excess tissue volume at the modiolus impairs the muscular sling mechanism that maintains labial competence, leading to drooling that is both functionally limiting and socially stigmatising. The submental flap's thinness, which approaches that of the radial forearm flap, enables accurate recreation of the commissure without the bulk-related complications that accompany thicker regional options such as the pectoralis major myocutaneous flap. Additionally, the colour and texture of submental skin provide a closer match to perioral tissue than forearm or chest skin, contributing to an aesthetically acceptable outcome. These advantages are reflected in our patient's outcome, in which full lip competence was achieved without a staged debulking procedure.<sup>3,4</sup>

A recognised concern with SAIF in the setting of oral malignancy is the potential for oncologic compromise. The submental vascular pedicle traverses the Level I nodal basin — the primary echelon of lymphatic drainage for oral cavity tumours — raising the theoretical risk of leaving disease-bearing nodal tissue undisturbed when a neck dissection is not performed. Where neck dissection is indicated, meticulous dissection preserving the submental vessels while clearing the nodal package is technically feasible but requires careful surgical planning. In the present case, the histological subtype of verrucous

carcinoma<sup>5</sup> — which carries a negligible risk of regional metastasis — rendered elective neck dissection unnecessary, thereby eliminating this oncologic concern.

The optimal method of flap harvest remains a subject of ongoing debate. Cadaveric dissection studies have demonstrated that the submental artery courses deep to the anterior belly of the digastric muscle in approximately 70% of specimens and superficially in the remaining 30%. Inclusion of this muscle belly within the flap provides a consistent anatomical safeguard regardless of arterial course variant, and we adopt this approach routinely to minimise the risk of inadvertent pedicle injury. Some authors argue that muscle inclusion is unnecessary and advocate a purely fascio-cutaneous harvest; however, in the absence of prospective comparative data, we favour the more conservative strategy.

From a practical standpoint, SAIF offers meaningful advantages over free flap reconstruction in centres where microsurgical expertise or dedicated postoperative monitoring is unavailable. Operative time is shorter, the recovery pathway is simpler, and the absence of a microsurgical anastomosis eliminates the risk of vascular thrombosis and flap loss from technical failure. These characteristics position SAIF as an important tool for head and neck surgeons practising in lower-resource environments, where the burden of oral cancer is disproportionately high and reconstructive infrastructure may be limited.

## CONCLUSION

SAIF provides a reliable, technically accessible means of reconstructing large composite defects involving the lips and oral commissure after oncologic resection. Its thin, well-perfused tissue paddle, proximity to the defect, favourable donor-site profile, and elimination of microsurgical requirements distinguish it as a pragmatic alternative to free flap reconstruction. Head and neck surgeons working in resource-limited settings should consider SAIF a primary option when managing extensive perioral defects.

## REFERENCES

1. Martin D, Pascal JF, Baudet J, Mondie JM, Farhat JB, Athoum A, et al. The submental island flap: a new donor site. *Plast Reconstr Surg*. 1993;92(5):867–73.
2. Sebastian P, Thomas S, Varghese BT, Iype EM, Balagopal PG, Mathews A. The submental island flap for reconstruction of intraoral defects. *Oral Oncol*. 2008;44(11):1014–8.
3. Amin AA, Sakkary MA, Khalil AA, Rifaat MA, Zayed SB. The submental flap for oral cavity reconstruction. *Head Neck Oncol*. 2011;3:51.
4. Vural E, Suen JY. The submental island flap in head and neck reconstruction. *Head Neck*. 2000;22(6):572–8.
5. Ackerman LV. Verrucous carcinoma of the oral cavity. *Surgery*. 1948;23(4):670–8.