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The nasolabial subcutaneous pedicle flap for lower-lip defect reconstruction

**KEYWORDS**

nasolabial subcutaneous flap;
lip defect;
squamous cell carcinoma

The oral and maxillofacial surgeon is often faced with crucial decisions when reconstructing extensive lower-lip defects resulting from the excision of malignant lesions, notably squamous cell carcinoma in Southeast Asia. There are various considerations pertaining to the reconstruction of lip defects, from small defects that involve the simplest direct approximation of the remaining tissues, to larger defects with insufficient tissue that require a tissue switch or adjacent tissue transfers, or even a more technically demanding distant microsurgical flap with the lip width. Constriction and other long-term complications often compromise the clinical outcome.¹ This makes the selection of technique to be important.

The current case presented a fast and simple procedure to reconstruct a lower-lip defect by using a nasolabial pedicle flap. An 87-year-old Taiwanese man was admitted because of an exophytic 20 × 20 mm tumor of the lower lip (Fig. 1A). According to the patient, the tumor had been present for 12 months and had gradually expanded. Biopsy of the tumor revealed a squamous cell carcinoma. Imaging investigation showed no enlarged local lymph nodes. Clinical staging of the lower lip carcinoma was cT2N0M0, stage II. It was decided that treatment would involve surgical resection by current guidelines. The

tumor was excised with safe margins, and nasolabial flap reconstruction was undertaken as planned to reconstruct the freshly created lower lip defect (Fig. 1B and C). The inner defect being surgically covered by an artificial sheet (Fig. 1D). Pathological examination reported moderately differentiated squamous cell carcinoma with pT2N0M0 staging II as synchronized with our clinical staging (Fig. 1E). The whole procedure went smoothly and the patient was discharged after 9 days of hospitalization. The 3-week follow-up showed a promising result (Fig. 1F).

The surgical anatomy should be considered when utilizing a nasolabial flap. The flap is elevated on the plane deep in the subcutaneous tissue but superficial to the underlying muscles, of which the orbicularis oris is of prime importance.² The sensory innervation of the infraorbital plexus is joined by the superior labial branches of the infraorbital nerve and buccal branches of the facial nerve, and the plexus enters the upper lip near the angle of the mouth. Thus, the concern with denervation may occur frequently.^{3,4} The pedicle flap receives its blood supply from the angular branch of the facial artery, the infraorbital artery, and the transverse facial artery. A robust blood supply helps to ensure flap viability and prevents flap breakdown from excess tension or compression. The challenge of using a nasolabial flap is labium preservation when facing deep tumor invasion. Otherwise a double flap is applicable when reconstructing the full-length of the lower labium after surgical treatment.⁵ In the current case, the result seems to have provided excellent function and texture matches with the adjacent tissues, minimizing any deformity of the donor site. Most importantly, this lower-lip defect reconstruction maintains the function and esthetic integrity of the lip and minimizes microstomia.

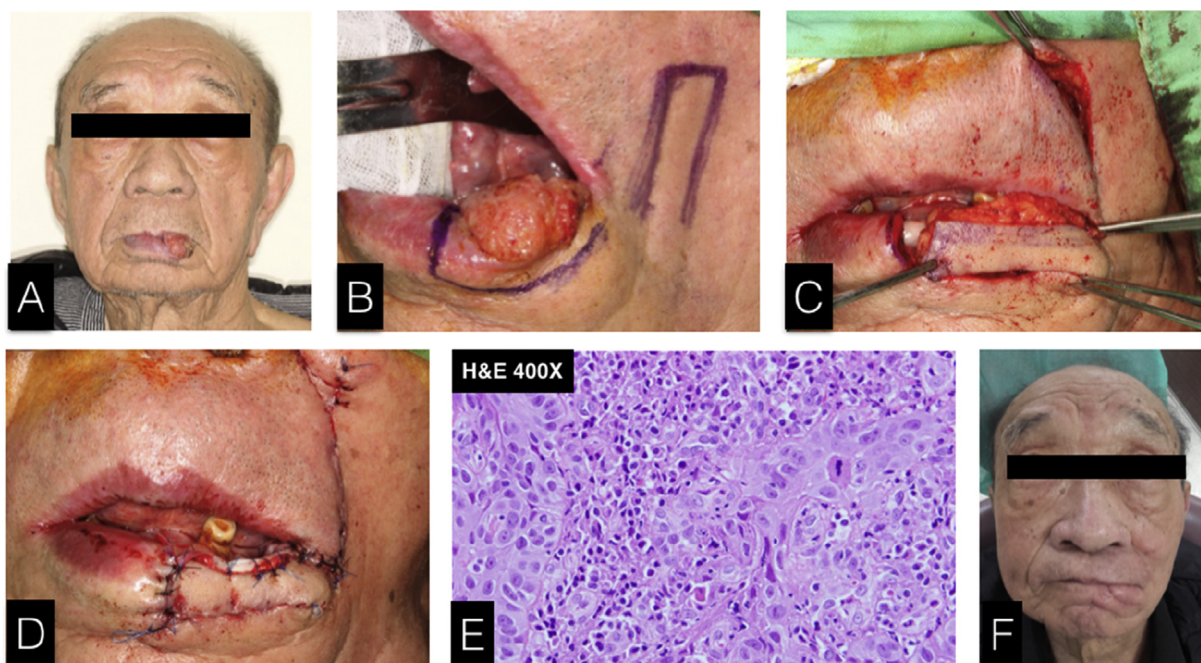


Figure 1 (A) An exophytic tumor about 20 × 20 mm in size located at the left lower lip. (B) Marking of the tumor surgical margin and design for rotational flap. (C) The total excision of the tumor and rotational transfer of the designed nasolabial flap. (D) View of the flap rotated downwards and attached using 4/0 Prolene sutures, with the appearance status post delicate sutures of the donor and donated surgical sites. (E) A histopathology picture of microinvasive squamous cell carcinoma with dense junctional inflammation, characterized by tumor cells with high nuclear/cytoplasmic ratio, prominent nucleoli and frequent mitoses accompanied by dyskeratosis and keratin pearl formation arranged in solid nested pattern infiltrating in the submucosal stroma. (F) The clinical picture at the 3-week follow-up visit showing good esthetics and function.

Conflicts of interest

The authors have no conflicts of interest relevant to this article.

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Received 6 August 2017
 Final revision received 27 August 2017
 Available online 20 October 2017