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CASE REPORT

Orbicularis oris myomucosal island flap transfer to the nose[☆]

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Summary We developed the orbicularis oris myomucosal island flap (OOMMIF) to reconstruct the nasal lining in one stage. The OOMMIF blood supply derives from the intramuscular vascular network which communicates with the submucosal vascular plexus via the vascular network formed by the deep ascending branches of the superior labial artery. An oral mucosal flap of approximately 2 × 3 cm can be harvested from the upper lip pedicled solely on the orbicularis oris muscle.

We transferred this flap to a nasal lining defect located in the ala in four patients, the nasal floor in two patients, and the columella in two patients. The flap donor site was closed primarily. All flaps took completely with satisfactory results. Minor complications included slight asymmetry of the vermilion height due to donor site contracture in one patient and flap drooping in two patients corrected by secondary debulking. Upper lip functional loss was not observed, although upper lip hypoaesthesia occurred in one patient, which disappeared within 6 months.

An OOMMIF can be easily elevated with minimal donor site morbidity. Thus, the OOMMIF is a good candidate for one-stage reconstruction of small nasal lining defects.

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The key to satisfactory reconstruction of full-thickness nasal defects depends on a stable nasal lining. We developed the orbicularis oris myomucosal island flap (OOMMIF) based solely on part of the orbicularis oris muscle as a new flap for nasal lining. The surgical procedure and clinical applications are reported herein.

Anatomy and operative technique

The superior labial artery runs along the vermilion border, dividing into a number of ascending branches which run superficial and deep to the orbicularis oris muscle and is anastomosed with the opposite superior labial artery. The superficial and deep ascending branches form vascular networks and are anastomosed with the subcutaneous and submucosal vascular plexus, respectively. These vascular networks communicate with the intramuscular vasculature network of the orbicularis oris muscle and the vascular plexus formed by small branches of lateral nasal or superior labial arteries around the alar base and the columella base.^{1,2} This vascular anatomy makes it possible for the OOMMIF to be elevated in one piece using only the muscle pedicle with its base adjacent to the alar or columella base (Figure 1A).

The flap is designed horizontally on the oral mucosa of the upper lip along the gingivolabial sulcus. The upper margin of the flap is designed just below the buccal sulcus. The lower margin of the flap should be harvested more than 0.5 to 1 cm above the free border of the upper lip to prevent postoperative deformities of the vermilion shape

when primary closure is performed. The pedicle location is selected based on the location of the nasal lining defects. The medial muscle pedicle is chosen when the defect is located behind the columella and soft triangle, the lateral muscle pedicle is chosen when the defect is located around the lateral two-thirds of the ala, and the bilateral or unilateral muscle pedicle is chosen when the defect is located around the nasal floor (Figure 1B).

The mucosa of the pedicle area is first incised and the orbicularis oris muscle is dissected about 1 to 2 cm or more to obtain sufficient pedicle length. The muscle pedicle is located on the superior half of the flap with a width of about 1 cm and the full thickness of the muscle is harvested. Then the residual flap margins are incised and the flap is totally elevated. Care must be taken to avoid damaging the branch of the infraorbital nerve which runs in an inferomedial direction from the alar base just superficial to the muscle. The donor site is then closed by bilateral or unilateral advancement of the mucosal flap extending the buccal sulcus incision. Tight closure of the donor site is not always preferable when a large flap is harvested, to prevent upper lip deformities.

Patients and results

Eight patients with nasal lining defects after tumour resection or trauma were treated using an OOMMIF. The defect sites included the alar lining in four patients, the nasal floor in two patients and the columella lining in two patients. The age of the patients ranged from 46 to 77 years

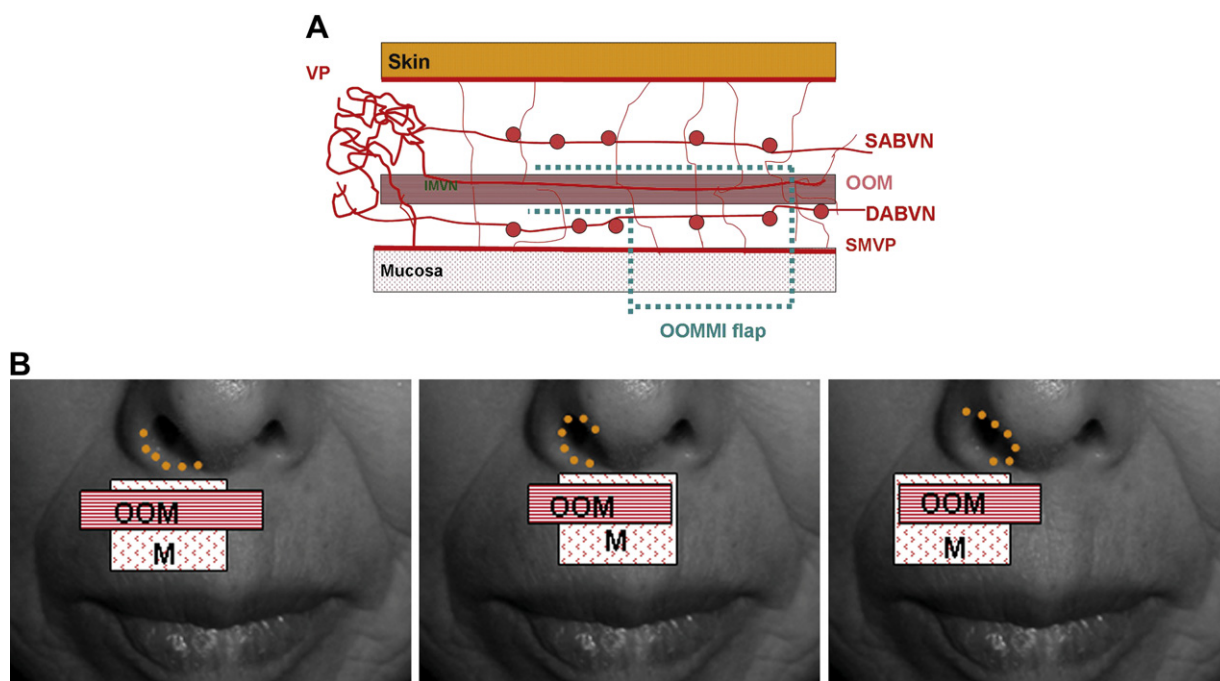


Figure 1 (A) Schema of vascular anatomy. The dotted line indicates the OOMMIF. (OOM, orbicularis oris muscle; SABVN, vascular network of superficial ascending branches; DABVN, vascular network of deep ascending branches; SMVP, submucosal vascular plexus; IMVN, venous network in orbicularis oris muscle; VP, vascular plexus in columella base or alar base.) (B) Design of the OOMMIF. A bipediced flap (left), laterally-pediced flap (centre) or medially-pediced flap (right) can be transferred. The dotted line indicates the location of the defects. (OOM, orbicularis oris muscle; M, mucosal flap.)

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