Journal Reading

Presenter : Clerk 蔡翔愷、Clerk 莊至桓

Supervisor : VS 鄭評嘉醫師

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Modified nasolabial flap- the nasomentolabial flap: A new arrow in surgeon's quiver

Introduction

Challenge

- Large cancer lesions result in complex two- or three-dimensional defects that impair Quality of Life
- Reconstruction is challenging, especially in elderly patients or those with comorbidities

Limitations of Current Options

- Pectoralis Major Myocutaneous Flap (PMMC): Often too bulky
- Free Flaps (e.g., radial forearm): Require microvascular expertise/facilities, has a high donor site morbidities, such as delayed wound healing, tendon exposure
- Nasolabial flap: reliable, but insufficient coverage

A reliable, cost-effective alternative for patients unfit for prolonged microvascular surgery

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Nasomentolabial Flap

- A modification based on nasolabial flap (NLF)

- Innovation: An inferior extension of the flap is added, reaching down to the chin (mentum)

- To increase the flap dimension significantly

- To allow reconstruction of full-thickness defects (mucosa and skin) around the oral commissure

- Potential complication: partial flap necrosis, microstomia, drooling

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Case presentation 1

Demographics: 67-year-old male

Chief Complaint: Ulcer in the right buccal mucosa involving the cheek skin

Physical Examination

-Lesion: 5 × 4 cm ulcero-proliferative growth

-Anterior Extension: Involved the oral commissure

-Posterior Extension: Abutted the retromolar trigone

-Superior/inferior gingivo-buccal sulci and alveolus remained free

-Nodal Status: 2 × 2 cm palpable node in right Level 1B.

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Case presentation 1

CECT: multiple bilateral lymph nodes, cT3N2b (Stage IVa)

Surgical Management

-Wide Local Excision of the primary tumor

-Modified Radical Neck Dissection 3

-Surgical Defect: 7 × 7 cm, from oral commissure to the retromolar trigone

-Reconstruction: Cutaneous and mucosal defects were closed using a nasolabial flap with inferior extension

Pathology: Well-differentiated Squamous Cell Carcinoma, with negative nodes, pT3N0

Discharged on post-op day 5 in satisfactory condition

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Case presentation 2

Demographics: 72-year-old female

Chief complaint: Ulcer in the left buccal mucosa with cutaneous involvement

Physical Examination:

-Lesion: 6 × 7 cm ulcero-proliferative growth

-Anterior: Extended to the oral commissure

-Posterior: Abutted the retromolar trigone

-Gingivo-buccal sulcus and alveolus were not involved.

-Nodal Status: no palpable nodes

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Case presentation 2

CECT: multiple bilateral lymph nodes (radiologically suspicious but clinically N0), cT3N0

Surgical Management:

-Wide Local Excision of the tumor mass

-Modified Radical Neck Dissection 3

-Resulting Defect: 7.5 × 8 cm involving the oral commissure, adjacent lip, and buccal region

-Reconstruction: Dual-surface reconstruction (cutaneous and mucosal) using a nasolabial flap with a submental extension

Pathology: Well-differentiated Squamous Cell Carcinoma, pT3N0

Discharged on post-op day 5 in satisfactory condition

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Surgical Technique- Flap design and Raising

Part I: Inferiorly Based Nasolabial Flap (NLF)

-Base: Positioned just above the surgical defect (ipsilateral cheek)

-Apex: Extended superiorly toward the inner canthus

-Plane of Dissection: just above the facial muscles to preserve the subcutaneous and dermal vascular plexuses.

Part II: Inferior Extension

-Continuous with the base of the NLF

-Apex: Extended inferiorly reaching the chin

-Congruous in width and length with the superior NLF component

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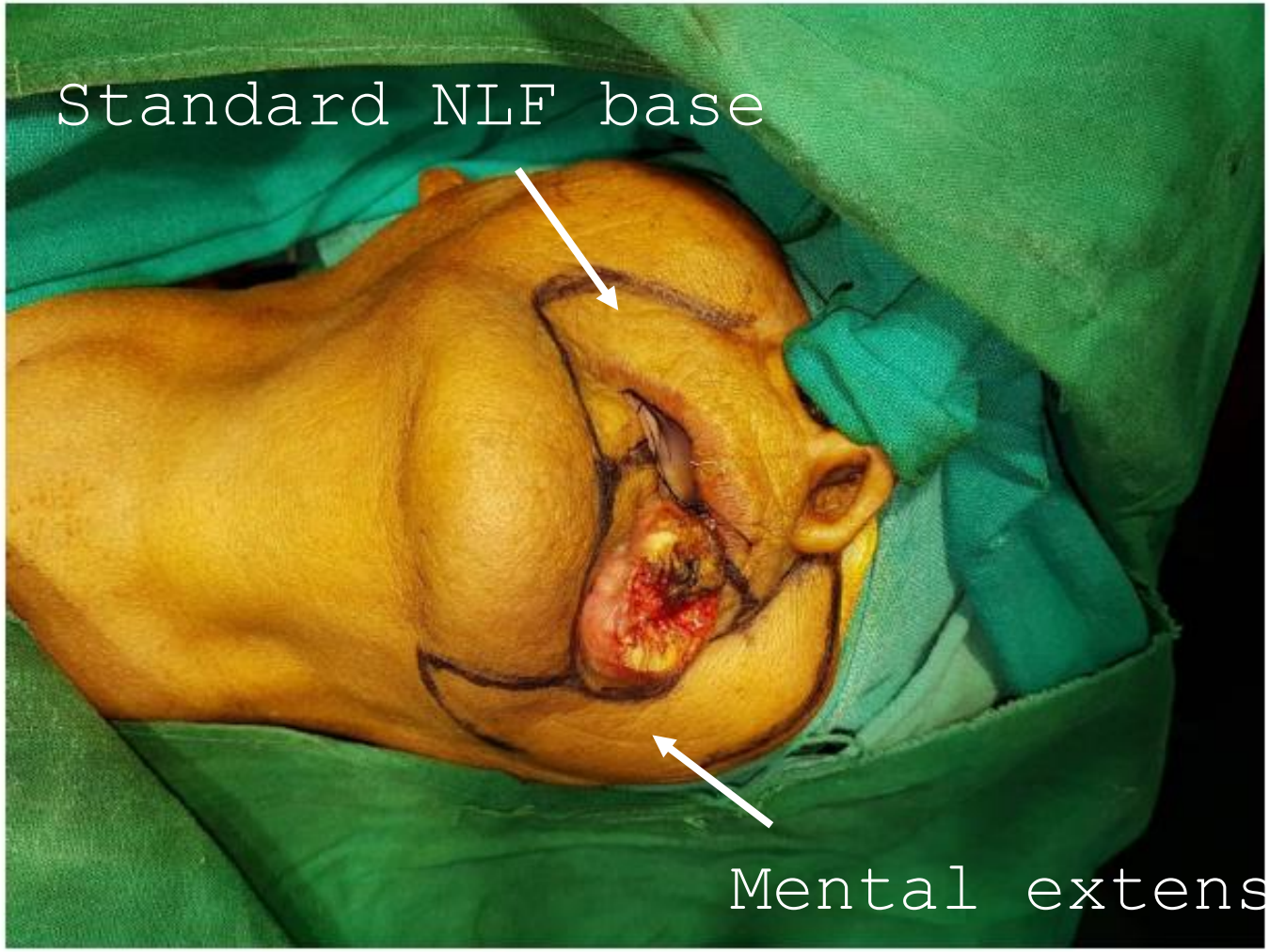

Fig. 1. Markings for the flap.

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Surgery

Flap Insetting

-The lower border of the NLF was sutured to the upper border of the mentolabial extension to create a single, combined unit

-The combined flap was folded medially on itself to provide both internal mucosal lining and external skin coverage.

-Anchoring: The apex was sutured to the retromolar trigone (RMT).

-The superior and inferior edges were secured to the margins of the 7–8 cm defect

Donor Site

-Primary Closure: Both the nasolabial and the extended mentolabial donor sites were closed primarily without the need for additional skin grafts.

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Fig. 3. Sutured flap.

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Clinical outcomes

Patients were discharged on Post-operative Day 5 in satisfactory condition

Complications: None

1-Month Follow-up

-Excellent functional recovery (speech/swallowing)

-Acceptable aesthetic outcomes at the donor and recipient sites.

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Figs. 4–6. Post op asthetics and mouth opening of patients.

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Discussion

Oral cancer is a leading cause of cancer-related mortality (7% of male/4% of female deaths in India)

Strongly associated with tobacco chewing and placement in the gingivobuccal sulcus.

Surgical Challenge: Most patients present at an advanced stage, often coupled with: Low economic/nutritional status, multiple pre-existing comorbidities

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Discussion

The Goal-> Restoration and preservation of function (speech, swallowing) rather than simple wound closure.

Influencing Factors

-Defect Type: Mucosa, bone, or full-thickness composite

-Patient Factors: Age, comorbidities, and surgical stress tolerance

-Resources: Surgeon experience and availability of microvascular facilities

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Discussion

Limitations of Free Flaps

-Specialized expertise is not available in all centers, especially in developing countries.

-Comorbidities increase the risk of postoperative medical complications

-Prolonged operative time may be deferred in morbid patients.

Advantage of NLF

-A reliable alternative to complex pedicled or free flaps

-Axial pattern NLF provides thick, dependable tissue with a longer pedicle

-Inferiorly based flaps are ideal for the oral commissure, buccal mucosa, and floor of the mouth

-Minimal Stress: Faster procedure with high patient tolerance

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Discussion

The Innovation: Nasomentolabial Flap

-NLF is typically restricted to small/moderate defects

-The Inferior Extension: By adding the mentolabial component, surgeons can cover larger defects involving both mucosa and skin (full-thickness)

-Good aesthetics

-Preserved oral function

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Conclusion

The Nasomentolabial flap should be considered a strong option in the surgical decision-making process

Ideal Candidates

-Patients with small to medium-sized composite defects

-High-risk/Morbid patients where the stress of free-flap or large pedicled flap surgery (e.g., PMMC) is contraindicated

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