

A close-up photograph of a young child with light brown hair and blue eyes. A doctor, wearing glasses and a white lab coat, is using an otoscope to examine the child's ear. The child is looking directly at the camera with a neutral expression. The background is slightly blurred.

Head & Neck Seminar

Reconstructive surgery following
resection of lip cancer

Presenter R2 吳仲升
Supervisor VS 洪偉誠

Patient's profile

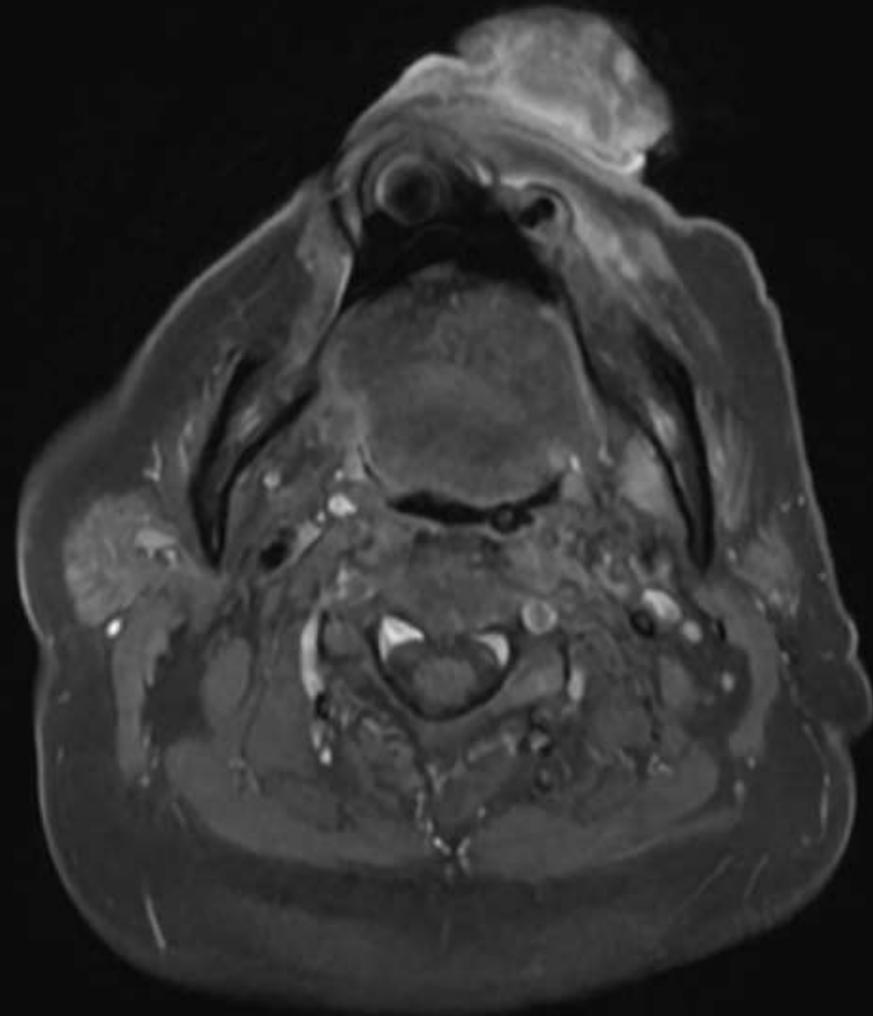
- Name: 謝o世
- Chart num:
- Age: 74y/o
- Gender: male
- BH:155cm BW:53kg
- Social status: married
- A(quit)B(quit)C(quit)

Present Illness

- Past history:
HTN(+), DM(+), CAD(-), asthma(-), HBV(-), HCV(-), other: old CVA with Lt hemiplegia
- 2024.07.18-31 admission to nephro due to AKI
 - **left lower lip tumor** noticed
 - biopsy: **squamous cell carcinoma**
- 2024.08.18 - 09.08
 - admitted for staging and surgery

Present Illness

- MRI **cT4aN0M0, stage IVA**
- Abdominal echo: s/p post-cholecystectomy
- PES: reflux esophagitis+ hiatal hernia
- Bone scan: **no significant distant metastasis**
- Neck echo: **no obvious metastasis**



Present Illness

- Diagnosis:
Left lower lip squamous cell carcinoma, **cT4aN0M0, stage IVA**
- Wide excision of lower lip cancer + **bernard burrow webster flap/tongue flap reconstruction** of lower lip + bilateral neck SOHND + teeth extraction #13 #21 #33 #37 on 2024-08-26

* Histologic type of the tumor: Squamous cell carcinoma

* Histologic grade: **Moderately differentiation**

* Tumor size (invasive): 2.5 x 2.4 cm

Depth of invasion (DOI): 22mm

* Lymphovascular invasion: Not identified

* **Perineural invasion: Present**

* Worst pattern of invasion (WPOI): 3

* Other tissue(s)/organ(s):

Mandible: No invasion by tumor

Submandibular gland: Free of cancer

* Margins:

Superior: Free (>5 mm in distance) Inferior: Free (>5 mm in distance)

Anterior: Free (>5 mm in distance) Posterior: Free (>5 mm in distance)

Medial: Free (>3 mm in distance) Lateral: Free (>5 mm in distance)

Deep (soft tissue): >5 mm in distance

Deep (mandible): Free (>3 mm in distance)

* Lymph nodes (positive/total):

Left level Ib,III: 0/2

Left level IIa: 0/3

Left level II,III: 0/9

Level Ia: 0/4

Right level Ib: 0/1

Right level II: 0/2

Right level III: 0/7

Extranodal Extension (ENE): Not applicable

* Pathologic stage classification

(pTNM, AJCC 8th edition): **pT4aN0**





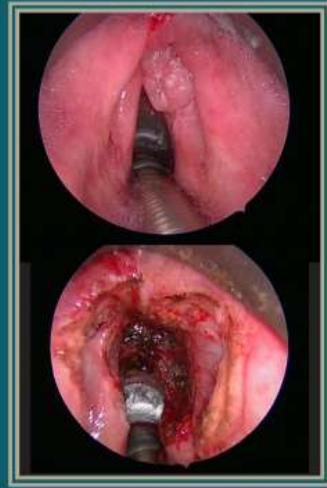




Discussion - Reconstructive surgery following resection of lip cancer

EIGHTH EDITION

Scott-Brown's Otorhinolaryngology
Head & Neck Surgery



VOLUME 3

Head & Neck Surgery
Plastic Surgery

LIP RECONSTRUCTION

Omar A. Ahmed

Lips - Functions and Anatomy

- Mastication
swallowing
phonation
blowing (sphincter action)
component for facial esthetics
- Externally: skin
internally: mucous membrane
superiorly: nose
inferiorly chin
lateral:nasolabial folds

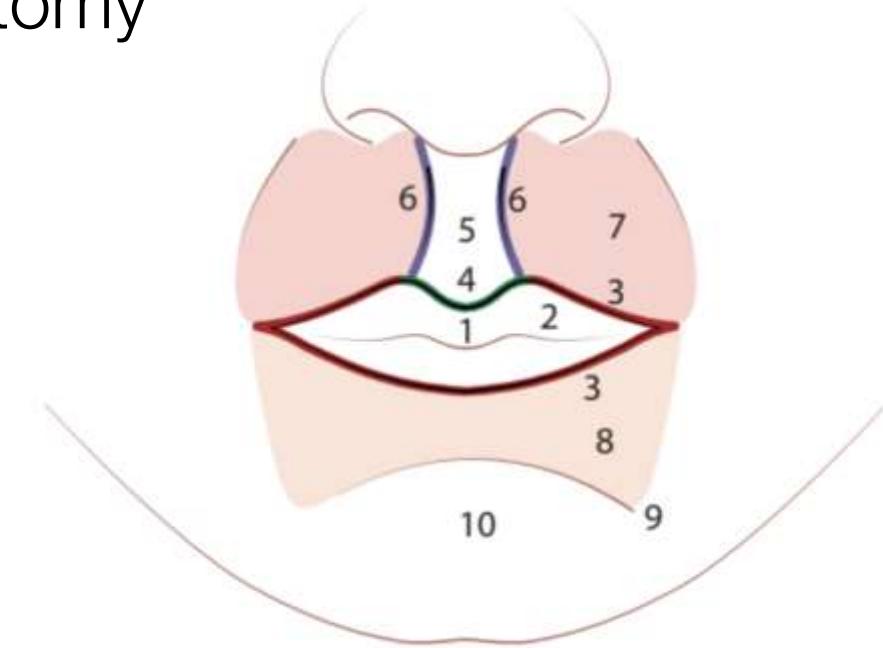
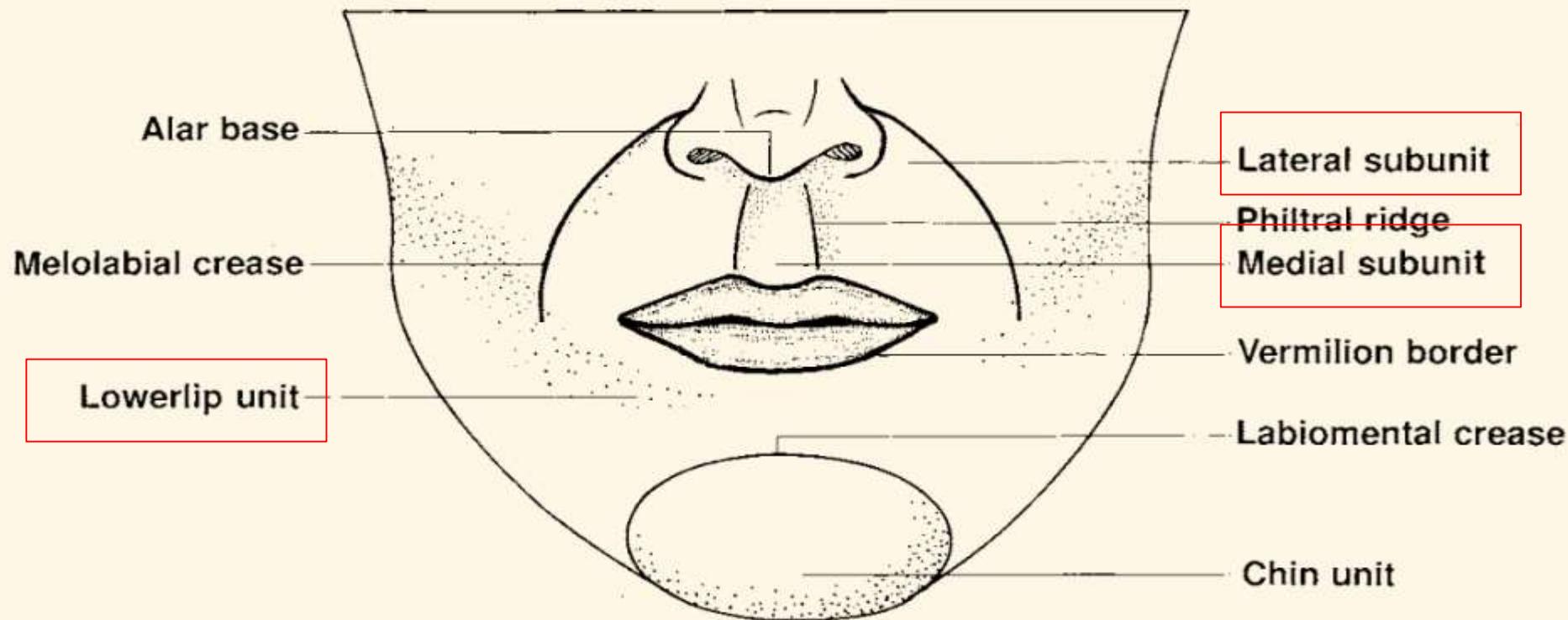


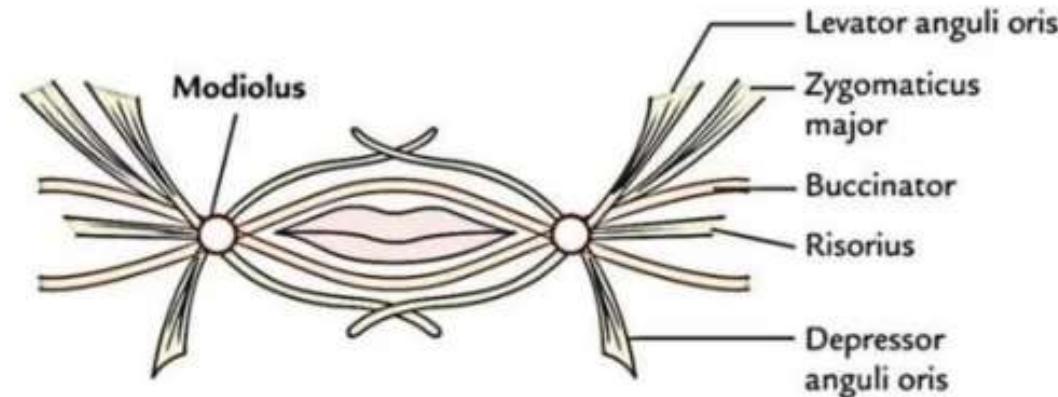
Figure 12.5 Subunits of the lip. 1. Tuberclae. 2. Vermilion. 3. Vermilion border. 4. Cupid's bow. 5. Philtrum. 6. Philtral columns. 7. Cutaneous upper lip. 8. Cutaneous lower lip. 9. Labiomental sulcus. 10. Chin.

Anatomy



Importance of the **Modiolus**

- Lateral corners of lips
- Muscle fibers from superior, inferior fascicles of **orbicularis oris muscle** interweave with **extrinsic muscles**
(levator anguli oris, zygomaticus major, buccinator, risorius, depressor anguli oris)



Nerve supply

- Motor:
Elevators+ orbicularis oris:
buccal branch (facial nerve)
Depressors: **Marginal mandibular n.**
- Sensory:
Infraorbital nerve for upper lip
Mental nerve for lower lip

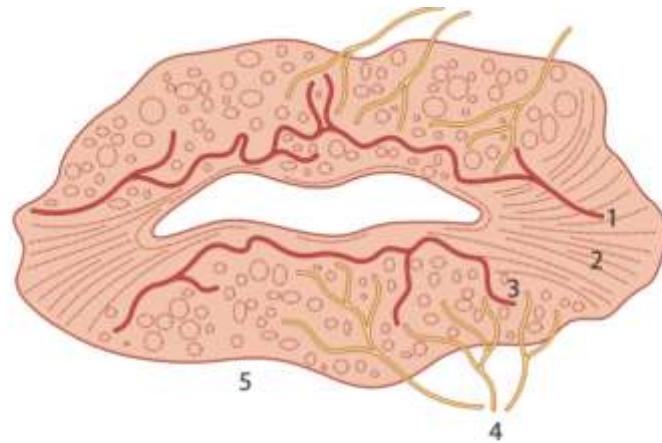
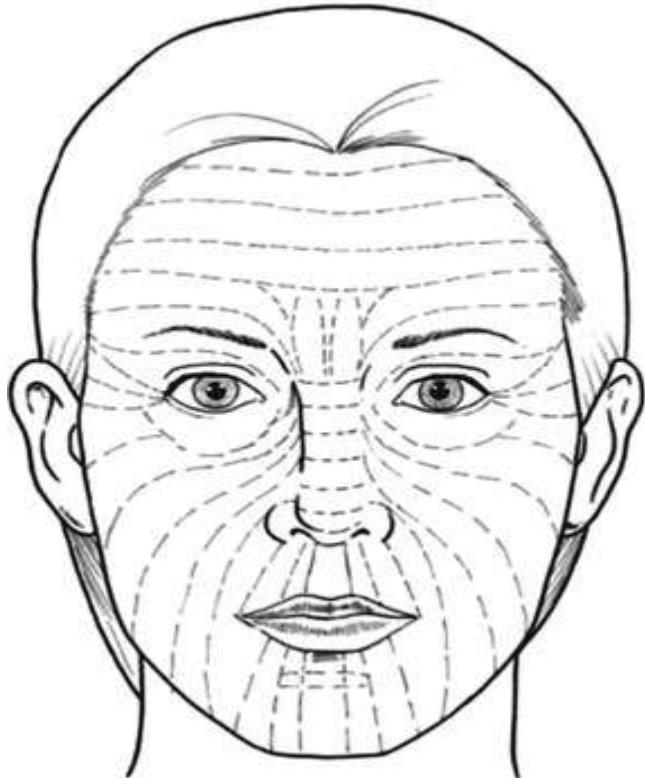


Figure 12.6 Coronal cross-section through lips. 1. Superior labial artery. 2. Muscle fibres. 3. Inferior labial artery. 4. Sensory nerve supply from the infraorbital nerve and motor supply from the lower buccal and mandibular branches of the facial nerve. 5. Fat and subcutaneous tissue.

Goals of reconstruction

- Restore
 1. Function: competence, articulation
 2. Esthetics: symmetry, adequate **stomal diameter**
 3. Avoidance of scar

Relaxed skin tension line (RSTL)



Defect classification

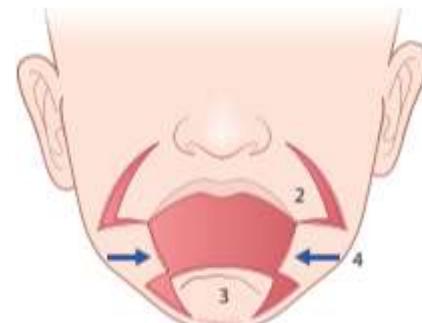
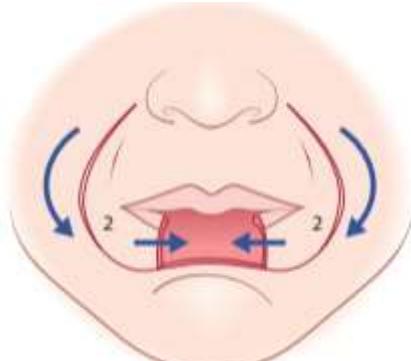
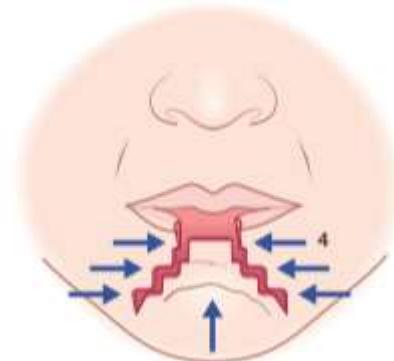
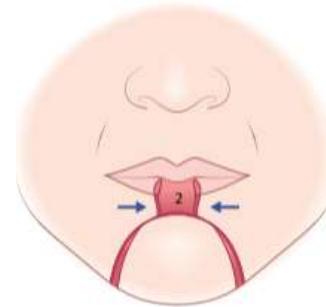
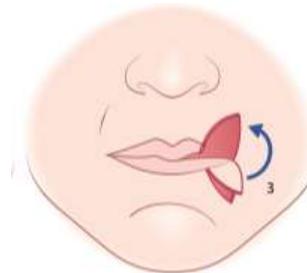
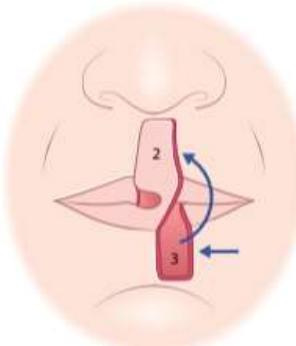
- Anatomic location: skin, vermillion or skin + vermillion
- Thickness: partial or full
- Size: **<1/3, 1/3-2/3, >2/3** of width

Principles of reconstruction of lip

- Use **remaining lip** tissue, not create **microstomia**
 - **Local tissue** better choice (match in color, thickness and composition)
 - Use adjacent cheek, nasolabial region if not enough lip tissue
- Direct **closure** or **advancement** for defect **<1/3** width
 - Use **opposite lip** if insufficient lip to close
- Replace entire **subunit** if defect takes up most portion of a subunit

Techniques of Name

- Abbe flap (阿比)
- Estlander flap
- Schuchardt flap (咻kurt)
- Johanson step
- Karapandzic flap
- Bernard-Von Burow flap



Outline

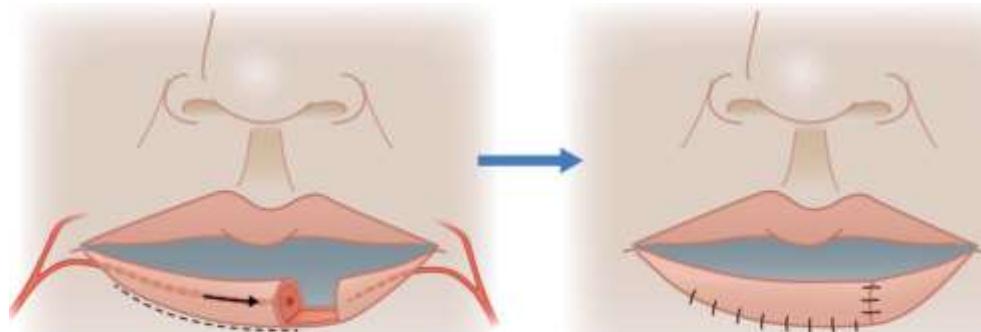
- Vermilion
- Upper lip & Lower lip

Vermilion

- **Primary closure**
 - Small vermillion defect, or small crosses vermillion border defect, or small cutaneous defect
- **Secondary intention** healing
 - For **lateral superficial**, small partial-thickness vermillion defect **away from white roll**
 - Drawback: wound retraction and distortion

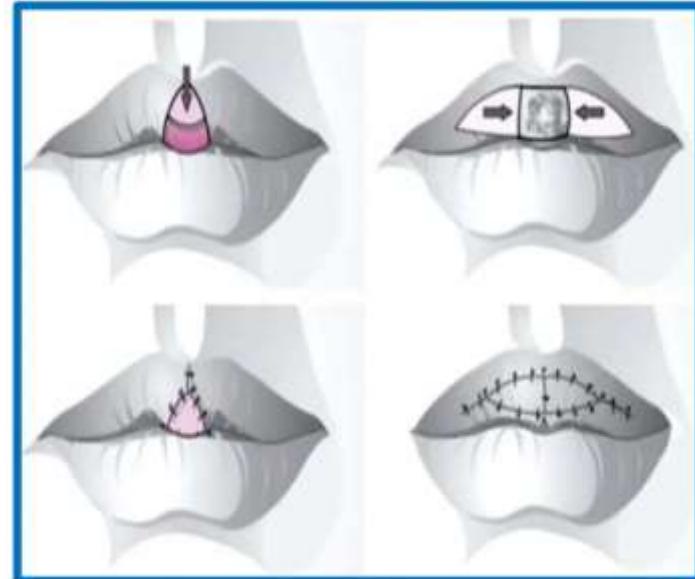
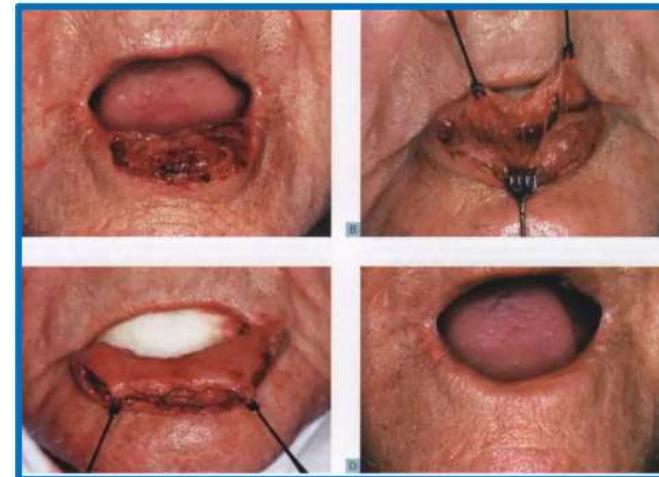
Vermilion advancement flap

- **External incision** on the vermillion border, **mucosal incision** is made at the corresponding level inside the lip.
- Reliable flaps based on the **labial vessel**.



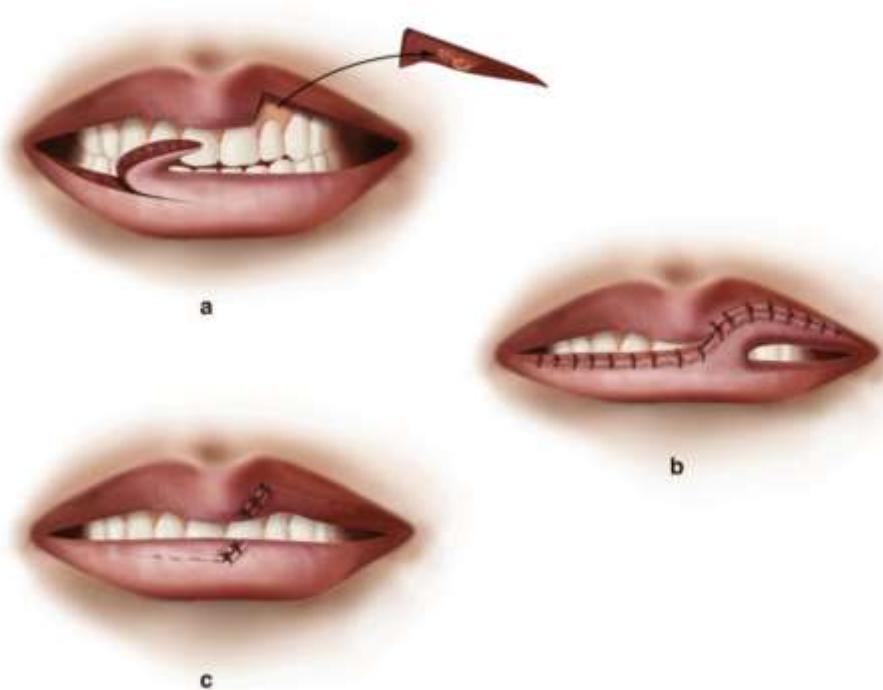
Mucosal advancement

- Larger vermillion defect
- **No microstomia**
- Drawback: vermillion **border distortion**, lip **thinning**



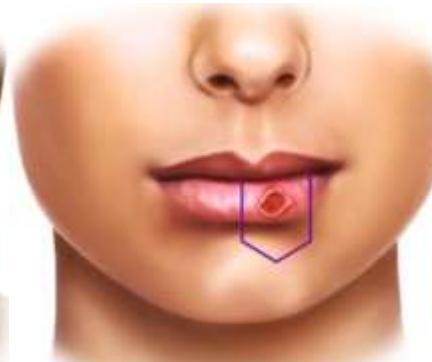
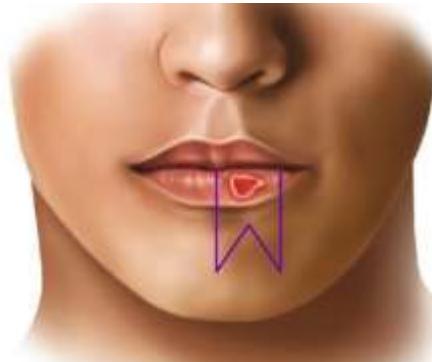
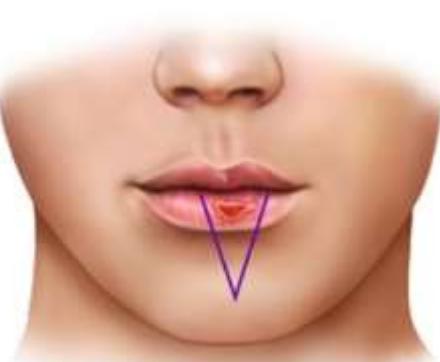
Vermilion switch flap

- Vermilion is cut similar to a vermillion advancement, but flap inset to the **opposite lip**.
- Secondary defect is **closed directly** or by vermillion advancement flap.



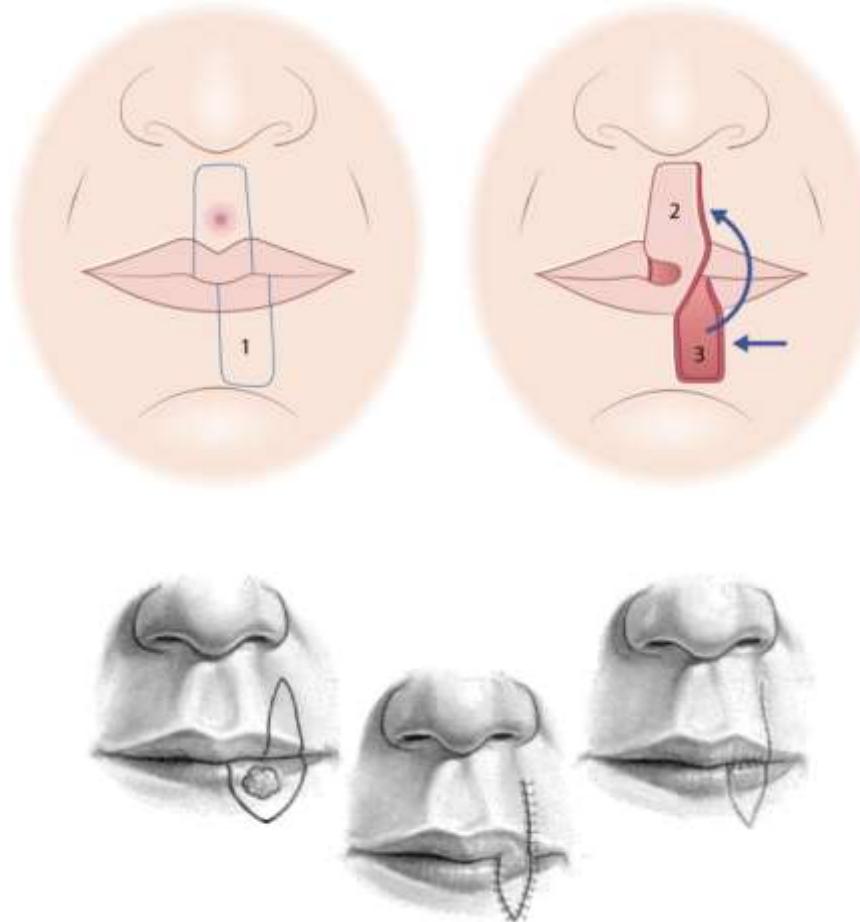
Upper, lower lips

- V-shaped excision: smaller lesion (maximum of 1.5 cm)
- W or pentagonal excision: larger defect
- Rectangular excision: one half of lip (3.0 cm)



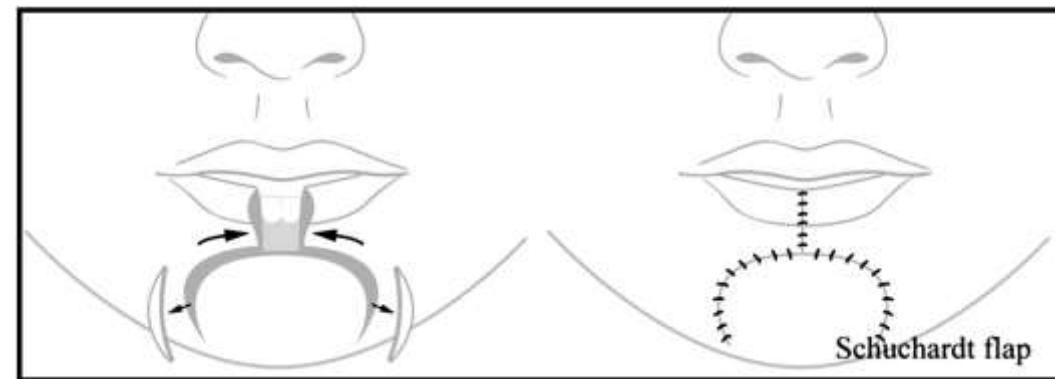
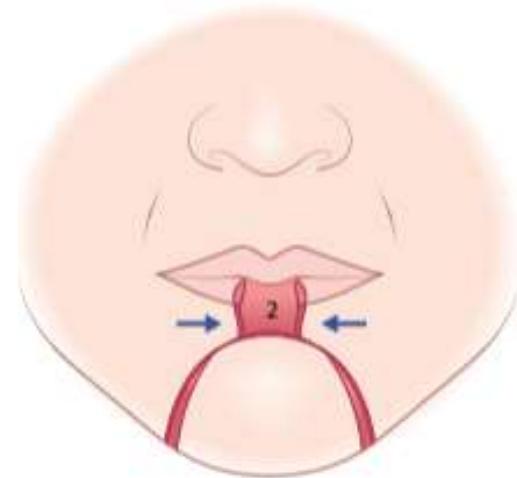
Abbe flap

- For 1/3-2/3 of lip defect
- "V" shaped incision, flap of equal height but **50% of** width
- Shortening of upper and lower lips by equal amounts
- Drawbacks: blunting of commissure, **microstomia**



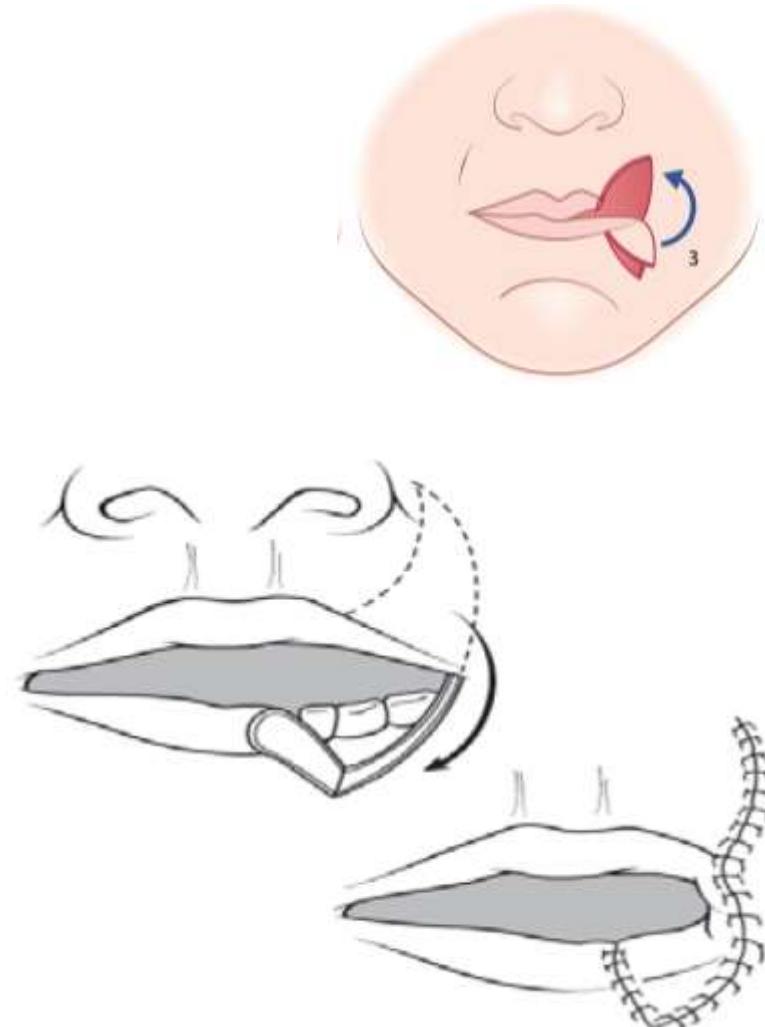
Schuchardt flap

- For central subtotal defects of lower lip
- **Removal of bilateral crescents** along labiomental crease, with bilateral advancement
- Drawbacks: microstomia



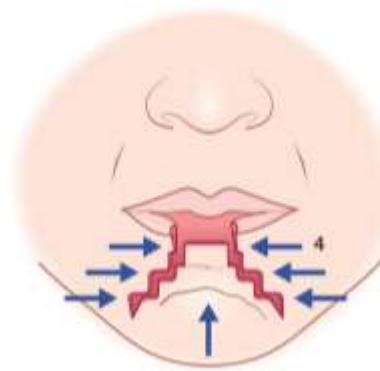
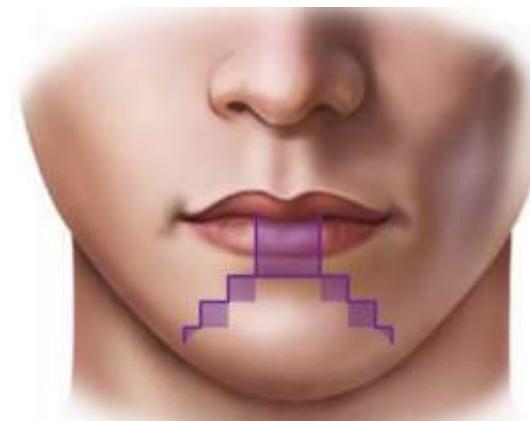
Estlander flap

- For 1/3-2/3 of lip defect
- **"V" shaped** incision, flap in upper lip with **height 1-2 mm > defect**, rotated into defect
- May need commissuroplasty
- Drawback: **blunting of commissure, microstomia**



Staircase flap (Johanson step technique)

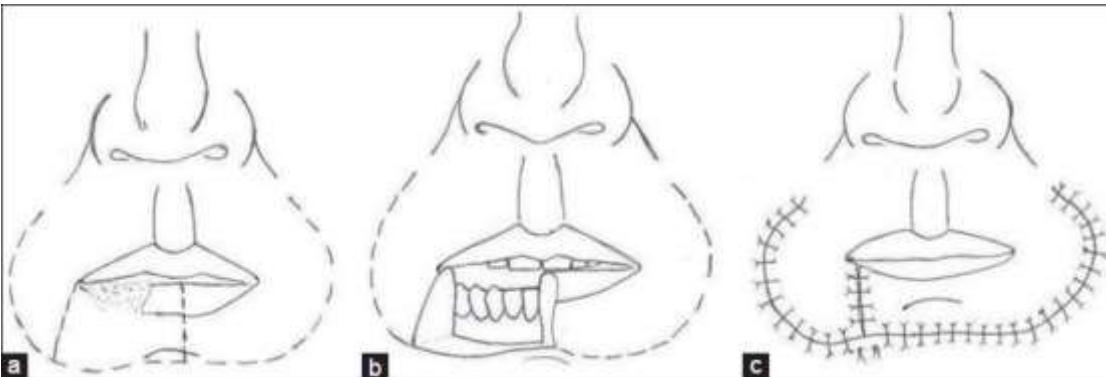
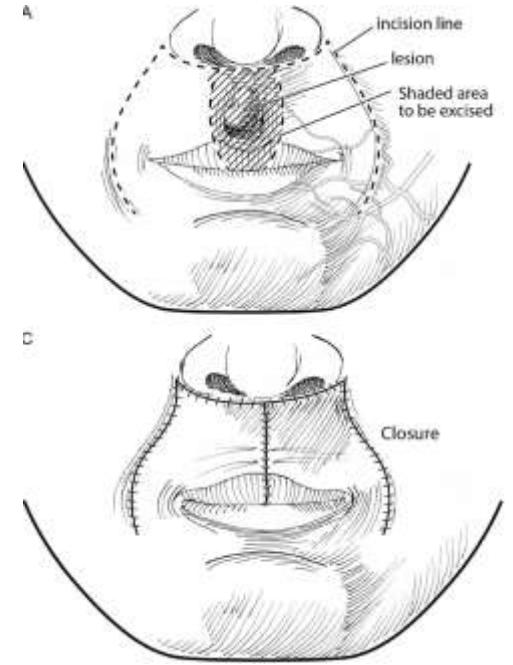
- For central defects of lower lip, 1/3-2/3 width
- **Direction of muscle fiber** not altered
- Drawback: **unnatural incision** not follow labiomental crease



Johanson B, Aspelund E, Breine U, Holström H. Surgical treatment of non-traumatic lower lip lesions with special reference to the step technique. Scan J Plast Reconstr Surg 1974;8:232-240.

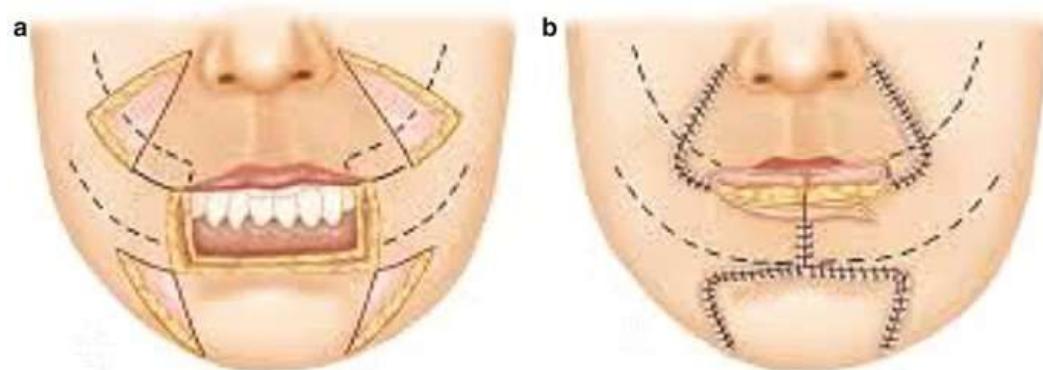
Karapandzic flap

- For 1/3-2/3 upper lip, 3/4 lower lip
- Unilateral or bilateral circumoral advancement-rotation
- **Mask scar** within labiomental or melolabial creases
- Drawback: **blunting** of commissure, microstomia



Bernard-Von Burow flap

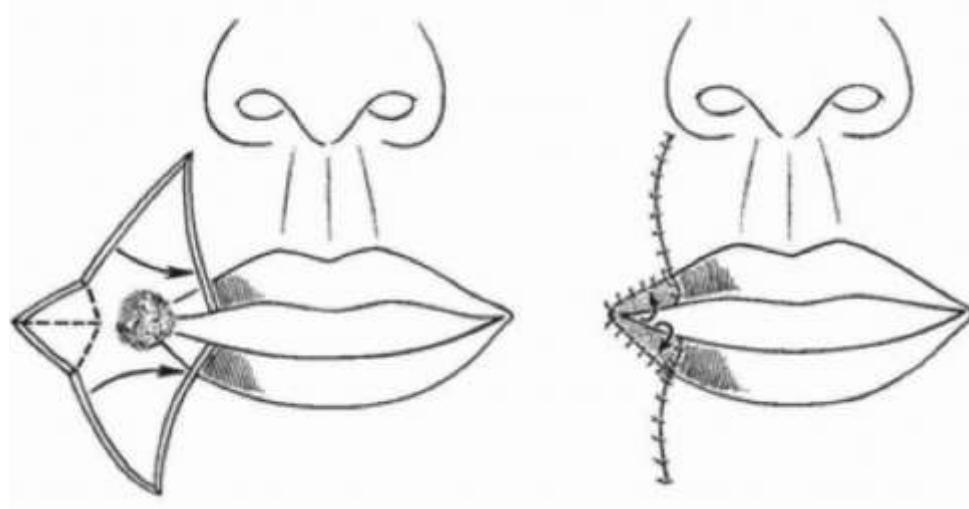
- Bilateral cheek advancement flap, for **> 2/3 width**
- Horizontal incision laterally, excision of von Burow triangles
- Need other techniques such as buccal flap or tongue flap to restore vermillion



Von Burow CA. Beschreibung einer Neuen trasplantations - Methode (method der Seitlichen Dreiecke) zum Wiederersatz Verlorengegangener Teile des Gesichts, Berlin, Nausk (1855).
Bernard C. Cancer de la levre infericure, restauration a l'aide de lambeaux quadrilataires lateraux. Scalpel. 1852;3:357–360

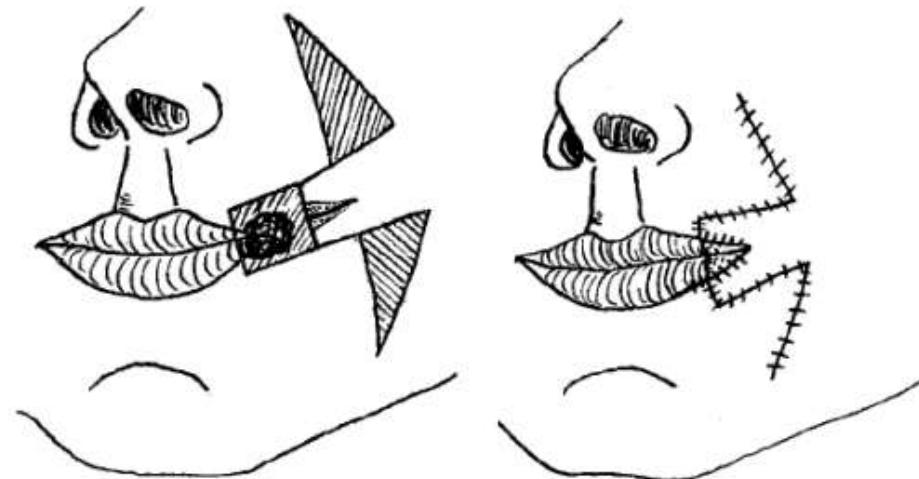
Advancement flap

- **Crescent** excision of tumor, horizontal incision in cheek and **de-epithelization of two triangular** areas
- Drawbacks: gaping of commissure, requiring commissuroplasty



Sliding U-shaped cheek flap

- More invasive, **rectangular** or square incision around lesion, **triangular flaps** above and below defect, advanced to cover defect
- Drawbacks: gaping of commissure, requiring commissuroplasty



Transposition flap

- From submental skin or melolabial flap
- Enabled to hide scar in labiomental fold or melolabial fold
- Drawbacks: obliteration of fold, may recreate a fold



Otero-Rivas, M. M., Alonso-Alonso, T., Pérez-Bustillo, A., & Rodríguez-Prieto, M. A. Reconstruction of surgical defects of the labial commissure. *Actas Dermo-Sifiliográficas* (English Edition), 2015;106(9), e49-e54.

Rhomboidal flap

- Repair large defects, provide **ample tissue, reduce tension** in scar
- Not ensure sphincteric **competence**



Distant or microvascular free flap

- Scalp and forehead, submandibular, deltopectoral, pectoralis major, radial forearm
- Provide tissue for wound closure and replacement of lip, **not able to restore adequate function**

Back to our patient



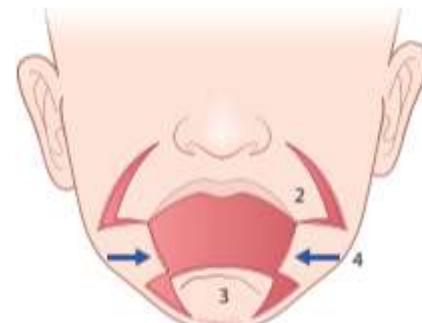
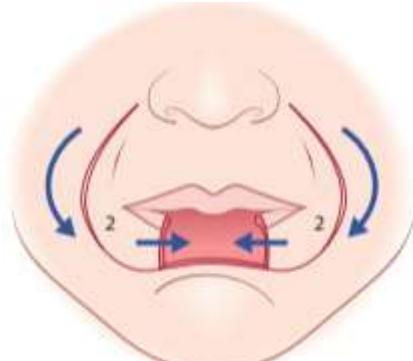
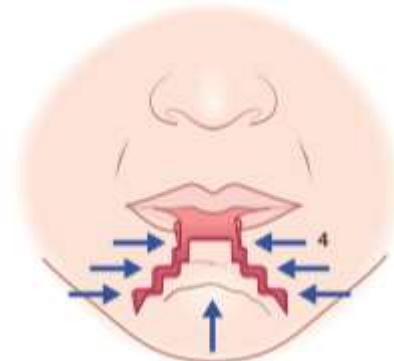
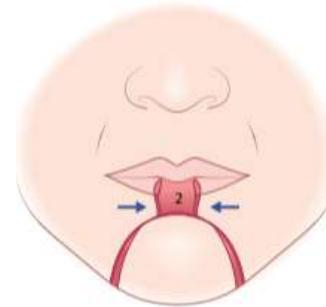
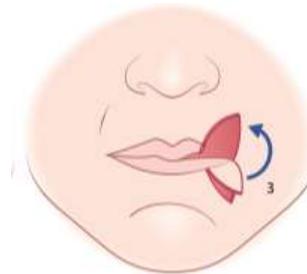
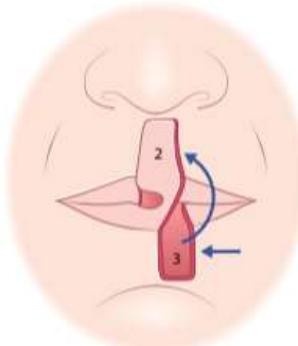


Take home message

- Vermilion
 - Primary closure, Secondary intention , advancement , switch flap
- Upper, lower lips
 - V-shaped(1.5 cm) > W or pentagonal > Rectangular(1/2)
 - 1/3-2/3:
 - Abbe flap, Schuchardt flap, Estlander flap, Johanson step, Karapandzic flap
 - 2/3:
 - Bernard-Von Burow flap, Transposition flap, Rhomboidal flap

Techniques of Name

- Abbe flap (阿比)
- Estlander flap
- Schuchardt flap (咻kurt)
- Johanson step
- Karapandzic flap
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A close-up photograph of a medical examination. A doctor with glasses and a white coat is using an otoscope to look into the ear of a young child. The child has light-colored hair and is looking directly at the camera with a neutral expression. The background is slightly blurred.

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