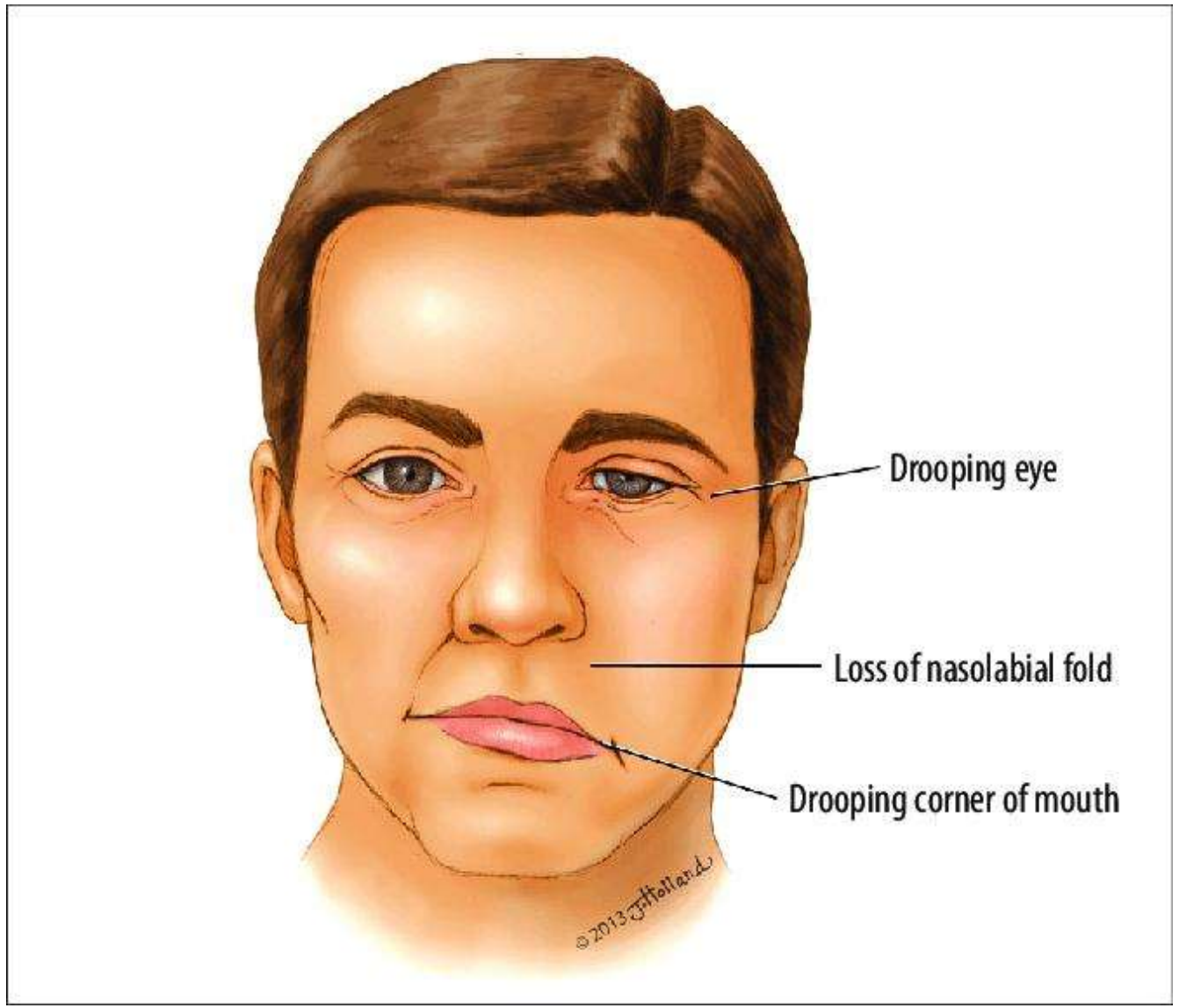
Facial Paralysis



Content:-

- Introduction
- Nerve anatomy
- Nerve injury and etiology
- Bell’s palsy
- D.D
- Treatment

Introduction:-

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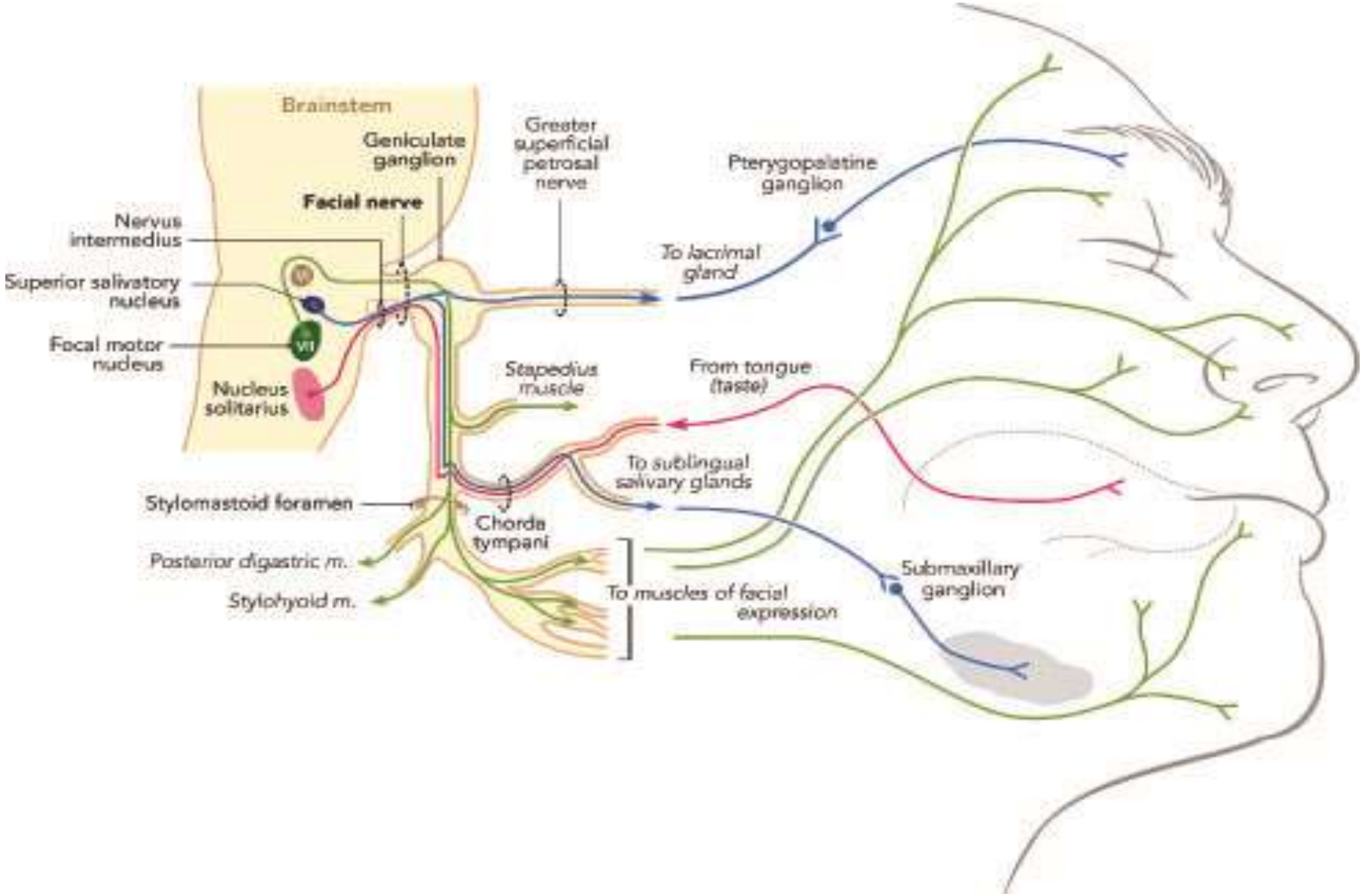
- Facial Paralysis is complete or partial loss of functions of nerve

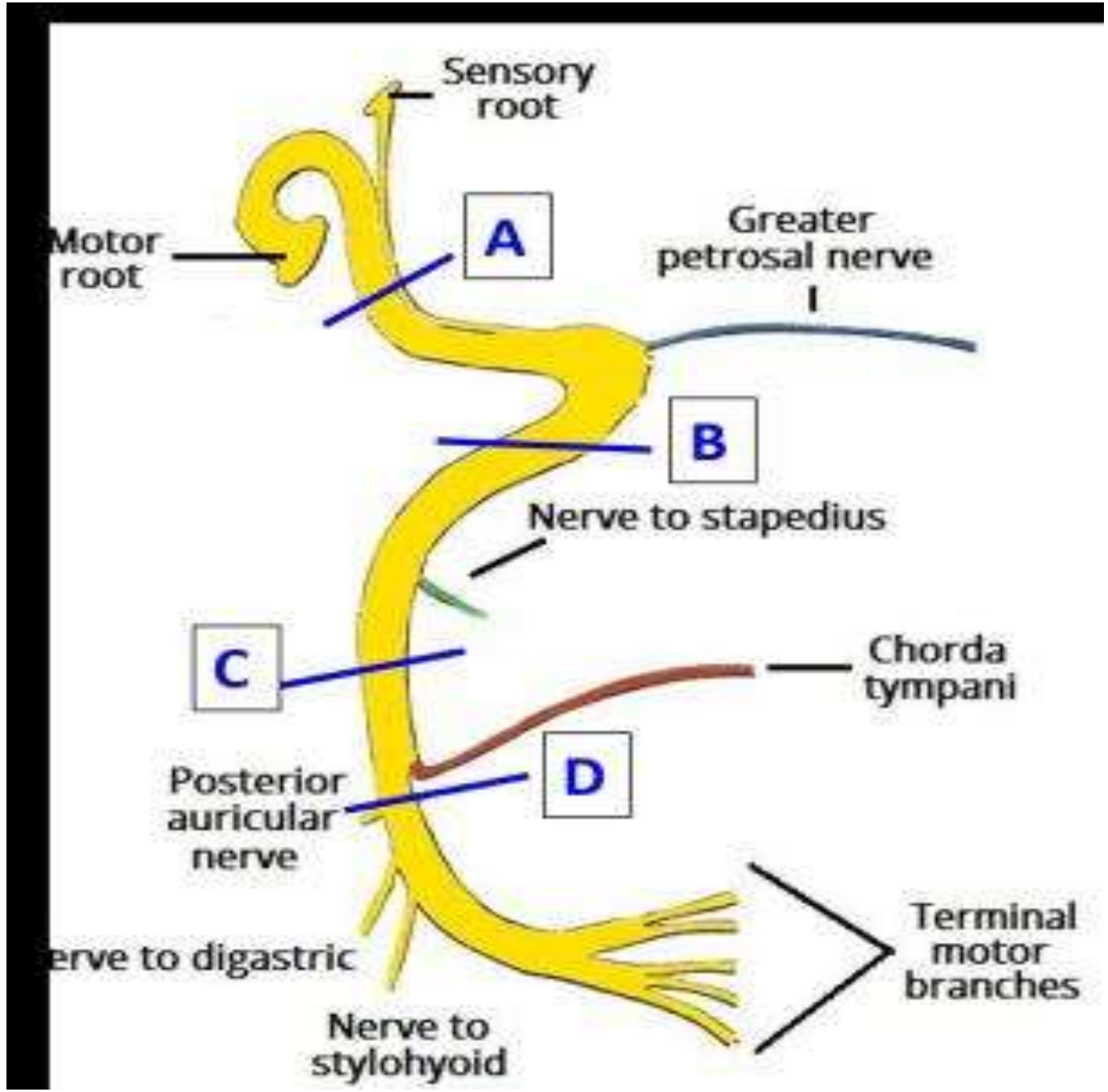
•Facial nerve

- 7th Cranial nerve
- Nerve of the 2nd branchial arch
- Has two roots.
- A large motor and a smaller mixed sensory and parasympathetic (nervus intermedius)

- Nerve course and intervention


Brainstem
Geniculate ganglion
Facial nerve
Greater superficial petrosal nerve
Pterygopalatine ganglion
Nervus intermedius
Superior salivatory nucleus
Focal motor nucleus
VII
Nucleus solitarius
To lacrimal gland
Stapedius muscle
From tongue (taste)
To sublingual salivary glands
Stylomastoid foramen
Chorda tympani
Posterior digastric m.
Stylohyoid m.
To muscles of facial expression
Submaxillary ganglion

- Levels of nerve injury and symptoms


Sensory root
Motor root
A
Greater petrosal nerve
B
Nerve to stapedius
C
Chorda tympani
D
Posterior auricular nerve
erve to digastric
Nerve to stylohyoid
Terminal motor branches

•Sign and symptoms

- • The symptoms according to the level of injury of facial nerve.

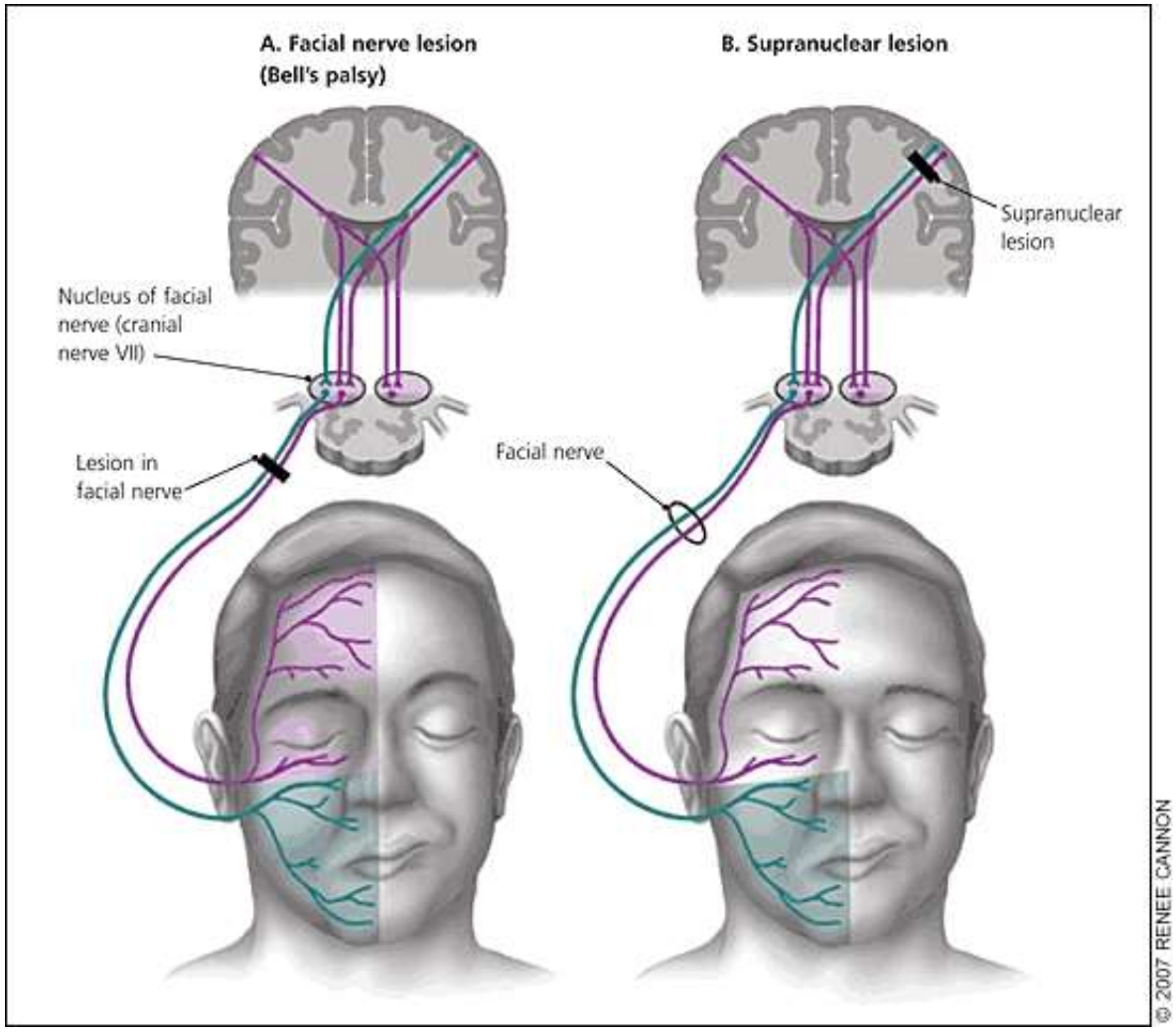
- At internal auditory meatus;

- loss of lacrimation, stapedial reflex, taste from most of anterior two-third of tongue, lack of salivation and paralysis of muscles of facial expression

- Below geniculate ganglion
- loss of stapedial reflex, taste from anterior two third of tongue, lack of salivation and paralayis of facial expression muscles.
- → Region below stylomastoid foramen paralysis of facial expression muscles.

Nuclear lesions

- -Supranuclear lesions-
- usually a part of hemiplegia, only the lower part of the face is paralysed.
- The upper part (frontalis and part of orbicularis oculi)escapes due to bilateral representation in the cerebral cortex.
- -Infranuclear lesions- entire face is paralysed, as seen in bell's palsy



Facial Paralysis

- Commonly Unilateral
- Nuclear- from destruction of the nucleus
- Central or cerebral or Supranuclear
- Peripheral- from a lesion of the nerve

Etiology

Physical factors

1)cold air for long time

INTRACRANIAL (CENTRAL) CAUSES

- Vascular abnormalities
- OCNS degenerative diseases
- Tumours of the intracranial cavity
- Trauma to the brain
- Congenital abnormalities and agenesis

•INTRATEMPORAL CAUSES

- Bacterial and Viral infection
- Cholesteatoma
- Trauma- blunt temporal bone trauma, longitudinal and horizontal fractures of the temporal bone and gunshot wounds.
- Tumours invading the middle ear, mastoid and facial nerve
- Iatrogenic causes

- EXTRACRANIAL CAUSES
  - Malignant tumours of the parotid gland
  - Trauma
  - Iatrogenic causes
  - Primary tumours of the facial nerve
  - Malignant tumours of the ascending ramus of the mandible, pterygoid region and skin

Bell's palsy

- It is defined as an idiopathic paresis or paralysis of the facial nerve of sudden onset
- INCIDENCE-15-40 cases per 1 lakh case
- SEX PREDILECTION- women more affected than men.3.3 more times common in pregnancy and in the third trimester.
- AGE- can occur at any age, common in middle aged people.

Clinical features

- There is sudden onset, usually pt gives ho occurrence after awakening early morning.
- Unilateral involvement of entire side of the face
- Abrupt loss of muscular on one side of face.
- Inability to smile, close the eye or raise the eyebrow on affected side.

- Whistling is not possible.
- In an attempt to close eyelid, the eyeball rolls upward.
- Inability to wrinkle forehead or elevateupper or lower lip.
- Obliteration of nasolabial fold

Bell's Palsy

Inability to wrinkle brow

Drooping eyelid;
inability to close eye

Inability to puff cheek;
asymmetrical smile

Drooping corner of mouth;
dry mouth

Evaluation of Nerve function

- HISTORY is of vital importance to establish the onset characteristics, duration and degree ofrecovery.
- Previous trauma, surgery or infection may help inarriving at a diagnosis
- Examination of the face at rest and movement.
- • Radiolologic evaluations

Clinical Examination of the facial nerve

Motor

- Frontalis,
- Corrugator Supercilii
- Orbicularis oculi
- Buccinator
- Orbicularis Oris
- Platysma

Test

1. Tear test(Schirmer test)

- Semiquantitative method for comparing lacrimal secretion on normal & affected side.

- 0.5×5cm strip of filter paper.

- If moistened length in affected side <25% of normal: significant hyposecretion is present

2.Salivary flow

- . Cannulate wharton duct on each side with no.50 polyethylene tube.
- Stimulate saliva with lemon juice
- Output of saliva measured in each tube
- 25% reduction is significantIndicates interruption of chorda tympani or facial nerve to this branch.

Treatment

- Oral antivirals – Acyclovir
- Corticosteroids
- Eye protection
- Follow progression with serial exams
- Physiotherapy

Medication

- If the patient is seen within 2 to 3 weeks of onset of symptoms-tab. Prednisolone in doses of Img/kg/d for 10 to 14 days has been recommended with a gradual tapering.

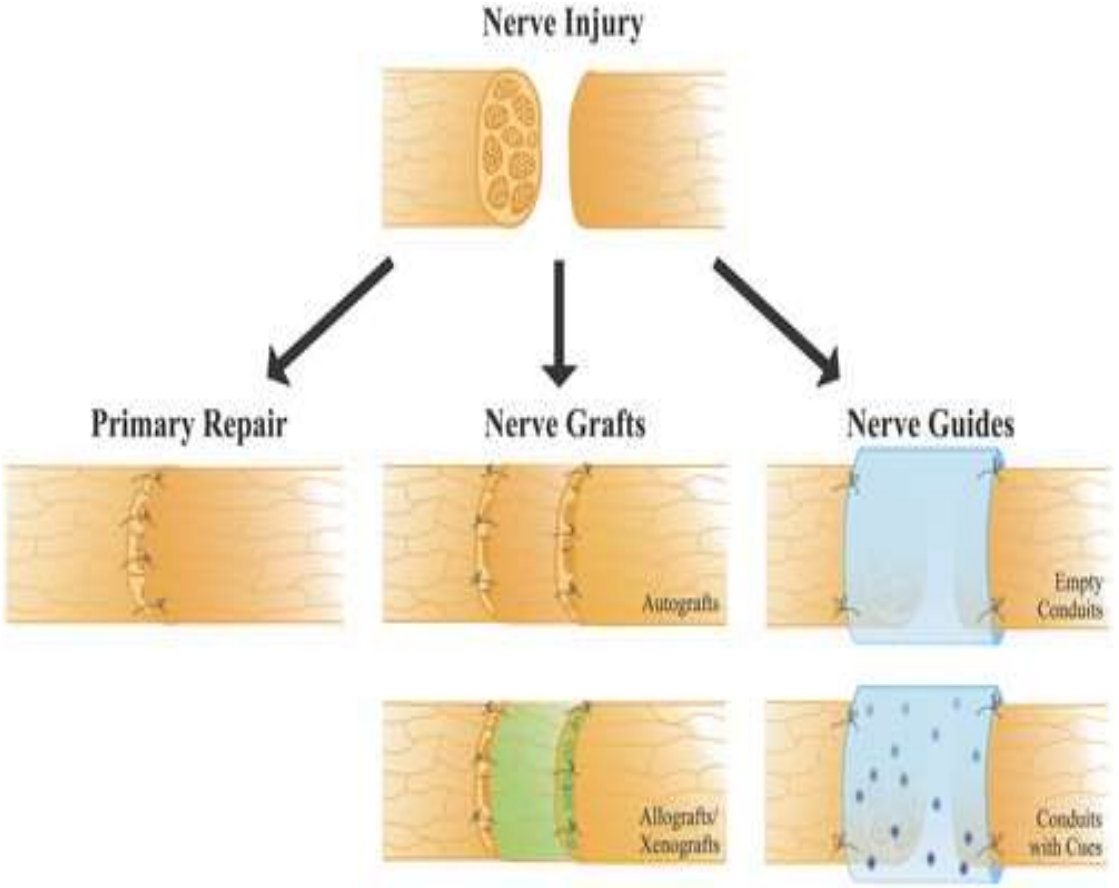
- Vitamins B1, B6, B12 may be administered.

Surgical treatment modalities

- Nerve decompression – Internally or externally
- Nerve anastomosis
- Nerve grafting

Primary nerve repair

- End-to-endanastomosis preferred
- No tensionExtratemporal repair performed < 72 hrs of injury
- Most common methods
- →Group fascicular repair
- → Epineural repair
- Epineural sheathapproximated with



Interposition grafting

Cable grafts

Used when defect> 17mm; nerve cannot be

reapproximated without tension

Most common

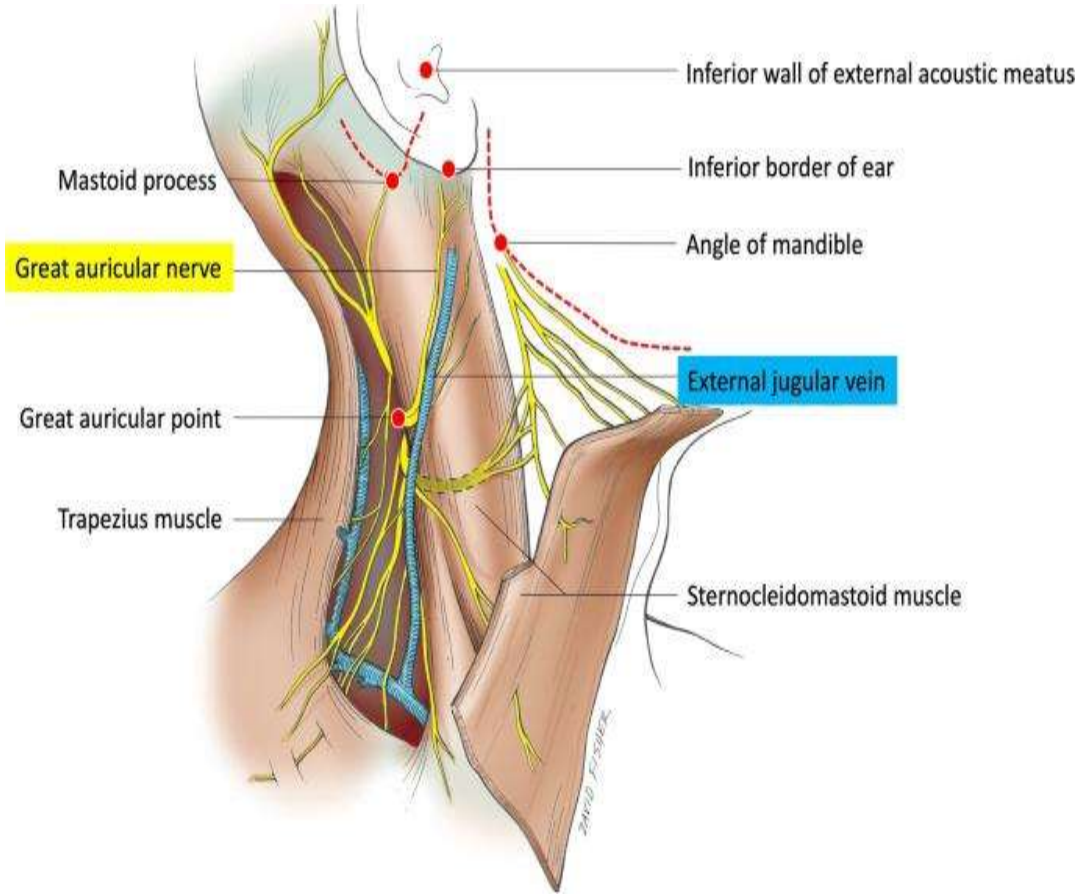
-Greater Auricular Nerve

1.Greter Auricular nerve grafting

- Harvesting

- Located on lateral surface of SCM at the midpoint of aline drawn between mastoid tip and mandibular angle

- May extend postauricular incision or use separate neckincision

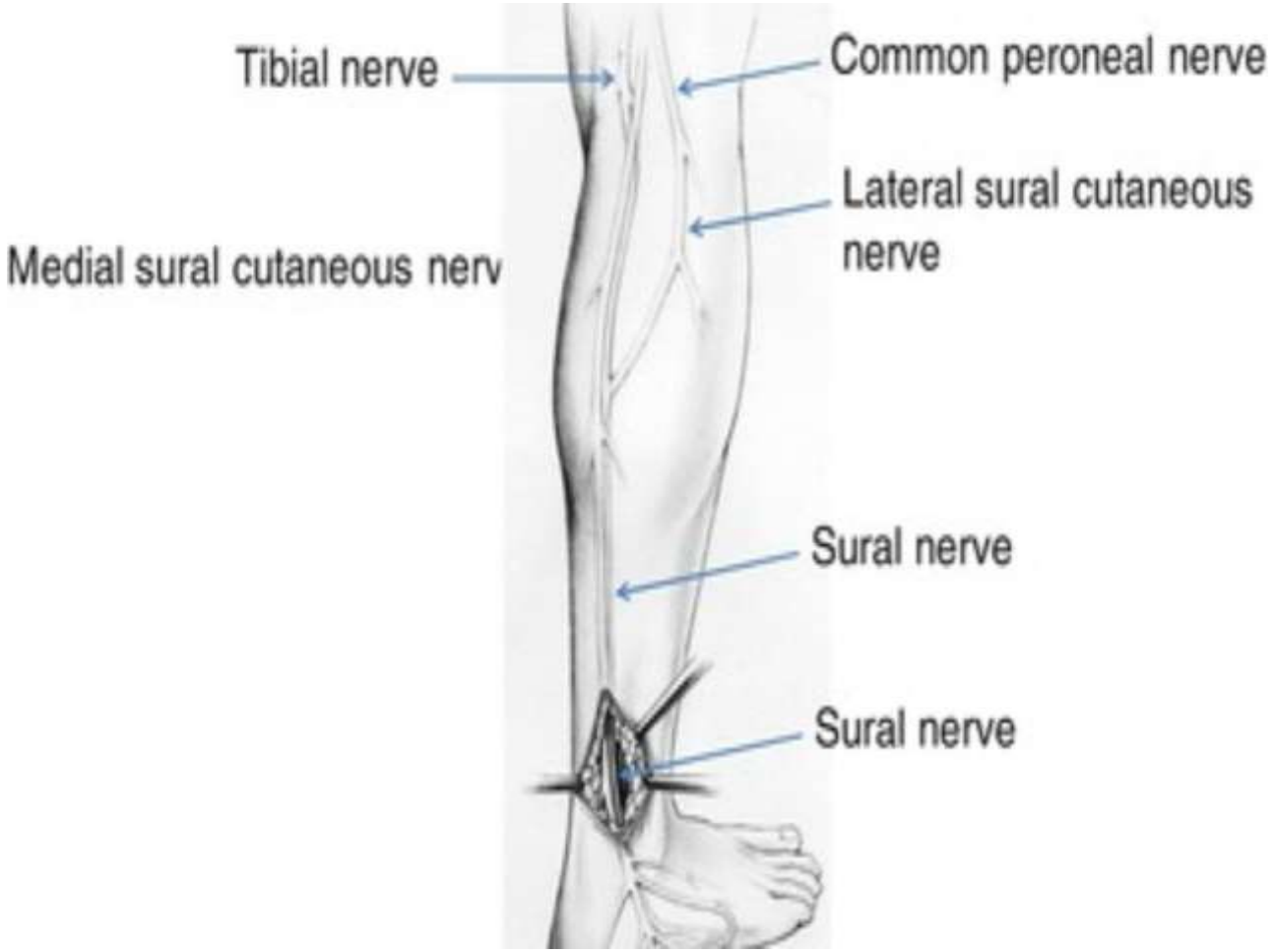


- Advantages:
- Proximity to facial nerve
- Cross-sectional area
- Limited morbidity
- Limitations:
- Reconstruction of long defectsIdeal
- Ideal for defects < 6cm in length

2.Sural Nerve

- Anatomy
- Formed by union of medial sural cutaneous nerve and lateral sural cutaneous branch of peroneal nerve.

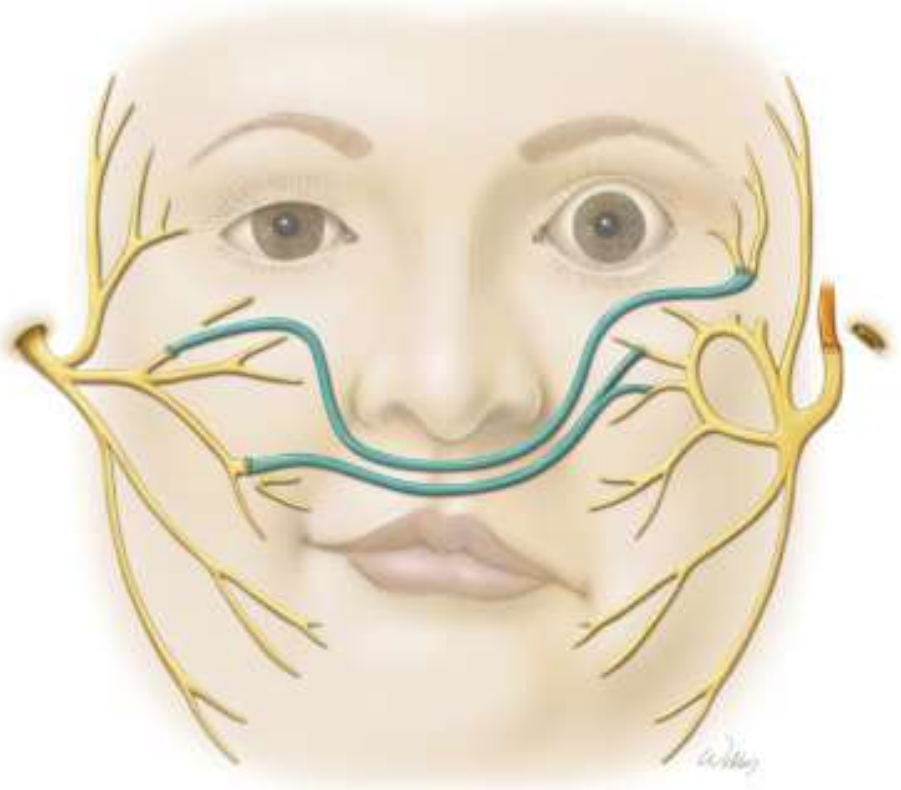
- Advantages:
- Length:>12cm
- Accessibility
- Low morbidity associated withsacrifice



- Disadv:
- Often too large
- Variable caliber
- Difficult to make graft approximation

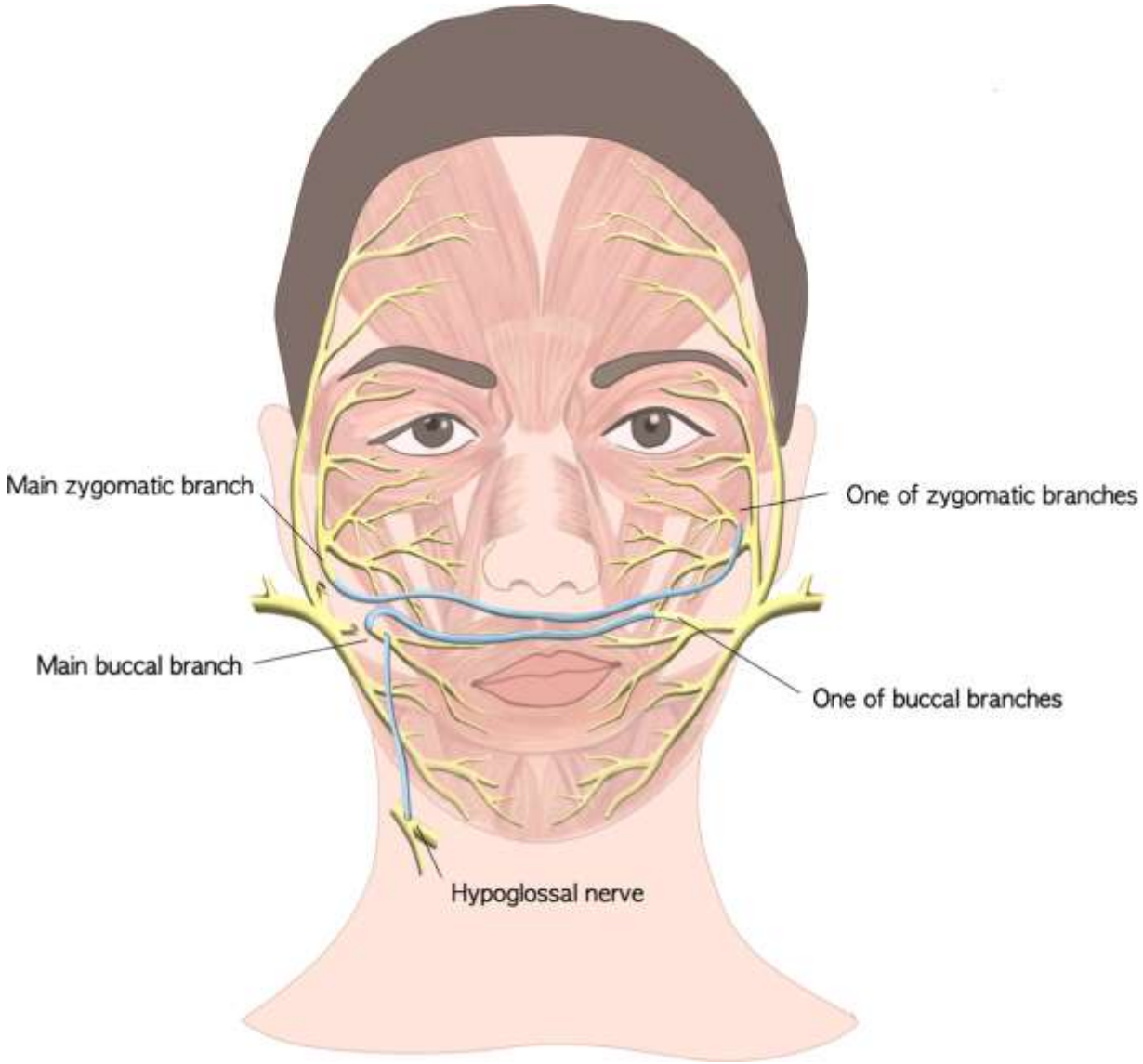
Cross facial nerve grafting

- Contralateral Facial nerve used to reinnervate paralyzed side using a nerve graft
- Sural nerve often employed –25-30cm of graft needed
- Restitution of smile and eye blinking obtained.
- Disadvantage
- 2nd surgical site
- Violation of the normal facial nerve



Four techniques

- Sural nerve graft routed from buccalbranch of normal VII to stump ofparalyzed VII
- Zygomaticus and buccal branch of normal VII used to reinnervate zygomatic and marginal mandibularportions respectively
- 4 separate grafts from temporal. zygomatic, buccal and marginalmandibular divisions of normal CNVII to corresponding divisions onparalyzed side.
- Entire lower division of normal sidegrafted to main trunk on paralyzedside.



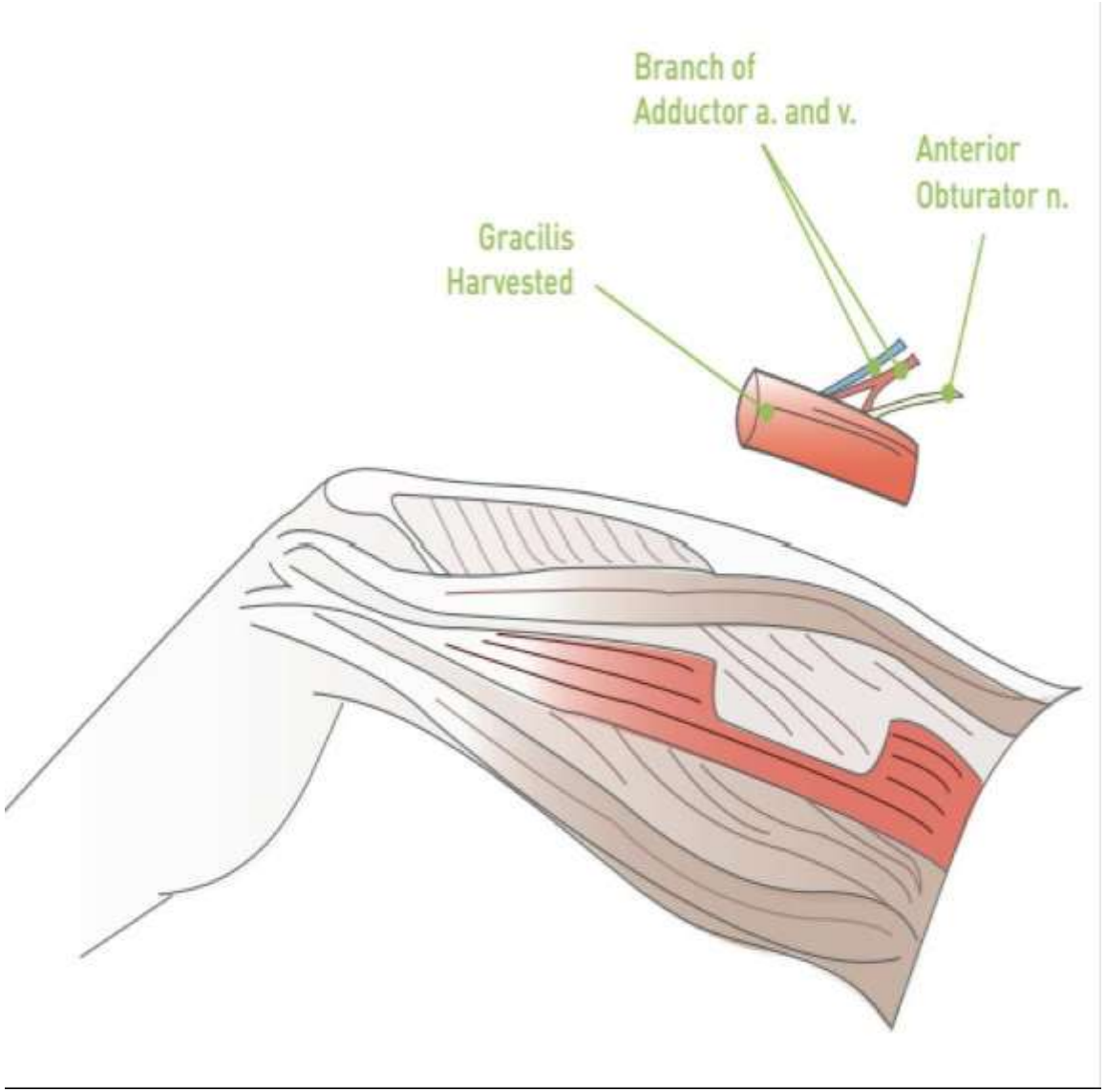
Muscle transposition

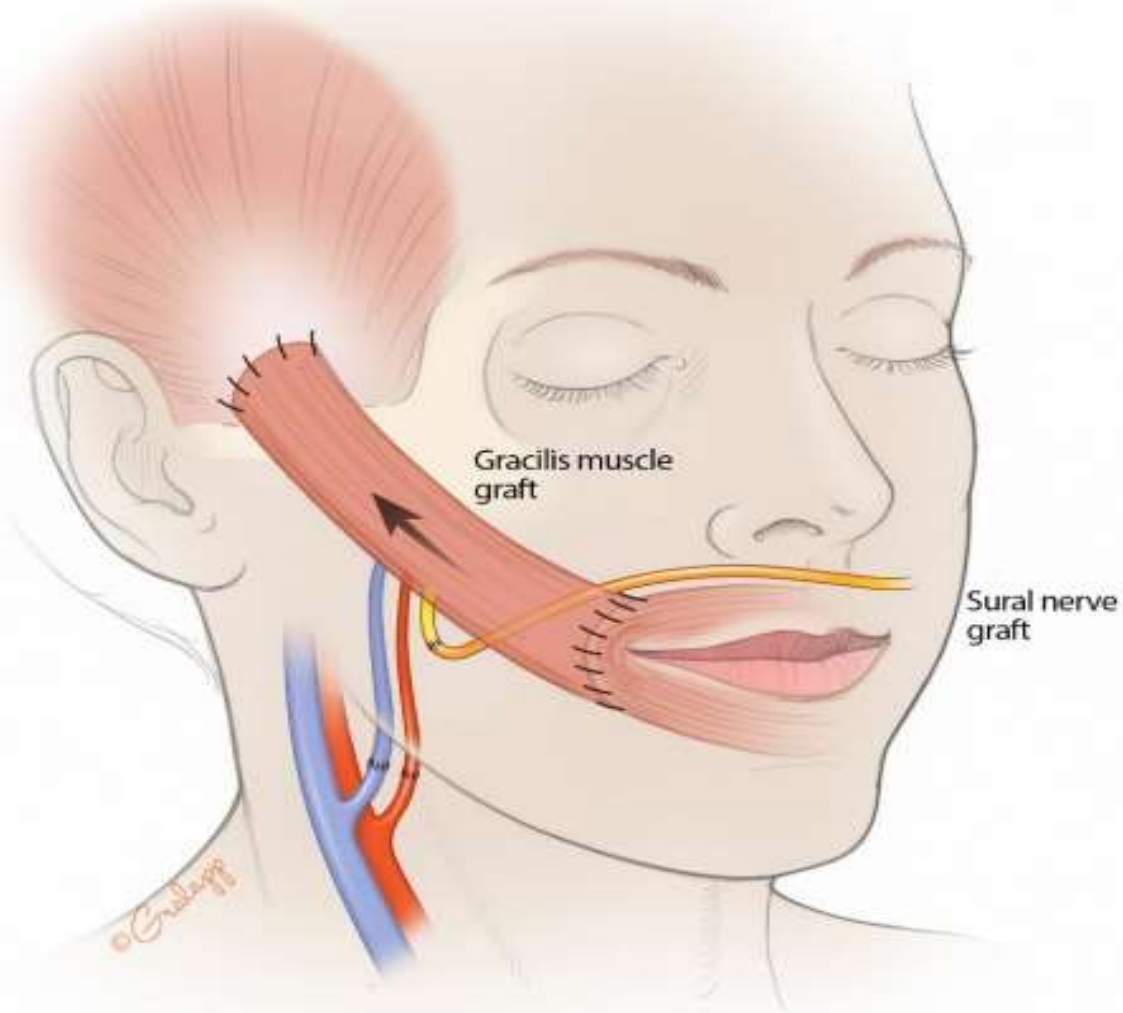
- INDICATION:-Congenital facial paralysis
- -Facial nerve interruption of at least 3 years
- Loss of motor endplates

Gracilis muscle

- 1. Long, thin muscle in medial thigh

- -Good neurovasular pedicle
- 1. Adductor artery and vein
- 2. Anterior obturatornerve
- 2. 2 stages involved:1. Sural nerve employed forcross-face graft 2. Gracilis muscle transferredafter 6-12 months
- 3. Vascular anastomosis to the facial artery and vein or tosuperficial temporal vessels.
- 4. Obturator nerve of gracilis connected to distal end of sural nerve graft.




Gracilis muscle
graft
Sural nerve
graft

Temporalis

- Often used for reanimation of the oral commisure.
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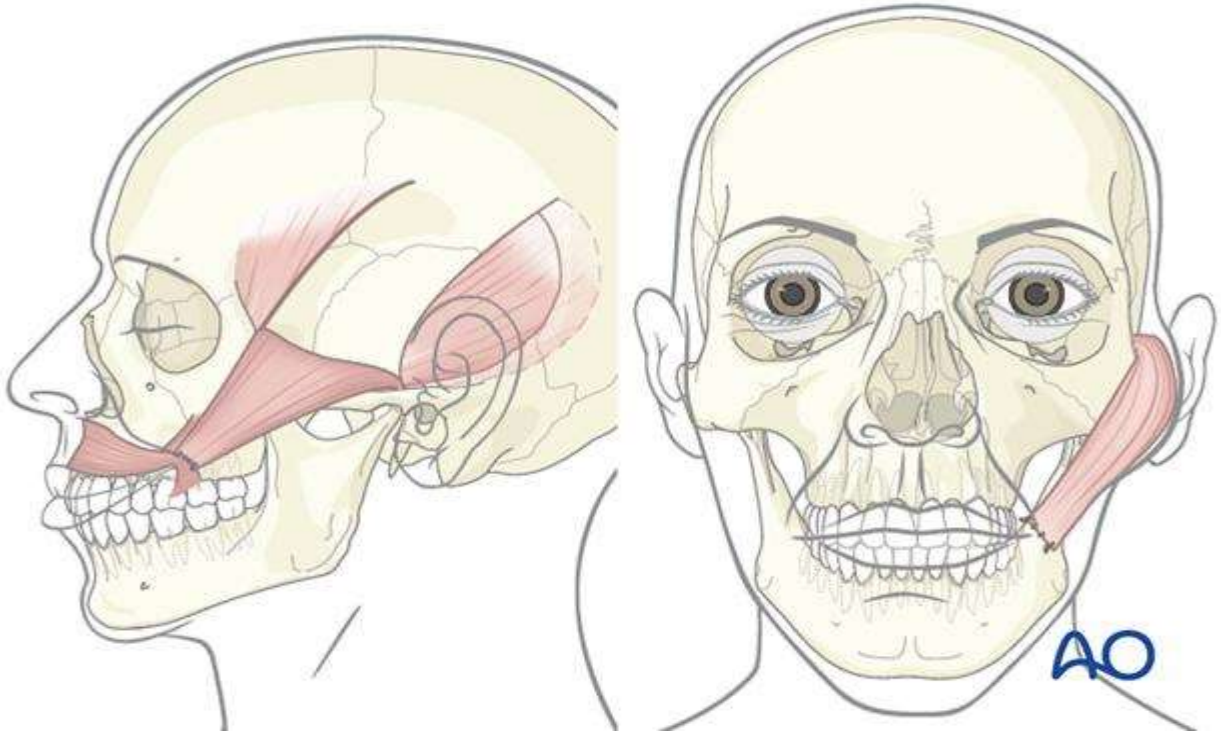
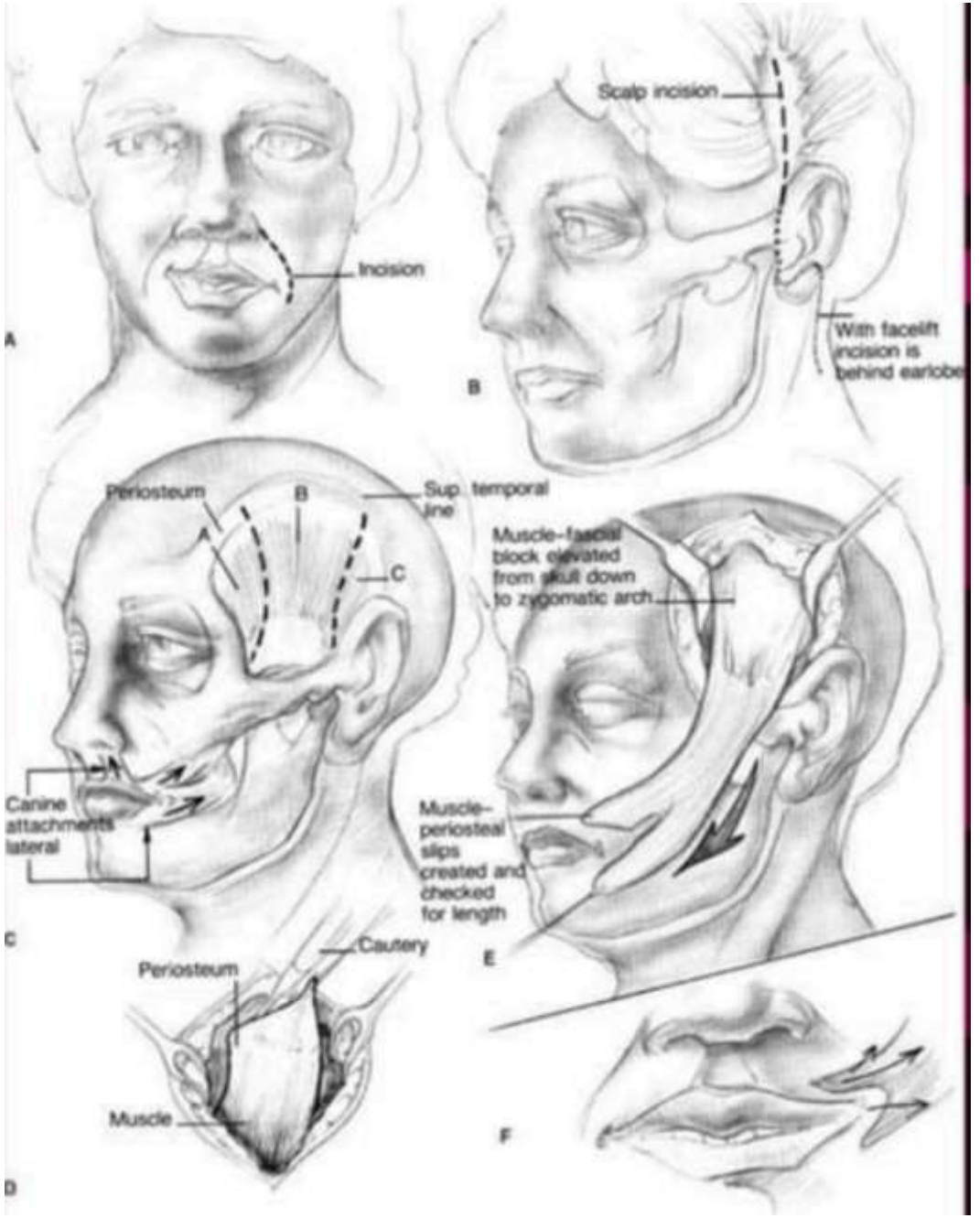
- → Middle 1/3 of muscle is best for transfer (Sherris, 2004)



Temporalis transfer

- 1. Incision in preauricular crease extending to superior temporal line
- 2. Obtain wide exposure of temporalis muscle by dissectingabove the SMAS
- 3. Incise down on periosteum to elevate muscle fibers-Harvest middle 1/3
- 4. Large tunnel created over zygomatic arch



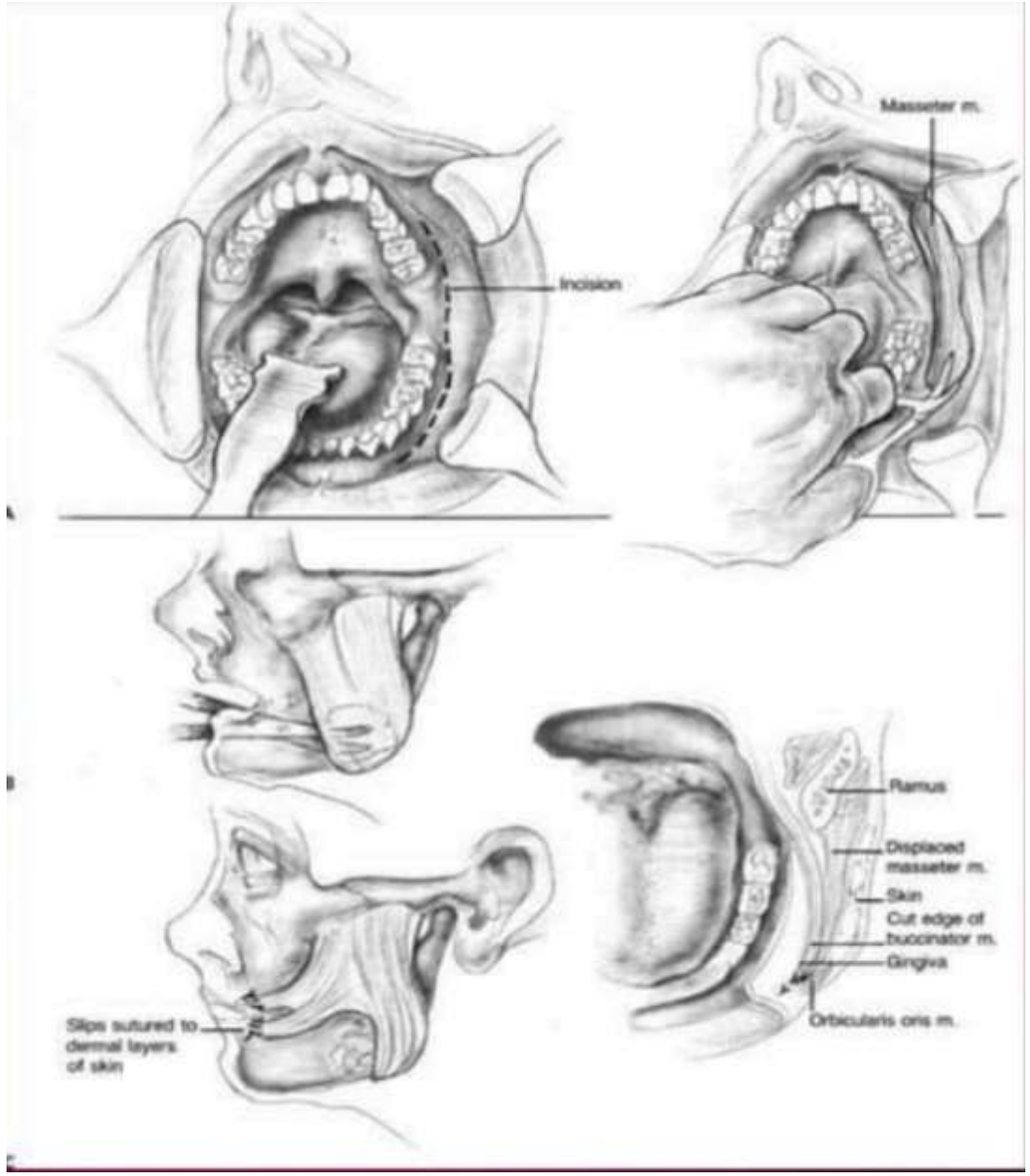
- 5. Orbicularis oris muscle exposed via vermilion border incision at oral commissure
- 6. Large tunnel over zygomatic arch used to connect oral commisure tozygomatic arch/superior incision.
- 7. Temporalis flap detached and elevated from its origin and tunneled to the oral commissure.
- 8.3-0 prolene used to suture orbicularis to temporalis at oral commissure.
- 9Overcorrection of nasolabial fold and oral commissure

Masseteric muscle

- Used when temporalis muscle is not opted.
- May be preferred due to avoidance of large facialincision
- Disadvantage:- Less available muscle compared to temporalis
- -Vector of pull on oral commisure is more horizontal than superior/oblique like temporalis

Masseteric transfer

- 1. Expose muscle with gingival
-
- incision along mandibular sulcus
-
- 2. Dissection carried out in a plane between mucosa and muscle.
-
- 3. Muscle freed off of mandible medially and from the inferiolateral edge of mandible.



- .4.Vertical incision made in inferior portion of muscle
-
- 5. Anterior half of muscle is split into 2 divisions.

- 6: The 2 anterior slips of muscle are tunneled anteriorly to reach the oral commissure via external vermilion border incision
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- 7. Muscle slips are attached to lips and oral commisure in the deep dermal layer using sature

Thank you