FACE

FACE

- Extent→
- *Superiorly*→ up to the hair line,
- *Inferiorly*→ up to the chin and base of the mandible
- *on each side*→ up to the auricle.
- The forehead is common to both the face and the scalp.
- **Skin of the Face**
- The skin of the face is thick, elastic, and very vascular.
- It contains large number of sweat (regulate the body temperature) and sebaceous glands (oily face).

- **Superficial Fascia**
- It contains muscles of facial expression, vessels and nerves, and variable amount of fat.
- Fat→ ***absent in the eyelids***
  - → ***well-developed in cheeks*** (***buccal pad of fat***)
  - → buccal pads very **prominent** in infants (***suctorial pad of fat***).
- **Deep Fascia**
- The deep fascia is **absent** in the region of face (except over the parotid gland and masseter muscle, which are covered by ***parotidomasseteric fascia***)
- Absence of deep fascia in the face is *essential* for the *facial expression.*

MUSCLES OF FACIAL EXPRESSION

- The muscles of facial expression are embedded in the superficial fascia.
- Most of them arise from bones of the skull and are inserted into the skin.
- **Characteristic Features**

1.Lie in superficial fascia and inserted into the skin.

2.*Develop from mesoderm of 2nd* pharyngeal arch, supplied by facial nerve.

3.Perform all important functions of *non-verbal communication.*

- **Location and Function**
- The facial muscles are arranged in groups around the orifices of mouth, eye, and nose as sphincters and dilators of these orifices.

- To perform fine movements of facial expressions the facial muscles have *small motor units.*

Muscles Around the Orifice of the Eye

1. Orbicularis oculi

-- orbital part

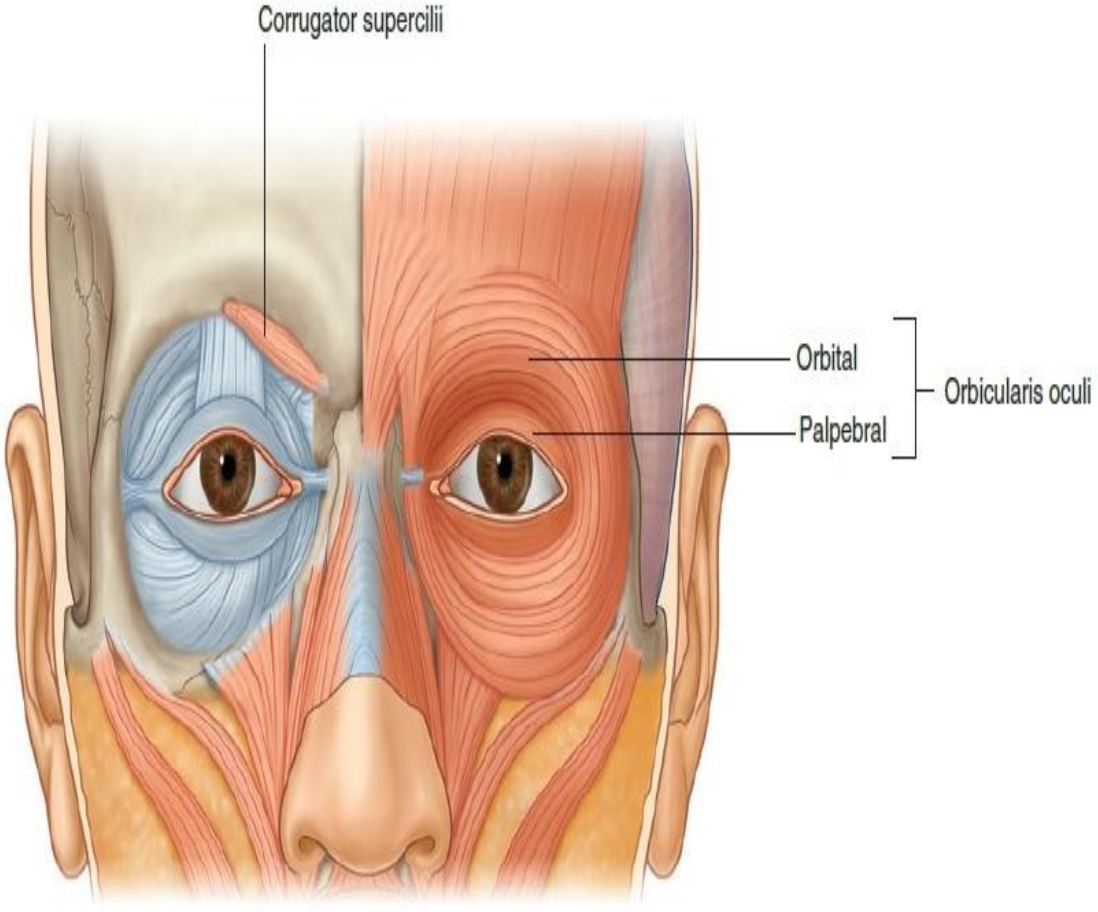
-- palpebral part

--lacrimal part

2. Corrugator supercilii.

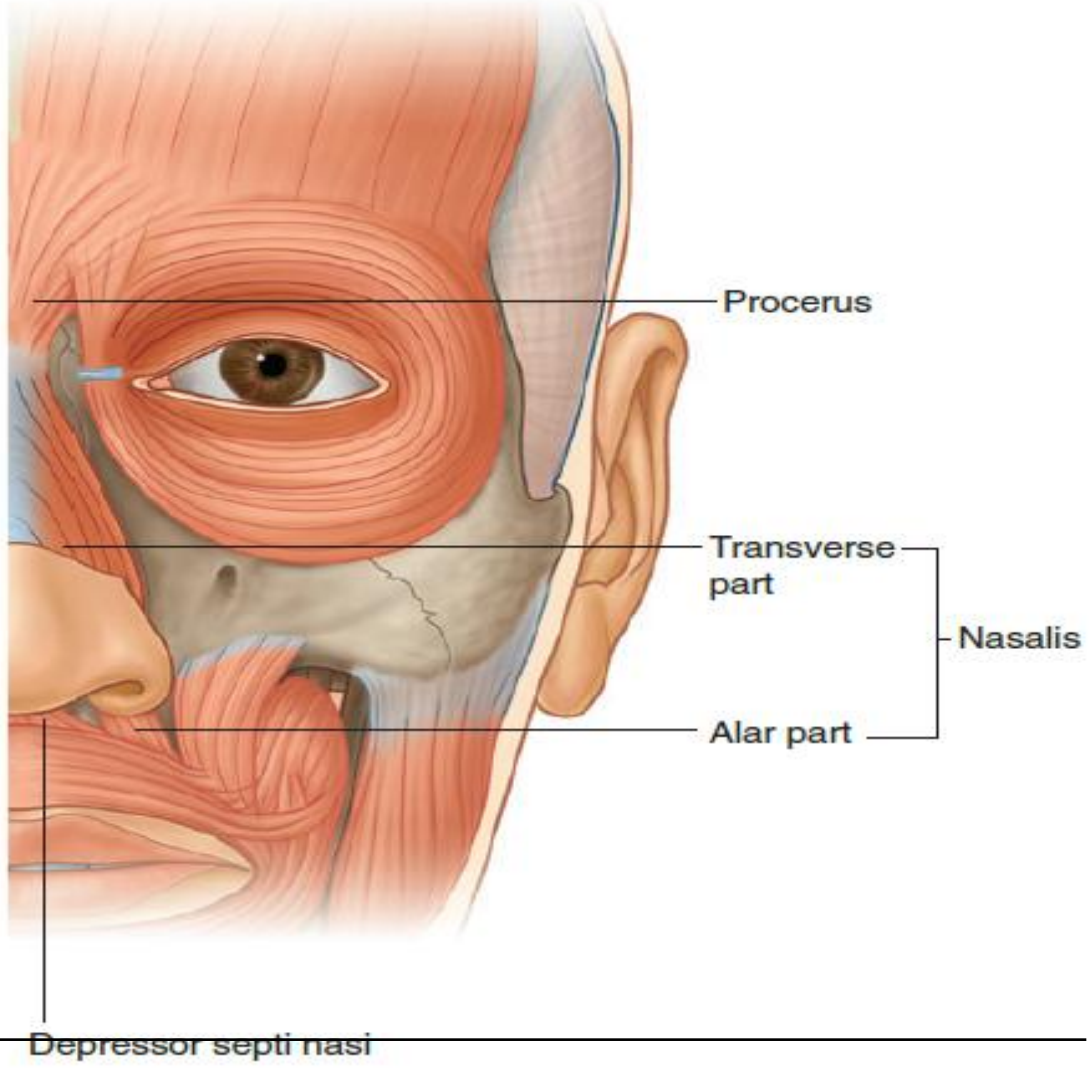
3. Frontalis.

4. Levator palpebrae superioris.



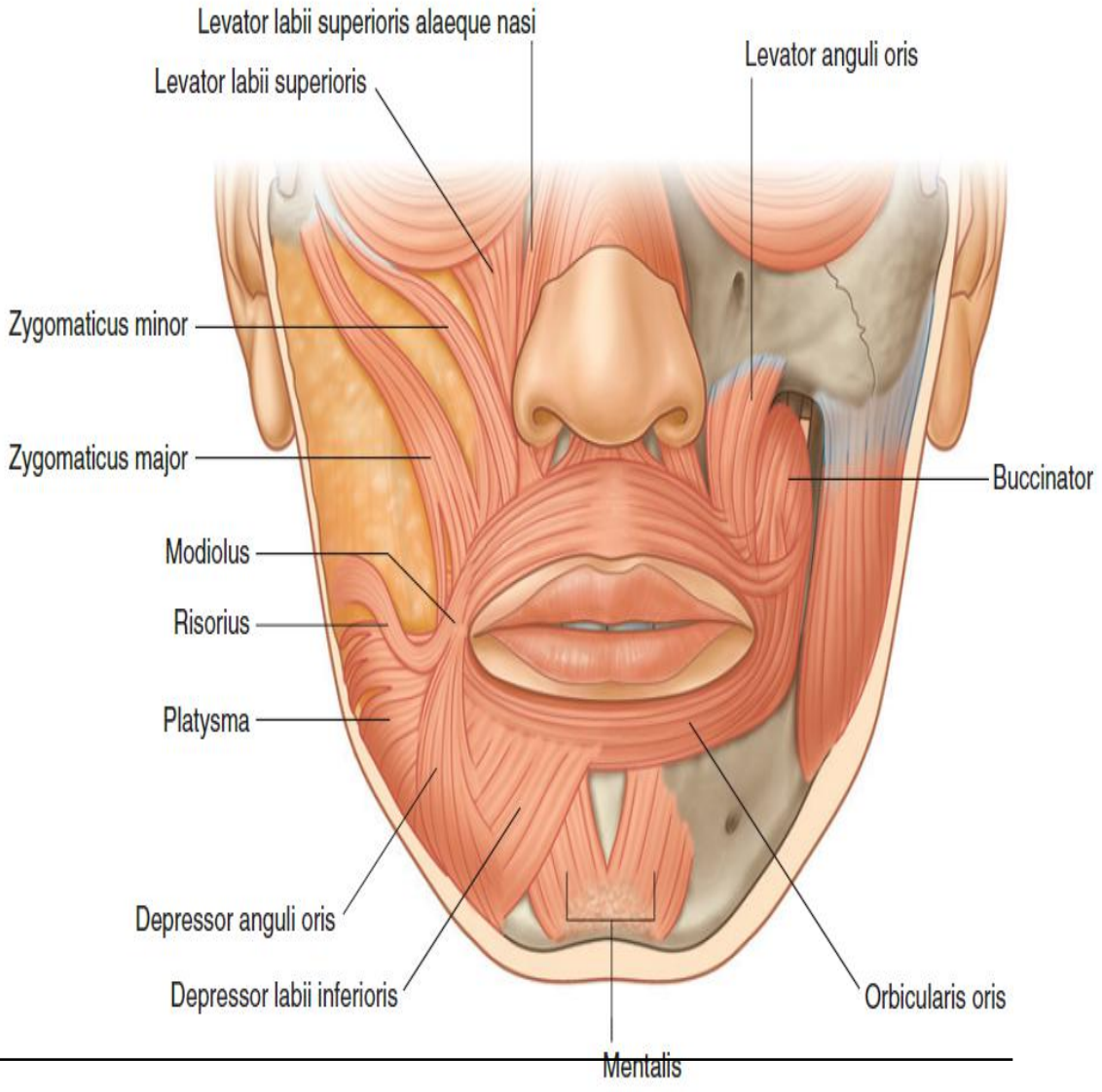
Muscles Around the Nasal Cavity

1. Procerus
2. Nasalis
3. Depressor septi



Muscles Around the Mouth

- Orbicularis oris
- Levator labii superioris alaeque nasi.
- Levator labii superioris.
- Levator anguli oris.
- Zygomaticus minor.
- Zygomaticus major.
- Depressor labii inferioris.
- Depressor anguli oris.
- Risorius.
- Buccinator.
- Mentalis



Facial muscles and emotional expressions

Emotional expression	Presenting features	Facial muscle/muscles
Surprise/horror/fright	Transverse wrinkles of the forehead	Frontalis
Frowning	• Vertical wrinkles of the forehead • Transverse wrinkle across the root of nose	• Corrugator supercilii • Procerus
Anger	• Dilation of the anterior nasal aperture • Depression of lower mobile part of the nasal septum	• Dilator naris • Depressor septi
Laughing	Angle of mouth drawn upwards and laterally	Zygomaticus major
Sadness/sorrow/grief	• Accentuation of nasolabial fold • Elevation and eversion of the upper lip	• Levator labii superioris • Levator anguli oris and zygomaticus minor
	• Angle of mouth drawn downwards and laterally	• Depressor anguli oris
Grinning	Retraction of angle of the mouth laterally	Risorius
Disdain/doubt	Puckering of the chin, protrusion of lower lip	Mentalis
Worry	Skin folds radiating laterally from lateral angle of the eye	Orbicularis oculi
Irony	Angle of the mouth drawn downwards and somewhat laterally	Depressor labii inferioris

NERVE SUPPLY

- **Motor Nerve Supply**
- Derived from the ***facial nerve***.
- It leave the cranial cavity through stylomastoid foramen
- It divides into 5 terminal branches

→Temporal

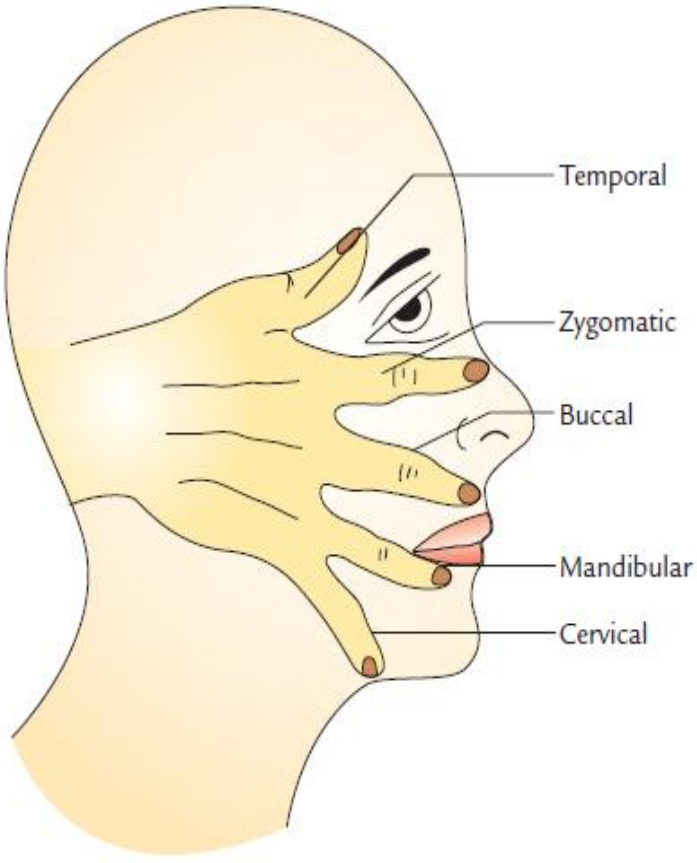
→Zygomatic

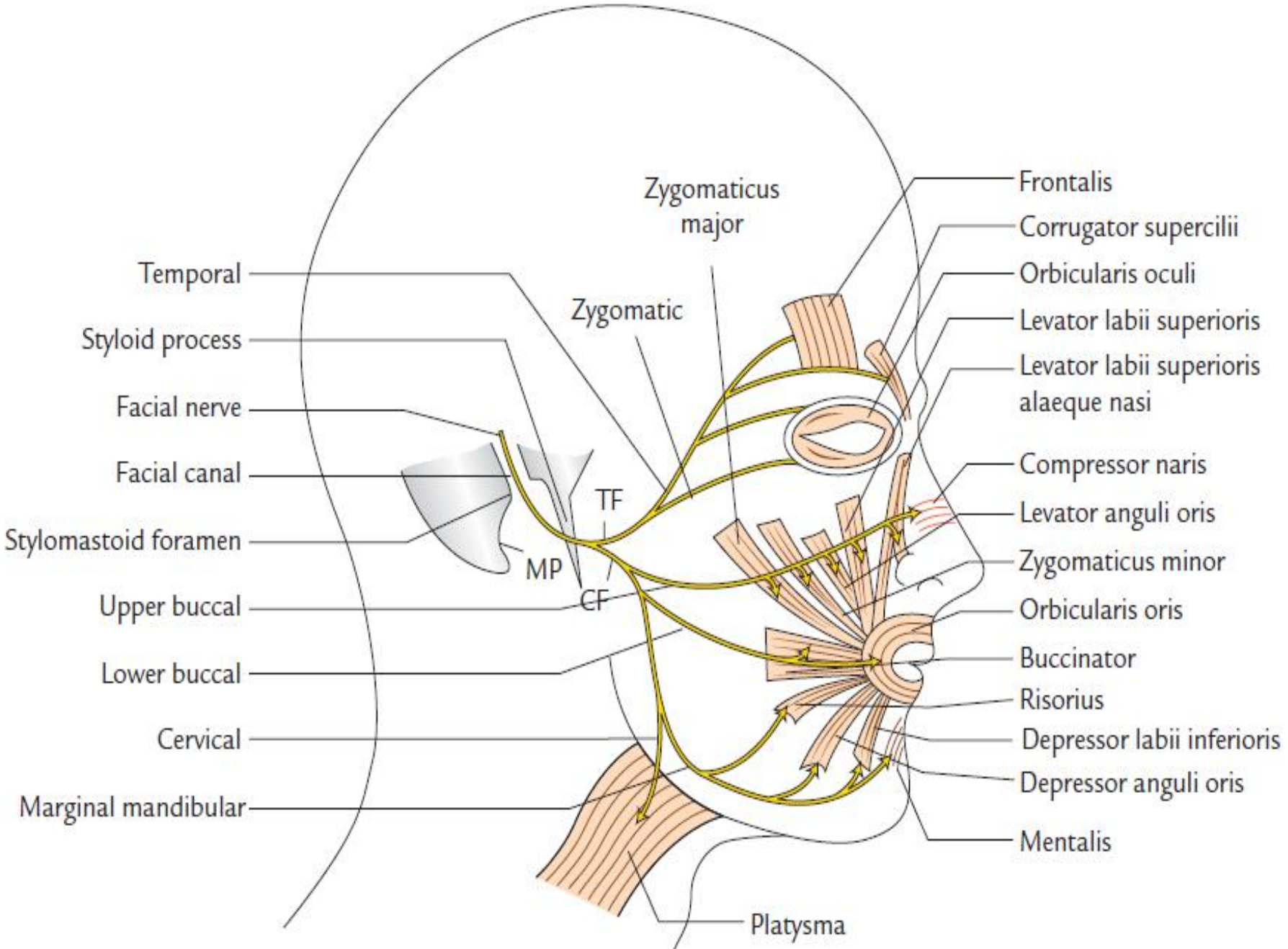
→Buccal

→marginal mandibular

→cervical

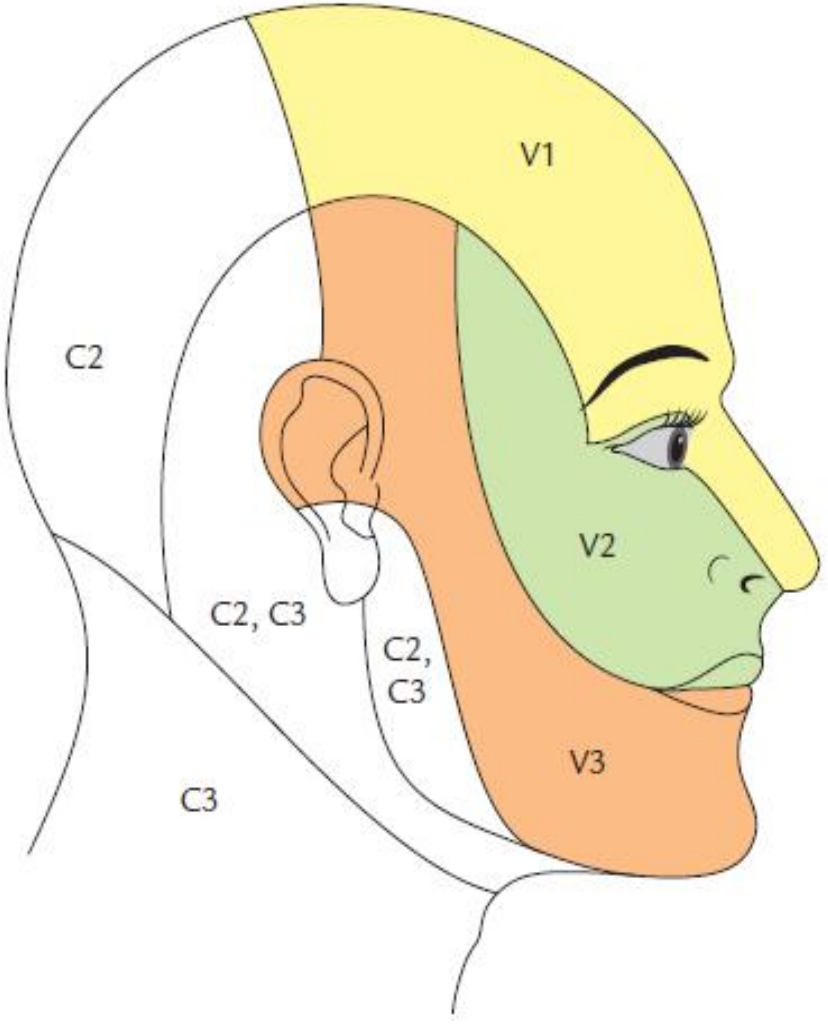
- These terminal branches form the *goose-foot pattern (pes anserinus) on the* face.

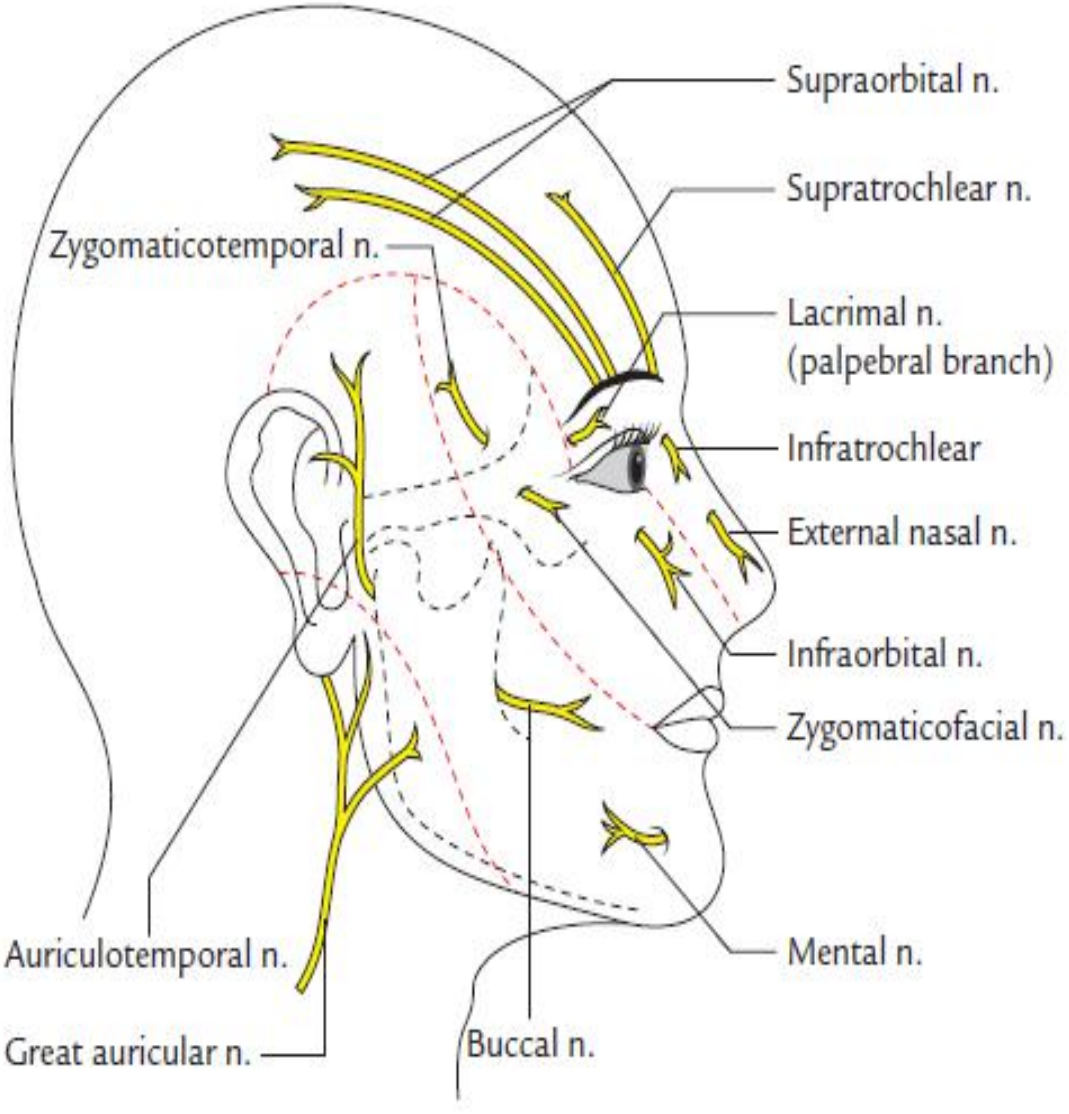




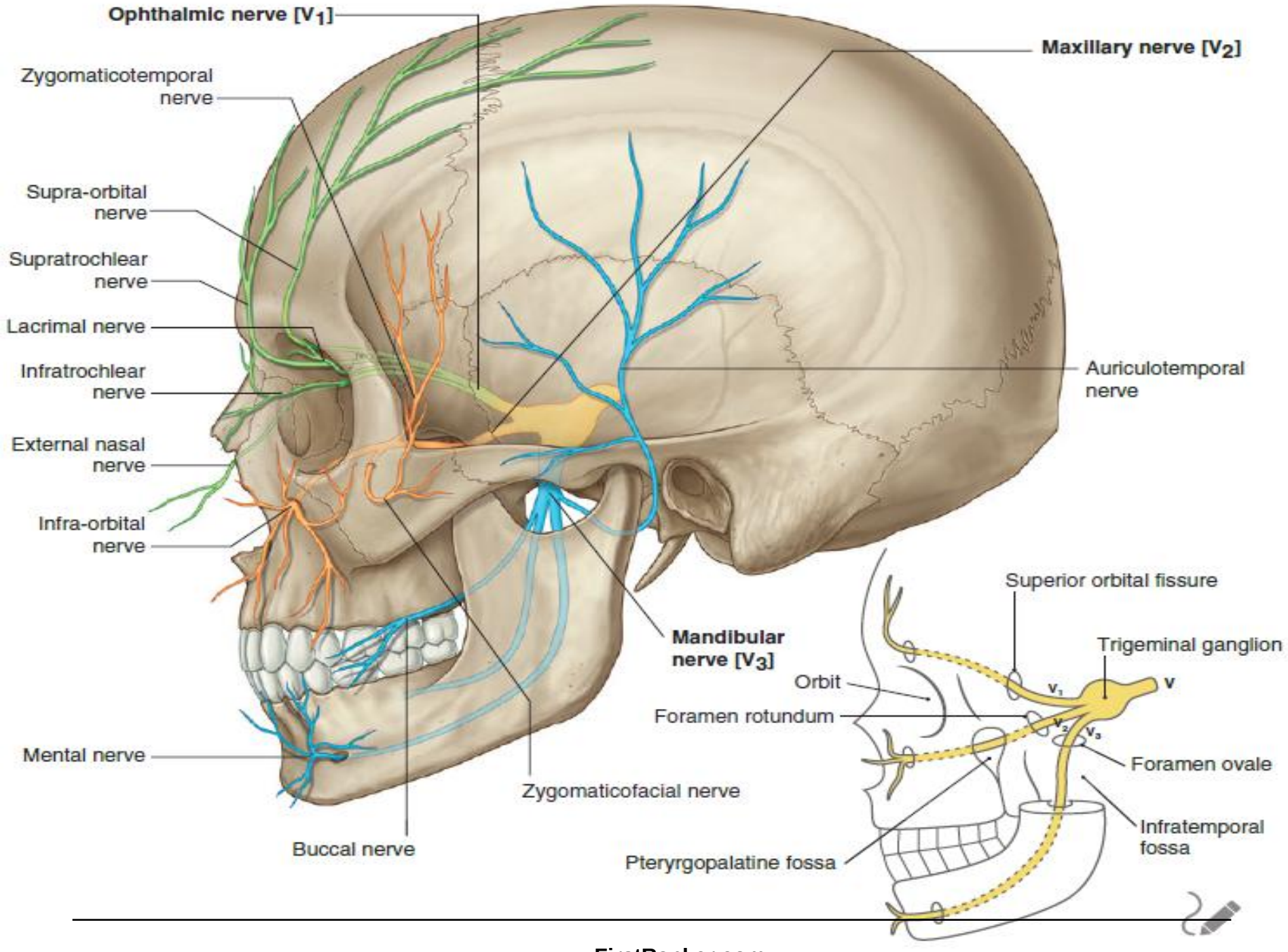
Terminal branches of facial nerve	Muscles innervated
Temporal branch	• Upper part of the orbicularis oculi • Frontalis • Corrugator supercilii
Zygomatic branch	Lower part of the orbicularis oculi
Buccal branches (a) upper buccal branch	• Zygomaticus major and minor • Levator anguli oris • Levator labii superioris • Levator labii superioris alaeque nasi • Muscles of the nose
(b) lower buccal branch	• Buccinator • Orbicularis oris
Marginal mandibular branch	• Risorius • Depressor anguli oris • Depressor labii inferioris • Mentalis
Cervical branch	Platysma

- **Sensory Nerve Supply**
- By **trigeminal nerve**
- It supplies the whole of the face.
- *Except* skin over the angle of mandible [supplied by great auricular nerve derived from ventral rami of the 2nd and 3rd cervical nerves C2, C3].
- V1= Ophthalmic division
- V2= Maxillary division
- V3= Mandibular division





Supraorbital	Branches of ophthalmic division of trigeminal nerve
Supratrochlear	
Infratrochlear	
External nasal	
Lacrimal	
Infraorbital	Branches of maxillary division of trigeminal nerve
Zygomaticofacial	
Zygomaticotemporal	
Mental	Branches of mandibular division of trigeminal nerve
Buccal	
Auriculo-temporal	



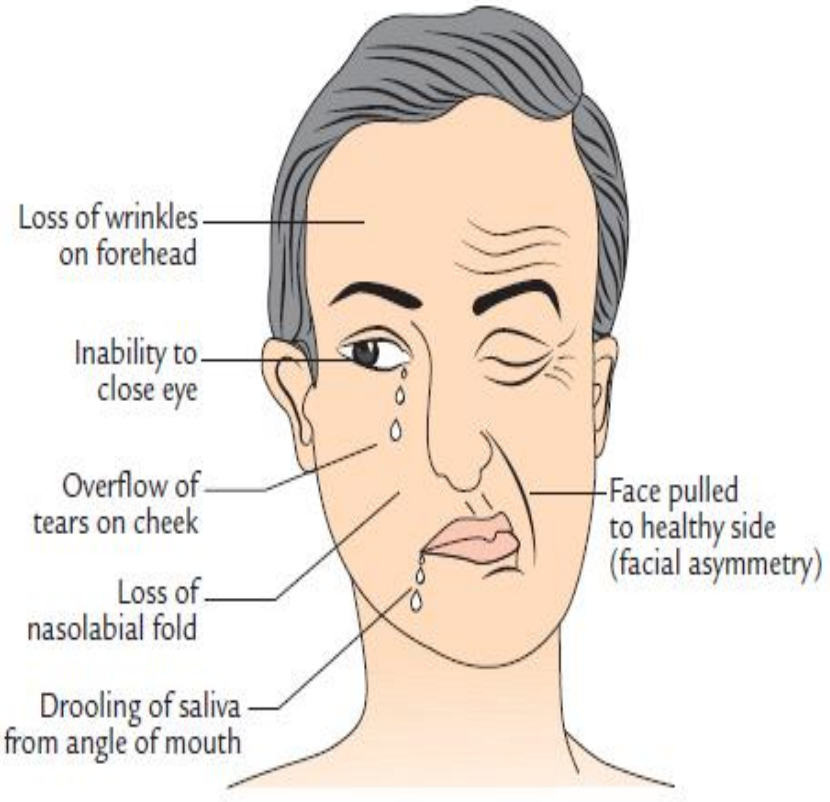
- **Trigeminal neuralgia (tic douloureux)**
- It is a clinical condition characterized by sudden paroxysmal attacks of lancinating pain lasting from few hours to several days.
- Confined to distribution of one or more divisions of trigeminal nerve.
- It commonly starts in the maxillary territory and more frequently on the right side

- ***Herpes zoster ophthalmicus***
- It is a viral infection involving the ophthalmic nerve
- It presents as severe pain and edema in the ophthalmic territory.
- Characterized by the appearance of vesicles along the course of cutaneous branches of the ophthalmic nerve

Bell's palsy

- Lower motor neuron type paralysis
- Due to compression of facial nerve near stylomastoid foramen.
- Etiology unknown (viral infection)
- **Characteristic Features on the Side of Paralysis**

1. ***Facial asymmetry***— unopposed action of muscles of normal side.
2. ***Loss of horizontal wrinkles on forehead*** — occipitofrontalis muscle



3. ***Widening of palpebral fissure and inability to close the eye***— *orbicularis oculi*.
4. ***Tears flow down from the eye (epiphora)*** — lower part of the orbicularis oculi.
5. ***Sagging of the angle of the mouth towards the affected side*** —zygomaticus major.
6. ***Loss of nasolabial furrow***— *levator* labii superioris alaeque nasi.
7. ***Accumulation of food into the vestibule of the mouth***— buccinator muscle.
8. ***Dribbling of saliva from the angle of the mouth***— orbicularis oris.
9. **Loss of resistance when one presses cheek with inflated vestibule and air leaks out from between the lips**— buccinator muscle.

ARTERIAL SUPPLY

- The face is the highly vascular region.
- Supplied by the following arteries

1. Facial artery.
2. Transverse facial artery.
3. Arteries that accompany the cutaneous nerves.

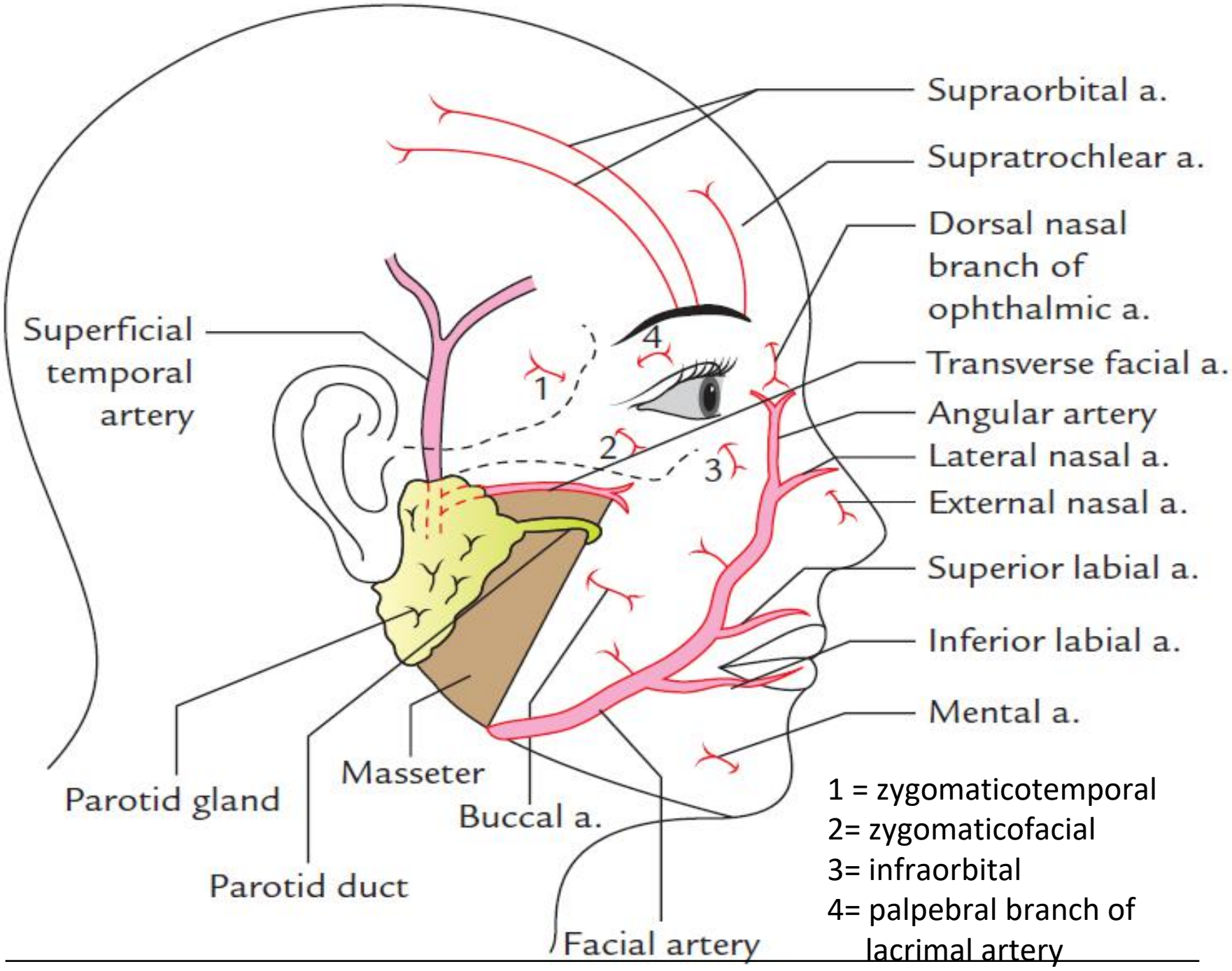
- **Chief artery of the face is *facial artery*.**

- **Facial Artery**
- It arises from external carotid artery in the neck
- In the face, the it passes tortuously.
- The *tortuosity of art. prevents its walls from* being unduly stretched during the movements of mandible, lips, and cheeks.
- The terminal part of art. is called **angular artery.**
- It ends by anastomosing with the *dorsal nasal branch of ophthalmic artery*

- **Branches of the Facial Artery in the Face**

- In the face it gives three sets of named branches

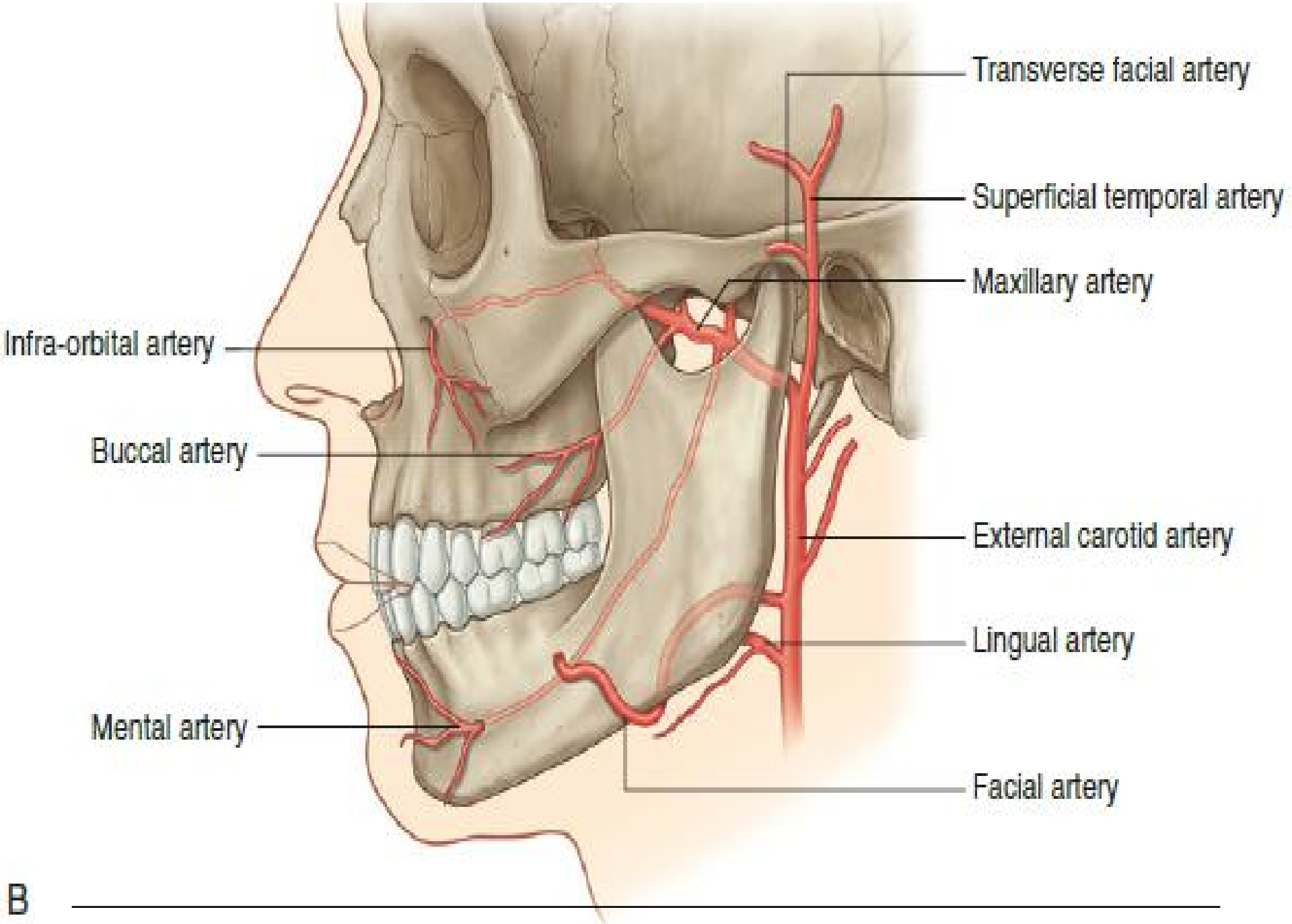
1. Inferior labial artery→ supply the lower lip.
2. Superior labial artery→ supply the upper lip.
3. Lateral nasal artery→ supply the ala and dorsum of the nose. All these branches arise anteriorly.
4. Muscular branches→are small, unnamed and arise from the posterior aspect of the artery



1 = zygomaticotemporal
2= zygomaticofacial
3= infraorbital
4= palpebral branch of lacrimal artery

- ***Transverse Facial Artery*** → br. of superficial temporal artery → ter. br. of external carotid artery

- **Branches of the maxillary artery** (ter. br. of ext. carotid artery)
- *Infra orbital artery*
- *Buccal artery*
- *Mental artery*



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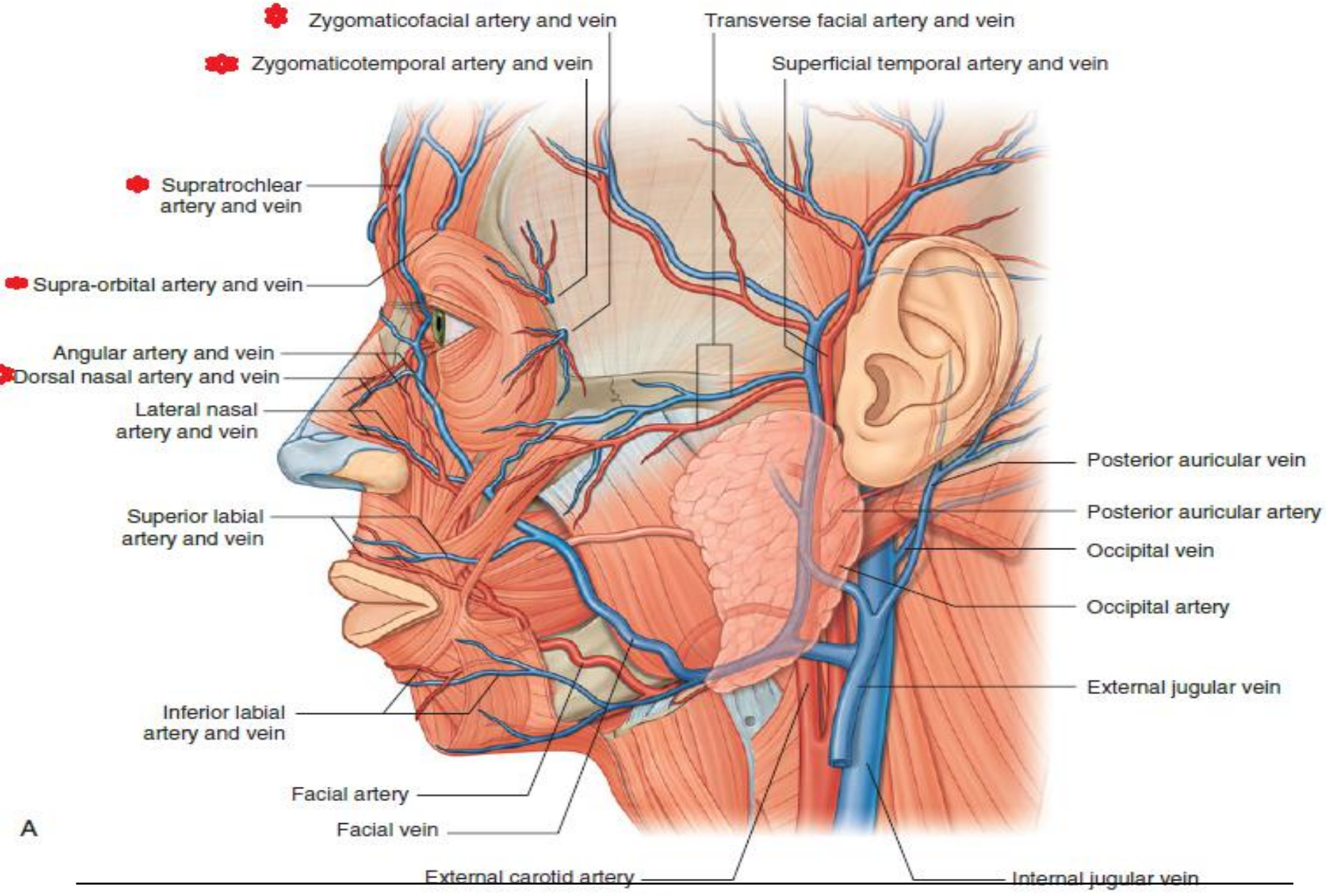
- **Branches of the ophthalmic artery** (br.of int. Carotid art.)
- *zygomaticofacial art.*
- *zygomaticotemporal art.*
- *dorsal nasal artery*
- *Supraorbital art.*
- *supratrochlear art.*

* Branches of the ophthalmic artery



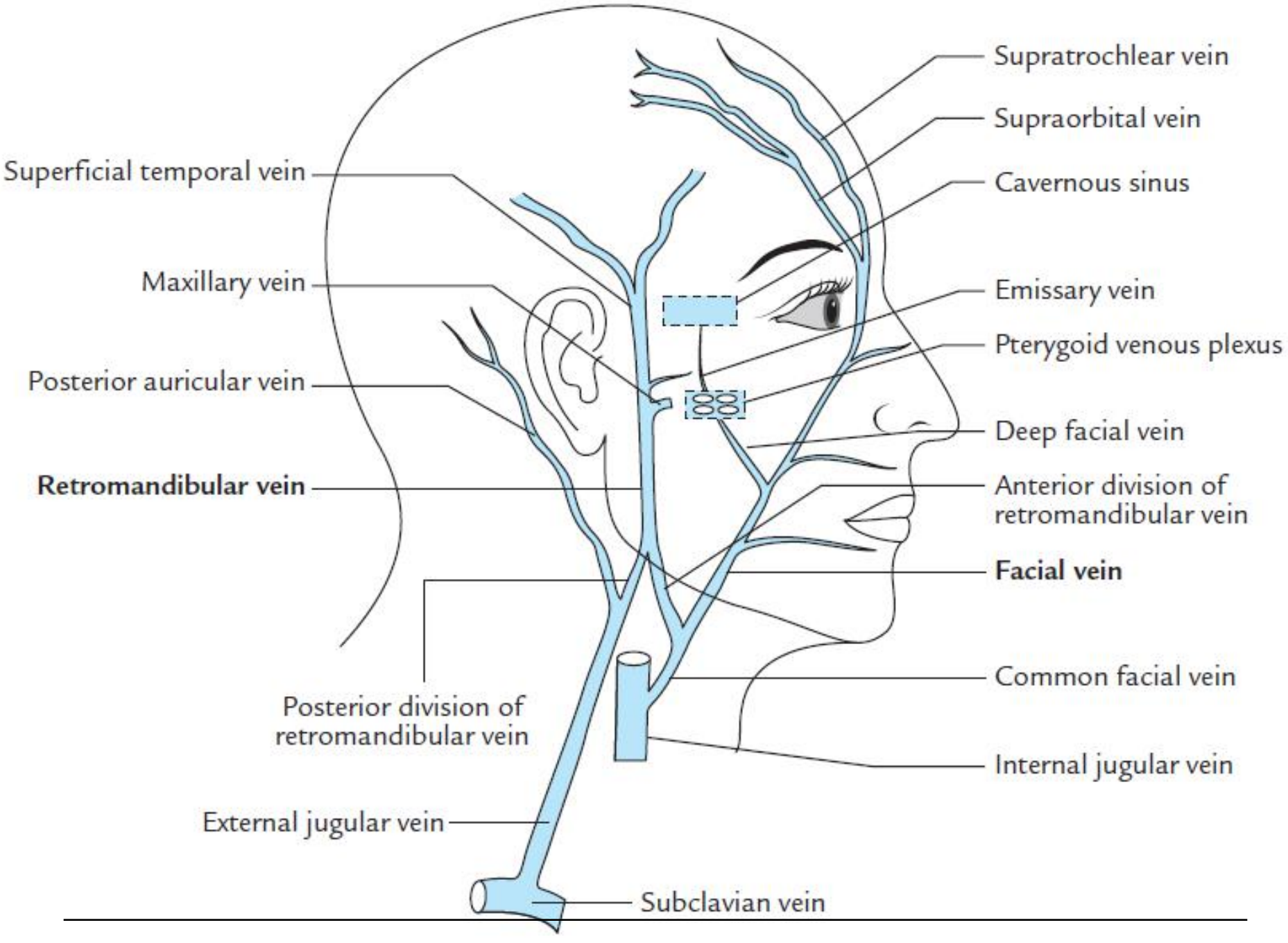
VENOUS DRAINAGE

- Venous blood from the face is drained by two veins

1. Facial vein.

2. Retromandibular vein

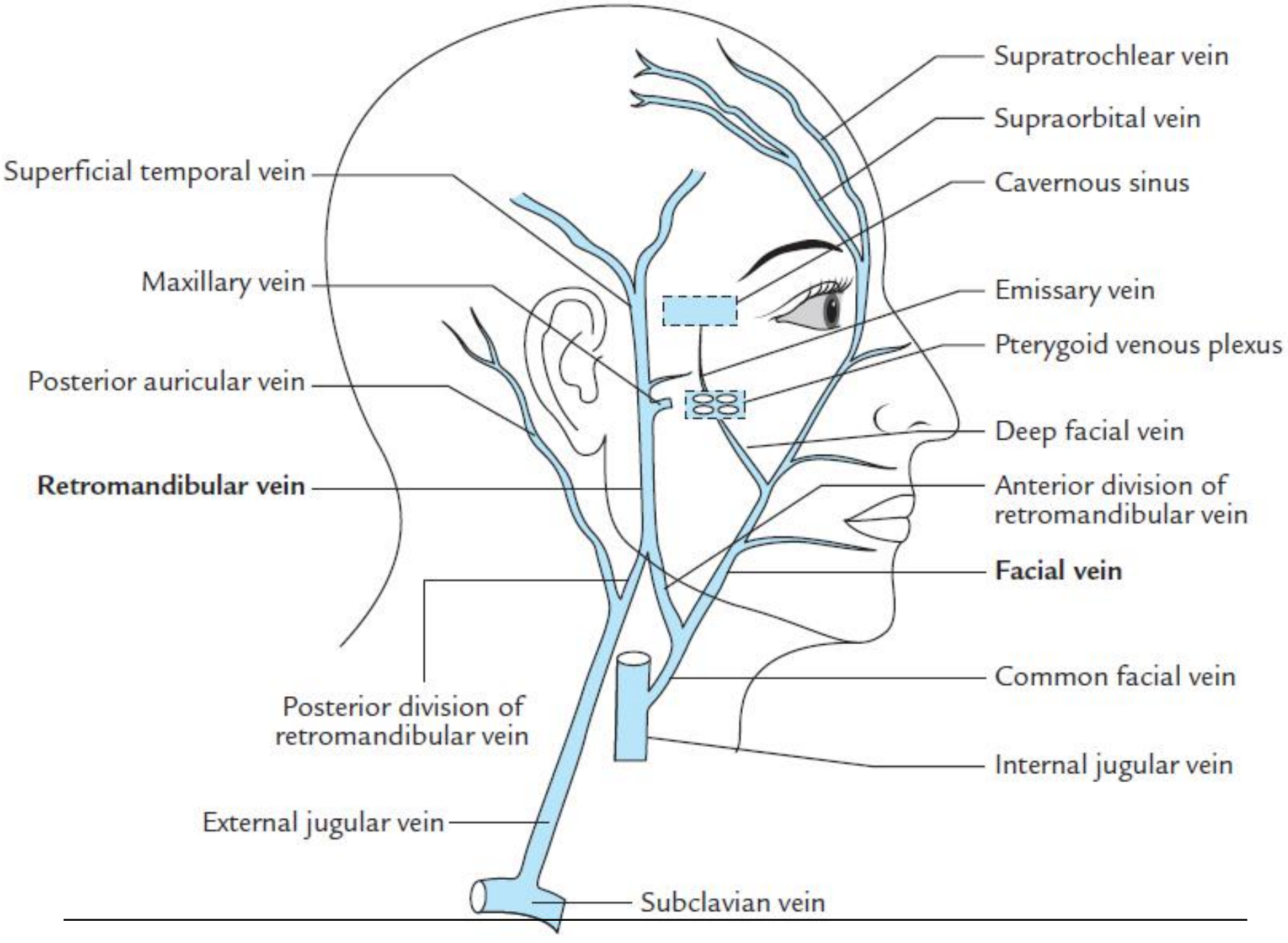
- **Facial Vein**
- It is the largest vein of the face.
- It is formed by the union of ***supratrochlear*** and ***supraorbital veins***.
- It joins the ant. div. of ***retromandibular vein*** *and* form the ***common facial vein****, which* drains into the ***internal jugular vein.***
- Tributaries of facial vein correspond to the branches of facial artery.



- **Deep Connections**
- The ***facial vein*** communicates with the ***cavernous sinus*** through the following two routes

1. ***Facial vein*** communicates → superior ophthalmic vein → drains into ***cavernous sinus***
2. ***Facial vein*** is joined to the pterygoid venous plexus by the *deep facial vein*.

- *Deep facial* vein communicates with *pterygoid venous plexus* which in turn communicates with the ***cavernous sinus*** through an emissary vein



- **Retromandibular Vein**
- Formed by the union of the superficial temporal and the maxillary vein.
- it divides into two divisions: anterior and posterior.
- The anterior division joins the facial vein to form the common facial vein.
- posterior division joins the posterior auricular vein to form the external jugular vein.

Dangerous area of the face

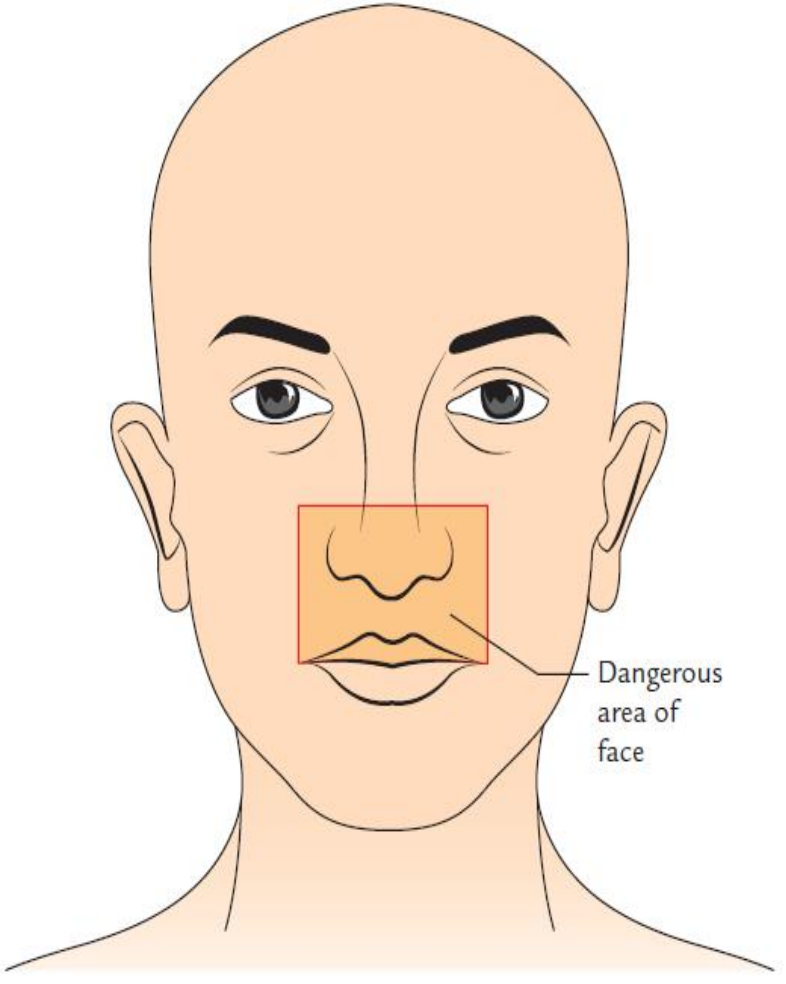
- The facial vein and its communications are devoid of valves
- the spread of septic emboli from infected area of the

→***lower part of the nose,***

→***upper lip, and***

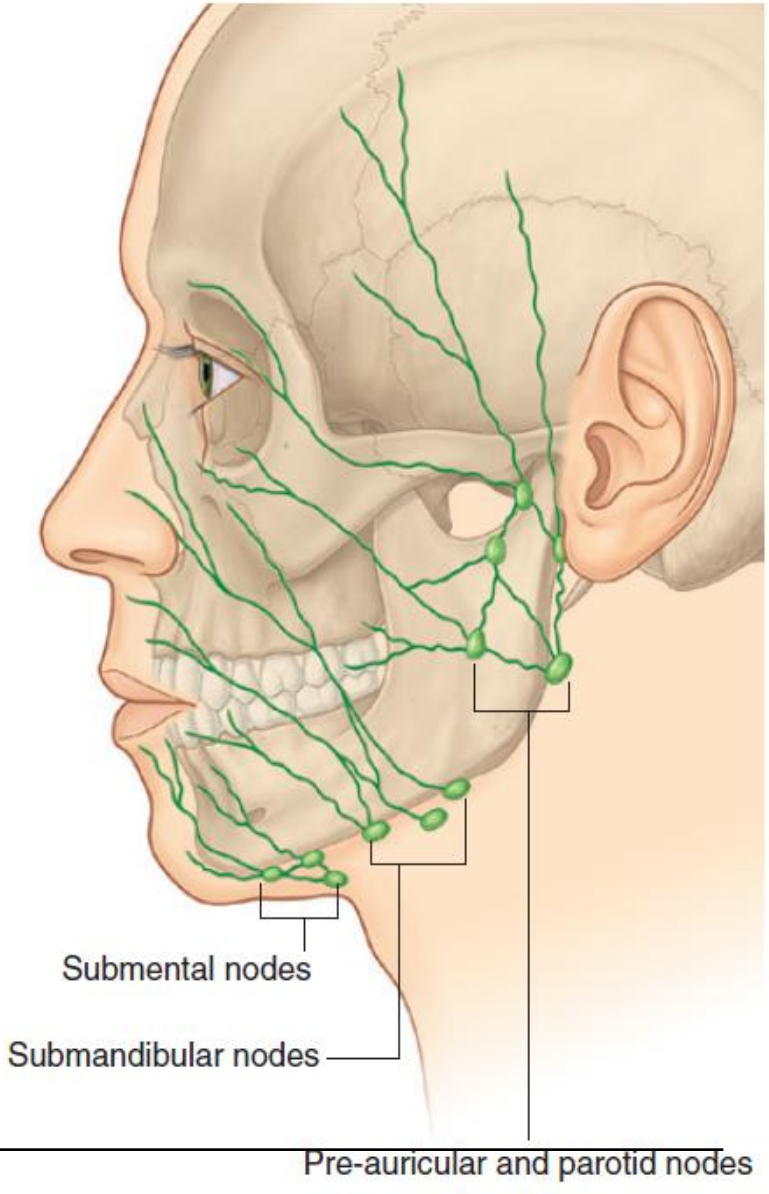
→***adjoining part of the cheek***

in retrograde direction through deep facial vein → pterygoid venous plexus → emissary vein →cavernous sinus leading to meningitis and cavernous sinus thrombosis

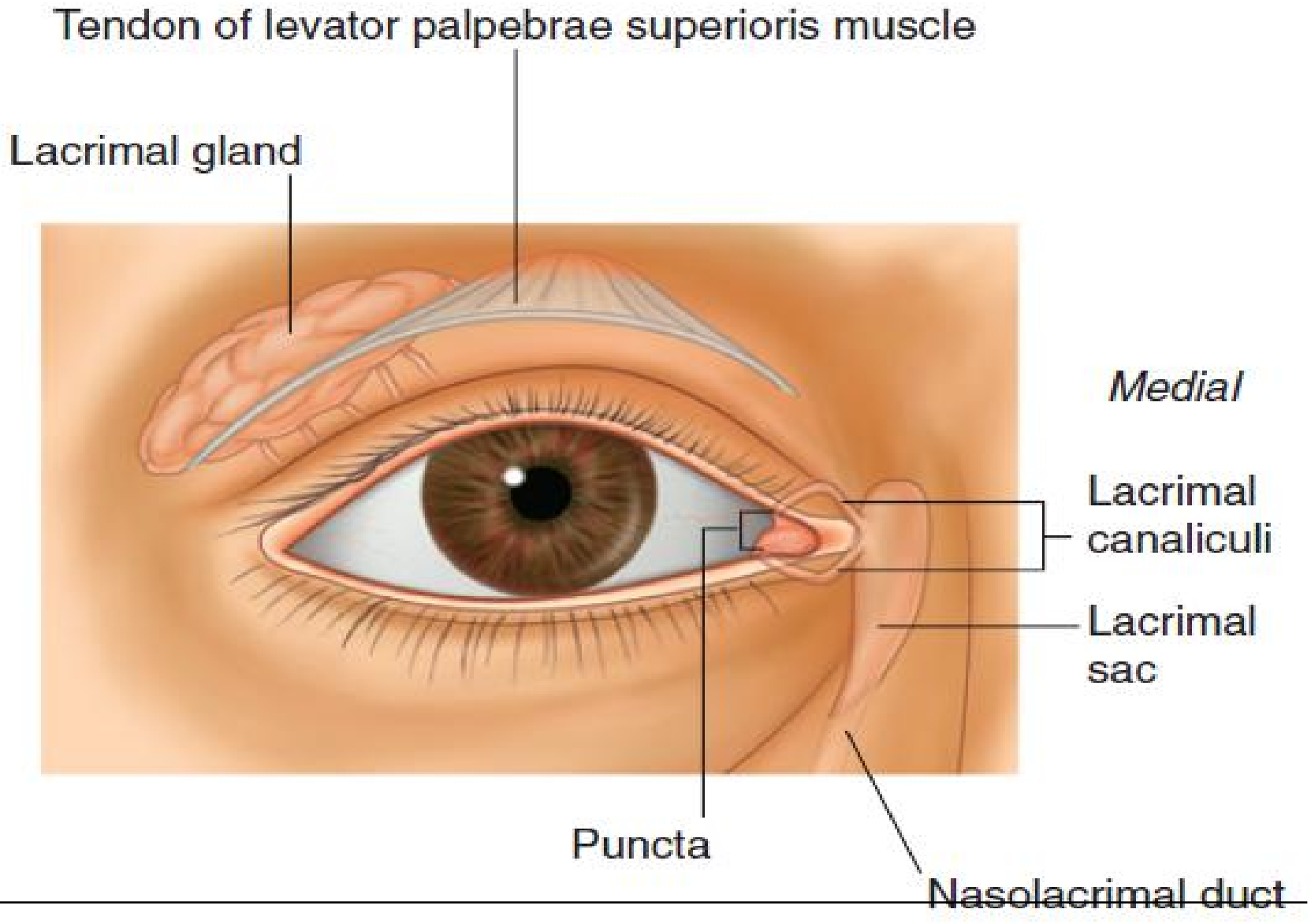


LYMPHATIC DRAINAGE

- **Preauricular *(superficial parotid) L.N*** → Forehead, later halves of the eyelids including conjunctiva, parotid area, and adjoining part of the cheek.
- **Submandibular L.N** → Central part of the forehead, medial halves of the eyelids, external nose, upper lip, lateral part of lower lip, medial part of cheek, and greater part of the lower jaw.
- **Submental L.N** → Central part of the lower lip and chin

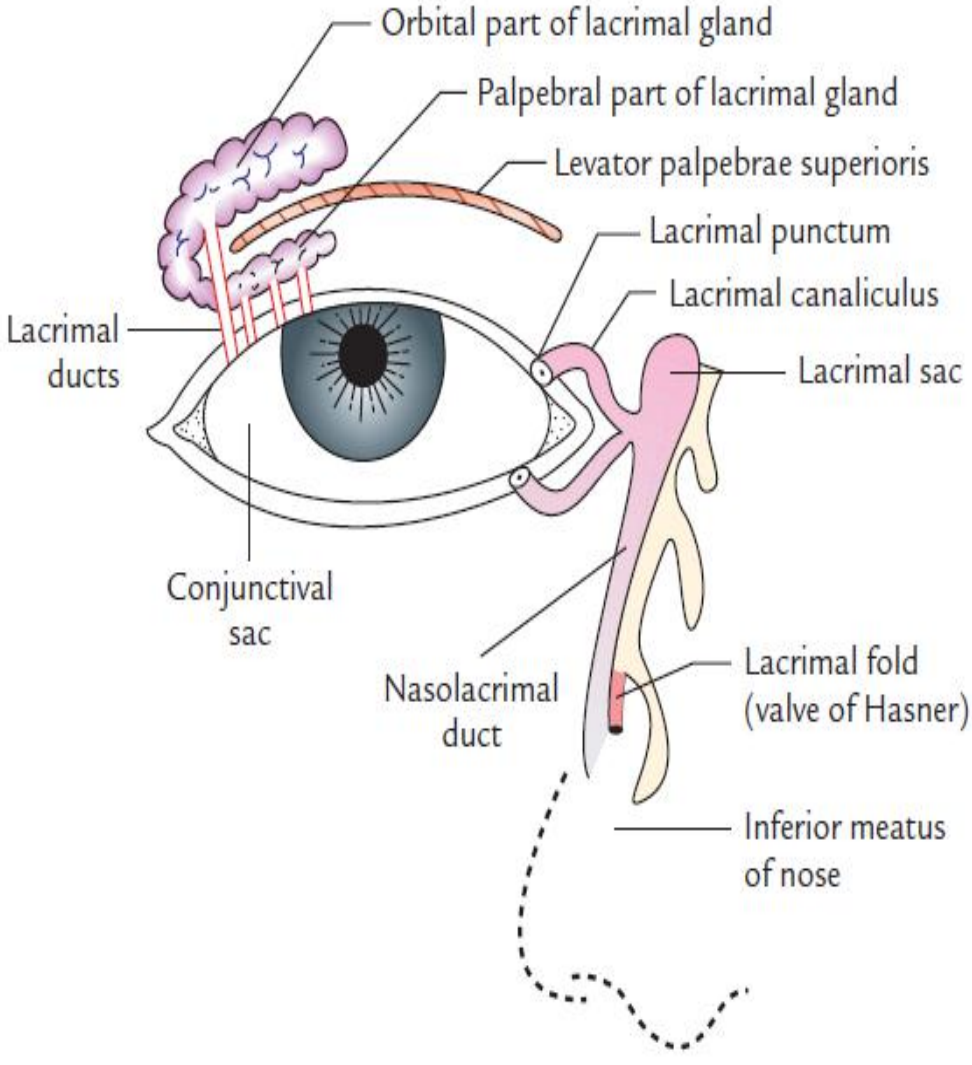


LACRIMAL APPARATUS



Components of lacrimal apparatus

1. Lacrimal gland.
2. Ducts of lacrimal gland.
3. Conjunctival sac.
4. Lacrimal puncta.
5. Lacrimal canaliculi.
6. Lacrimal sac.
7. Nasolacrimal duct.



1.Lacrimal gland:

- J-shaped *serous gland.*
- *It consists of →*

→ Orbital part upper large

→ Palpebral part lower small.

- *The two parts are continuous with each other* around the lateral margin of the levator palpebrae superioris.

2.Ducts of the lacrimal gland:

- Approximately 12 in number,
- From orbital part→ 4 or 5 ducts
- From palpebrae part→ 6–8 ducts.
- They open into the lateral parts of the superior fornix of the conjunctival sac.
- Lacrimal gland secretes the *lacrimal (tear) fluid*
- About 1 ml of lacrimal fluid is secreted per day.
- Half of it evaporates and remaining half is drained into lacrimal sac.

Functions of lacrimal fluid

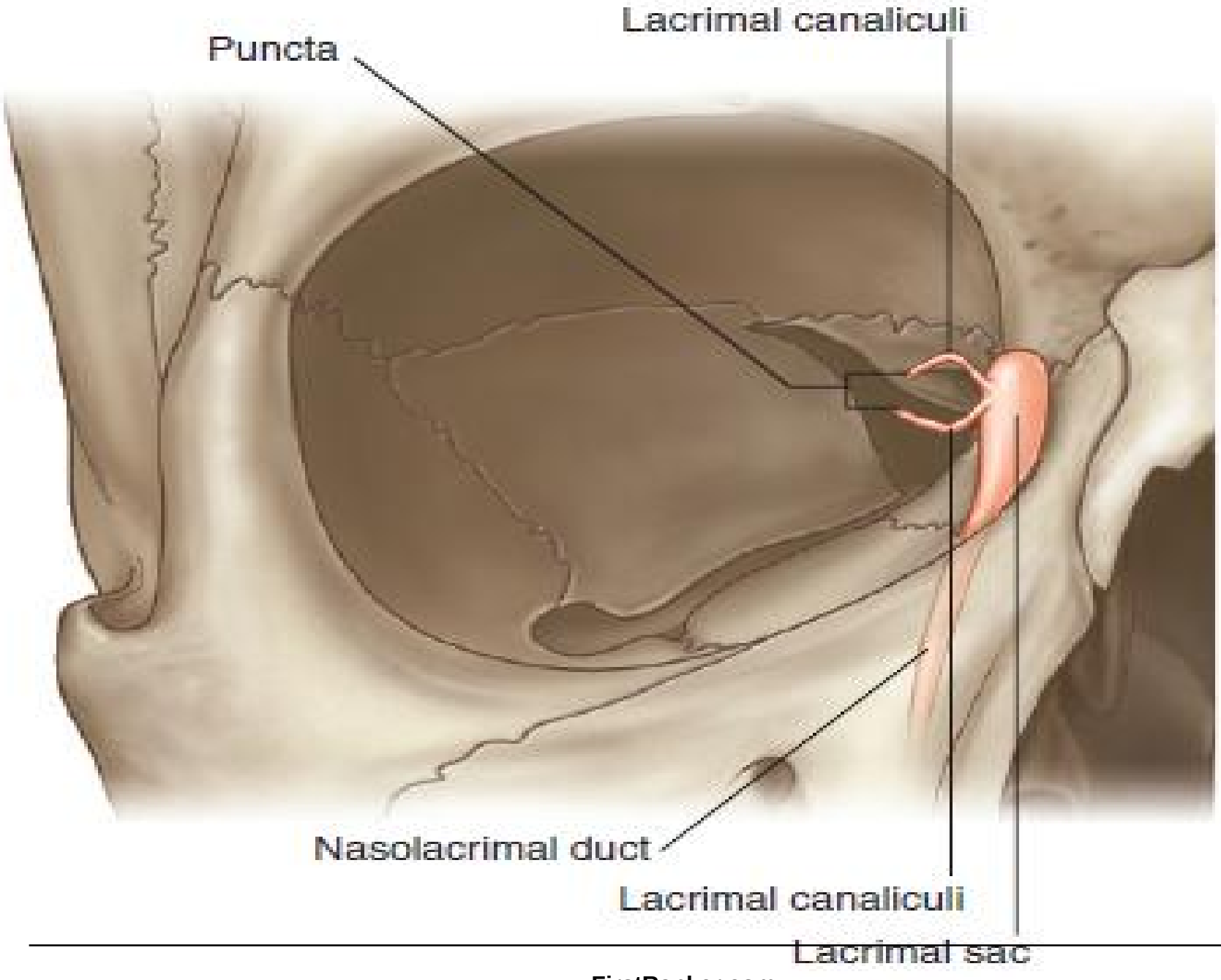
i. Flushes the conjunctiva and keeps the cornea moist

ii. Provides nourishment to cornea.

iii. Serves to express emotions

iv. Prevents infection (bactericidal lysozyme).

- ***Accessory lacrimal glands (glands of Krause):***
- *Very* small serous glands located beneath the palpebral conjunctiva near the fornices.
- They are about 35–40 in the upper eyelid and 6–8 in the lower eyelid.



3. ***Conjunctival sac***: It is a potential space between palpebral and bulbar conjunctiva.
4. ***Lacrimal puncta:*** These are small openings on the lid margins.
5. ***Lacrimal canaliculi:*** There are two lacrimal canaliculi , superior and inferior in upper and lower eyelids, respectively.
6. ***Lacrimal sac:*** It is the upper dilated end of the nasolacrimal duct.
- 7. ***Nasolacrimal duct:*** It is a membranous canal. Its lower opening presents *lacrimal fold* or *valve of Hasner*

Epiphora

- **It is an overflow of tears from conjunctival sac** over the cheeks.
- It may occur due to:

(a) excessive secretion of tears (*hyperlacrimation) following* intake of spicy food or emotional outbreak, or

(b) obstruction in lacrimal passages, *viz. lacrimal punctum,* lacrimal canaliculi, lacrimal sac and nasolacrimal duct,

(c) eversion of lower eyelid (*ectropion), hence that of* lacrimal papilla and lacrimal punctum due to laxity of orbiculi oculi in old age or loss of its tone due to paralysis