

Objective : At the end of this lecture you should be able to :

1. Recognize the motor nerve supply of the face via facial nerve ,its course and branches
2. Recognize the sensory nerve supply of the face via trigeminal nerve
3. Enlist the branches and sub branches of the trigeminal nerve by
4. Identify the branches of external and internal carotid arteries that supplied the face
5. Describe the course and branches of facial ,maxillary and ophthalmic arteries
6. Recognize the venous drainage of the face
7. Recognize the lymphatic drainage of the face
8. Define and clarify the clinical importance of the dangerous triangle of the face

Motor Nerve Supply

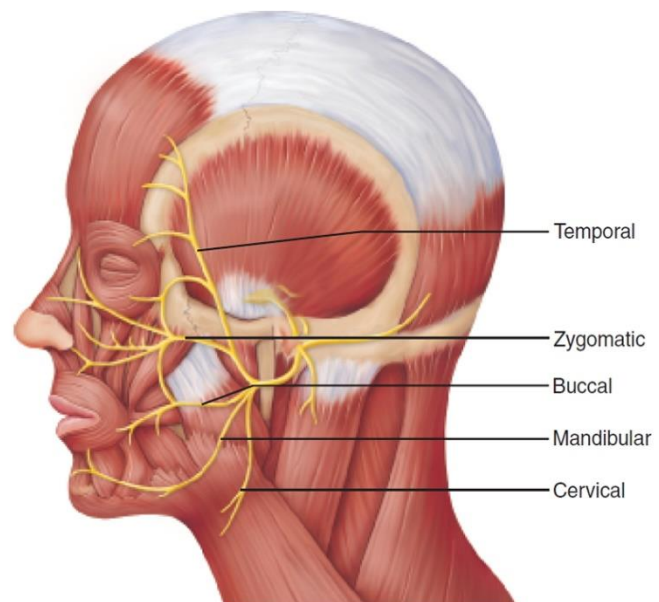
The motor Nerve Supply of the face is originated from the facial nerve. After coming out of cranial cavity via stylomastoid foramen, the facial nerve wind around the lateral aspect of styloid process and after that enters the parotid gland and it breaks up into 5 terminal branches

1. Temporal
2. Zygomatic
3. Buccal
4. Marginal mandibular
5. Cervical

These 5 sets of terminal branches create the goosefoot pattern on the face. Innervation of muscles of facial expression by the terminal branches of facial nerve.



A simple method of remembering the courses of the five major motor branches of the facial nerve

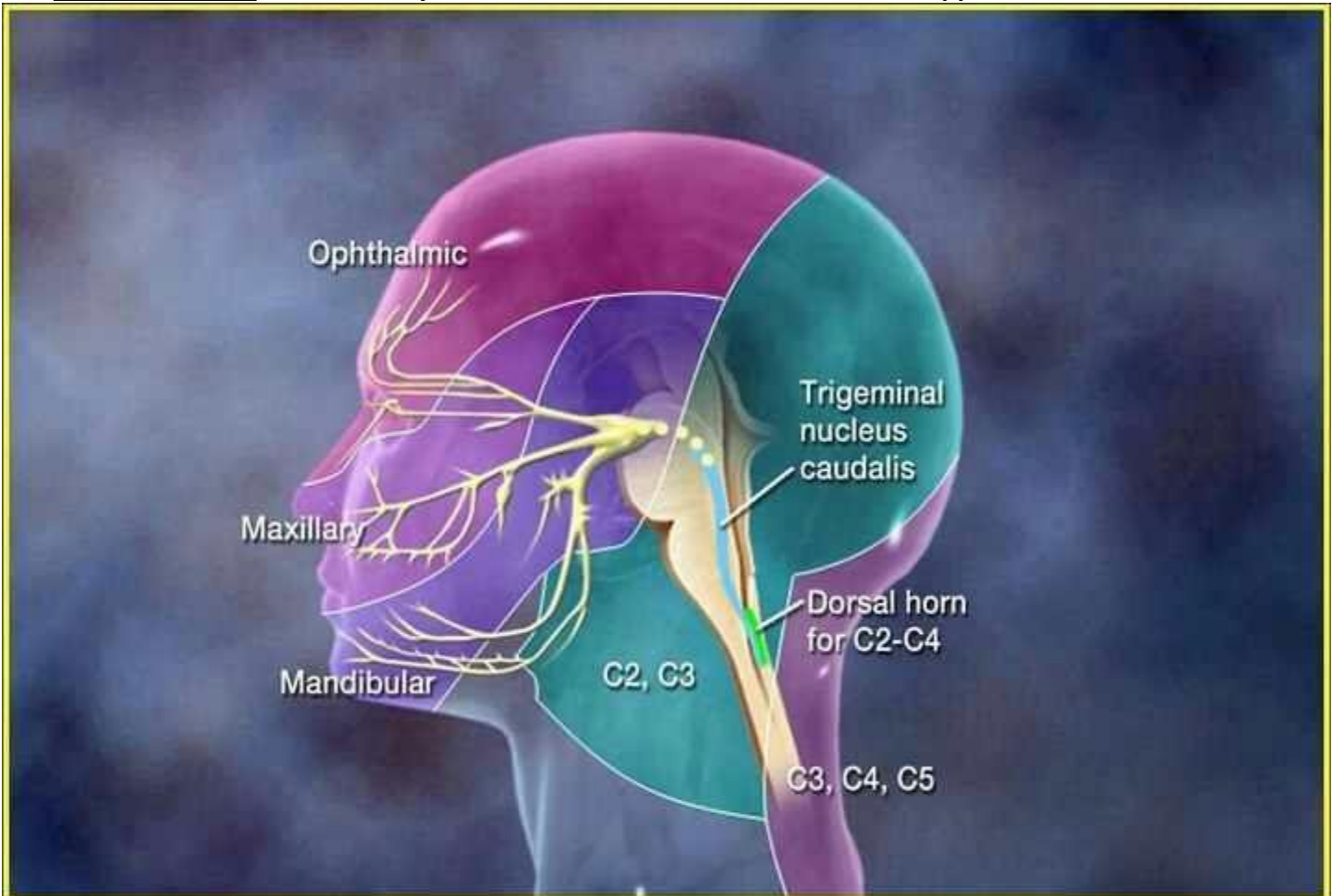


Motor branches to muscles of facial expression and scalp muscles

Applied Anatomy Bell's palsy: It's lower motor neuron type paralysis of facial muscles because of compression of facial nerve in the facial canal near stylomastoid foramen. Features on the Side of Paralysis.

Cutaneous Nerves Supply

The trigeminal nerve is the sensory nerve of the face for the reason that it supplies all of the face

**Branches of ophthalmic division of trigeminal nerve:**

- Supraorbital.
- Supratrochlear.
- Infratrochlear.
- External nasal.
- Lacrimal.

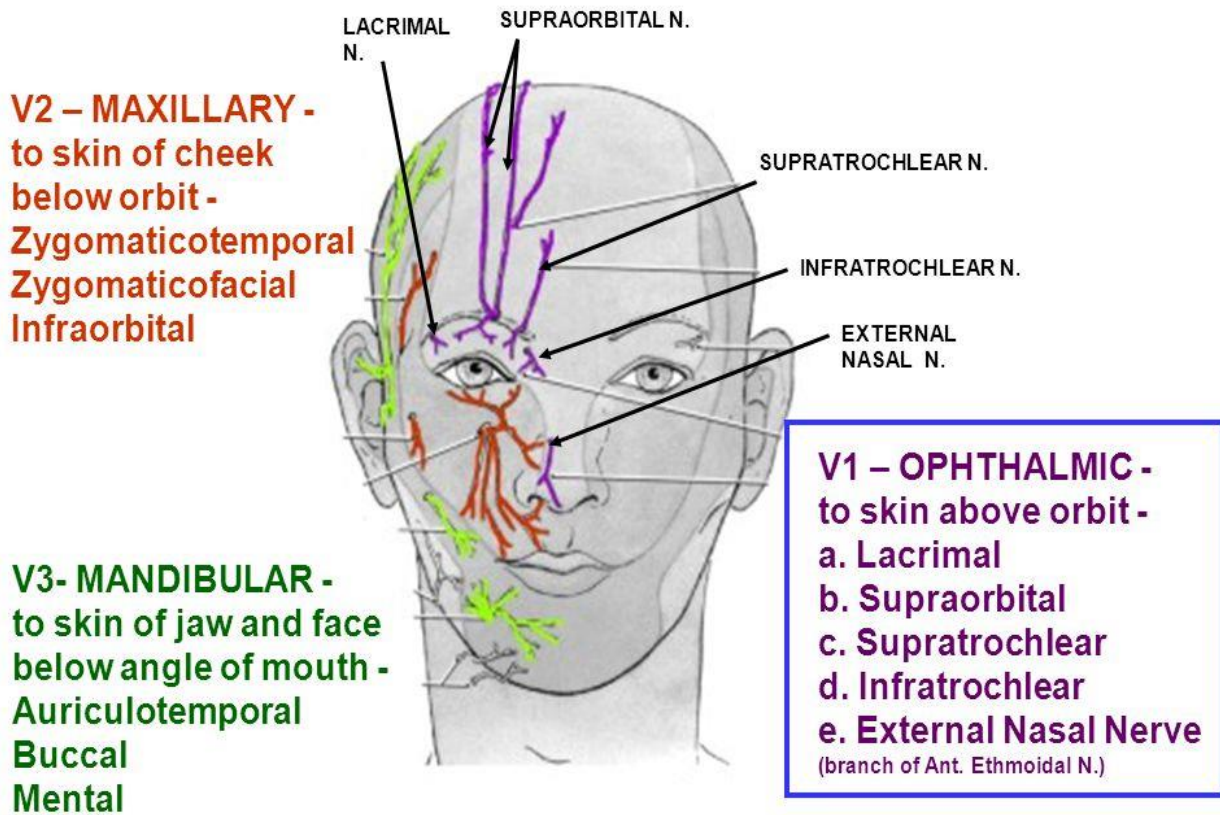
Branches of maxillary division of trigeminal nerve:

- Infraorbital.
- Zygomaticofacial.
- Zygomaticotemporal.

Branches of mandibular division of trigeminal nerve:

- Mental.
- Buccal.
- Auriculo temporal

TRIGEMINAL – SENSORY BRANCHES TO FACE

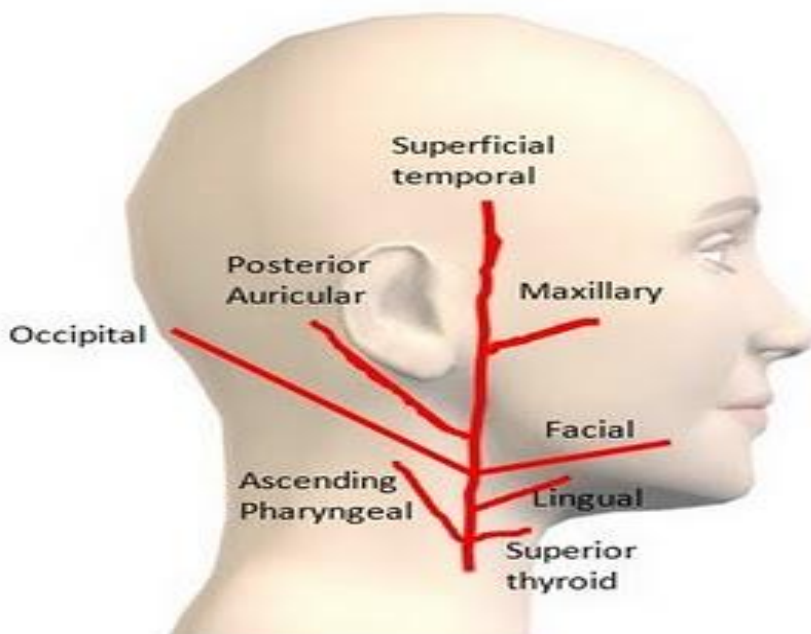


Arterial Supply Of The Face

The face is the highly vascular region and is supplied by these branches from

External carotid artery

Internal carotid artery



Branches Of external carotid artery are :

Some

Anatomists Like Formaldehyde,
Others Prefer Salt & Metals

- Superior thyroid artery
- Ascending pharyngeal artery
- Lingual artery
- Facial artery
- Occipital artery
- Posterior auricular artery
- Superficial temporal artery
- Maxillary artery

Blood supply of the face is through the following branches :

1. Facial artery

It is the primary artery of the face .

*Arises in the carotid triangle from the external carotid artery a little above the lingual artery

*Enter a groove on the posterior surface of the submandibular gland.

*Curves upward over the body of the mandible at the antero-inferior angle of the masseter

*Passes forward and upward across the cheek to the angle of the mouth,

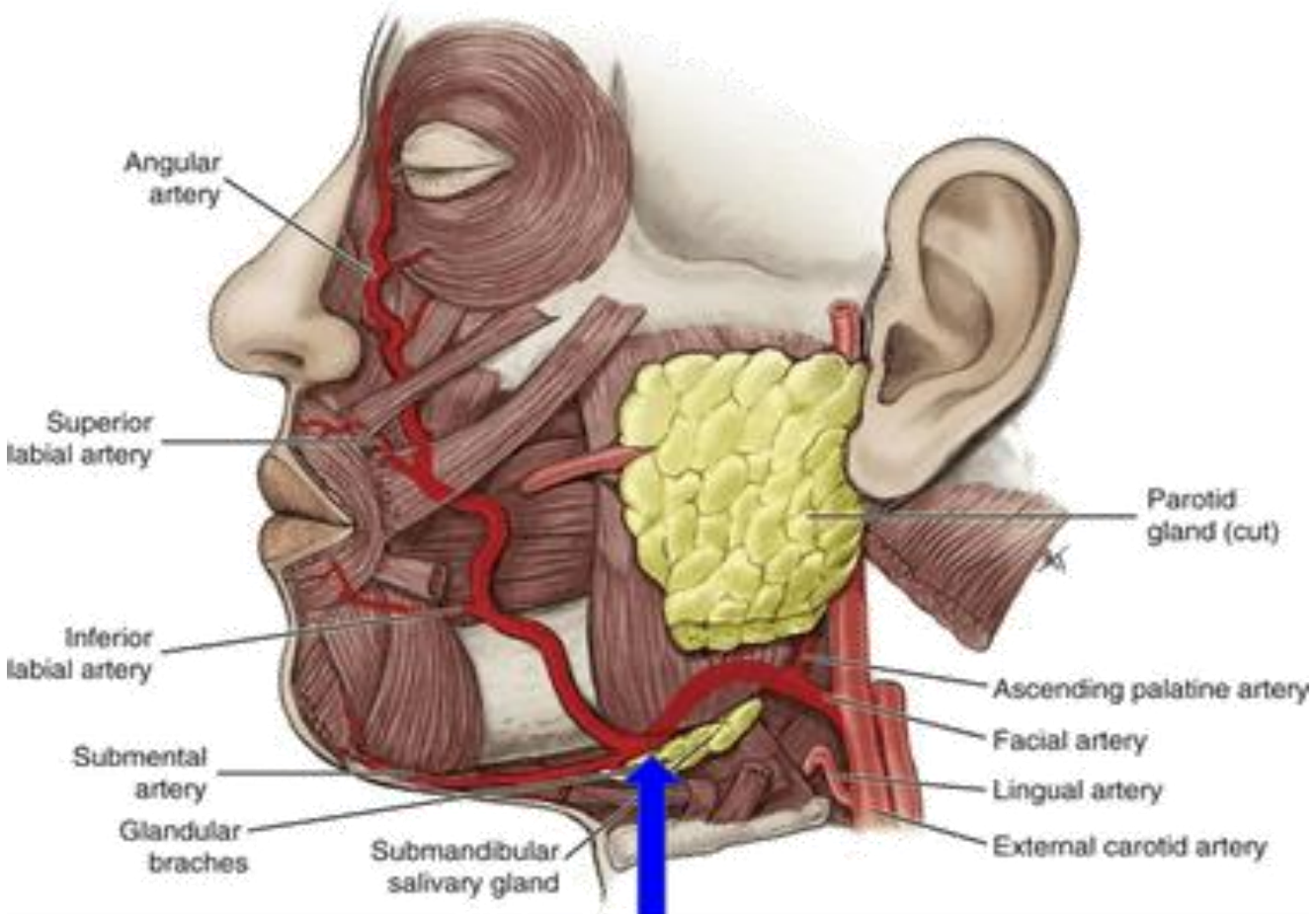
Ascends along the side of the nose,

Ends at the medial of the eye, under the name of the angular artery.

In the face it gives rise to :

- Inferior labial artery, to supply the lower lip.
- Superior labial artery, to supply the upper lip.
- Lateral nasal artery, to supply the ala and dorsum of the nose. All these branches originate anteriorly.
- Angular terminal branch
- Muscular branches, are small, unnamed and originate from the posterior aspect of the artery.

The facial artery is remarkably tortuous that is to accommodate itself to neck movements as movement of mandible ,lips and cheeks



Applied Anatomy :

*Since the face is vascular, the wounds of face bleed profusely but luckily they heal fast.

*The pulsations of facial artery can be felt at 2 sites

- At the base of the mandible close to antero-inferior angle of the masseter.
- About 1.25 cm lateral to the angle of the mouth.

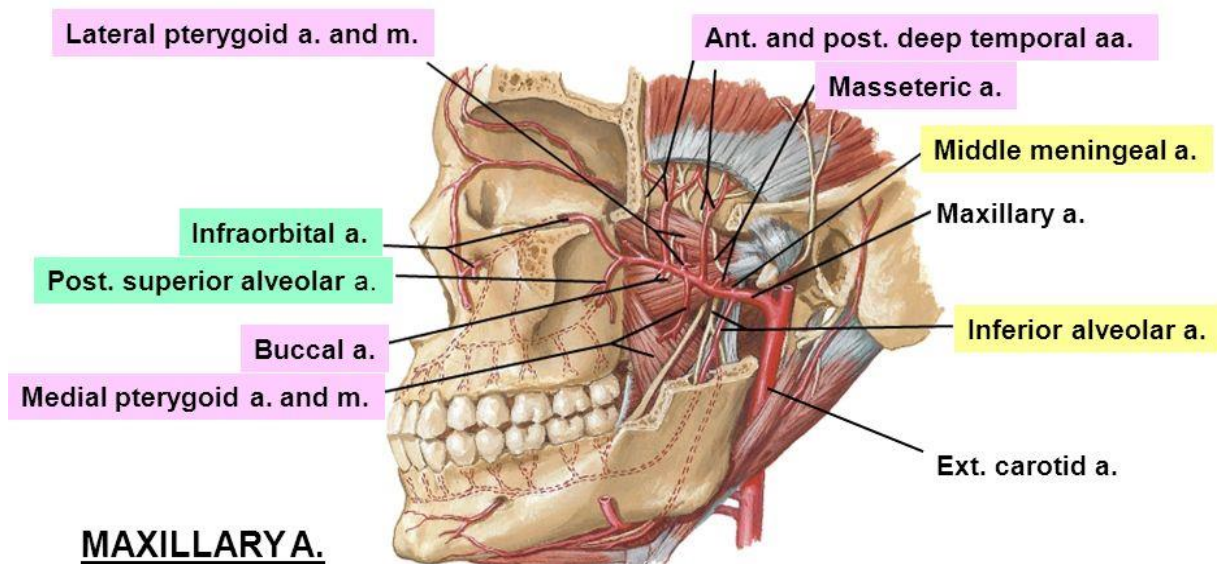
2. Transverse Facial Artery:

It's a small artery that originates from superficial temporal artery, inside the parotid gland After appearing from parotid gland it runs forwards on the masseter between the zygomatic arch and the parotid duct escorted by buccal branch of the facial nerve

3. Maxillary Artery.

- The larger of the two terminal branches of the external carotid artery
- Arises behind the neck of the mandible, and is at first imbedded in the substance of the parotid gland
- Passes forward between the ramus of the mandible and the sphenomandibular ligament
- Runs, either superficial or deep to the lateral pterygoid muscle, to the pterygopalatine fossa.
- Supplies the deep structures of the face, and may be divided into mandibular, pterygoid, and pterygopalatine portions.

MAXILLARY ARTERY



MAXILLARY A.

BRANCHES OF 1ST (MANDIBULAR) PART

BRANCHES OF 2ND (PTERYGOID) PART

BRANCHES OF 3RD (PTERYGOPALATINE) PART

Branches of the 1st part:

- 1) Deep auricular (to external acoustic meatus)
- 2) Anterior tympanic artery (to the tympanic membrane)
- 3) Middle meningeal (to dura mater and calvaria)
- 4) Accessory meningeal aa. (to the cranial cavity)
- 5) Inferior alveolar artery (to the mandibular gingiva and teeth)

Branches of the 2nd part:

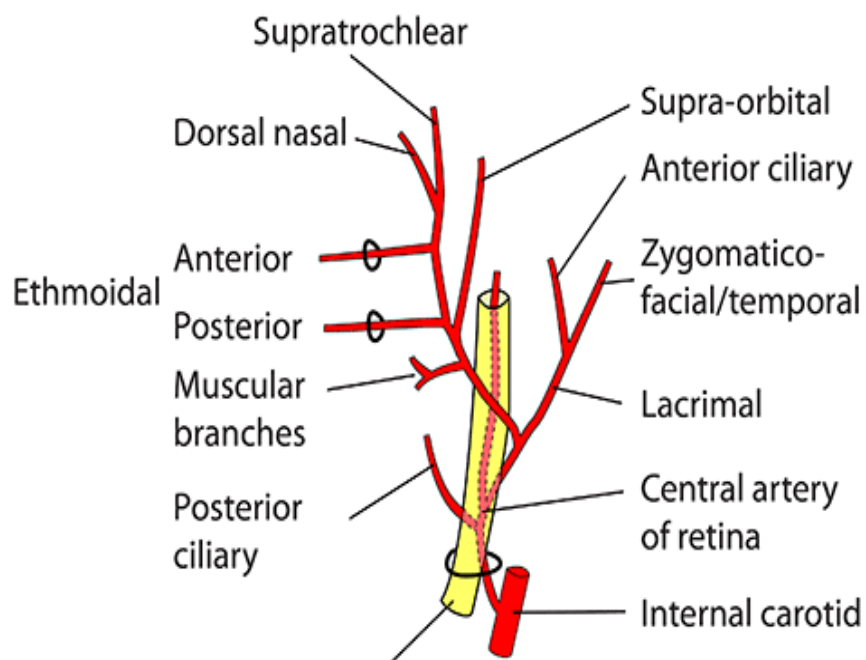
- 1) Deep temporal aa. (to the temporal muscle)
- 2) Pterygoid aa. (to the pterygoid muscles)
- 3) Masseteric artery (to the masseter muscle)
- 4) Buccal artery (to the buccinator muscle)

Branches of the 3rd part:

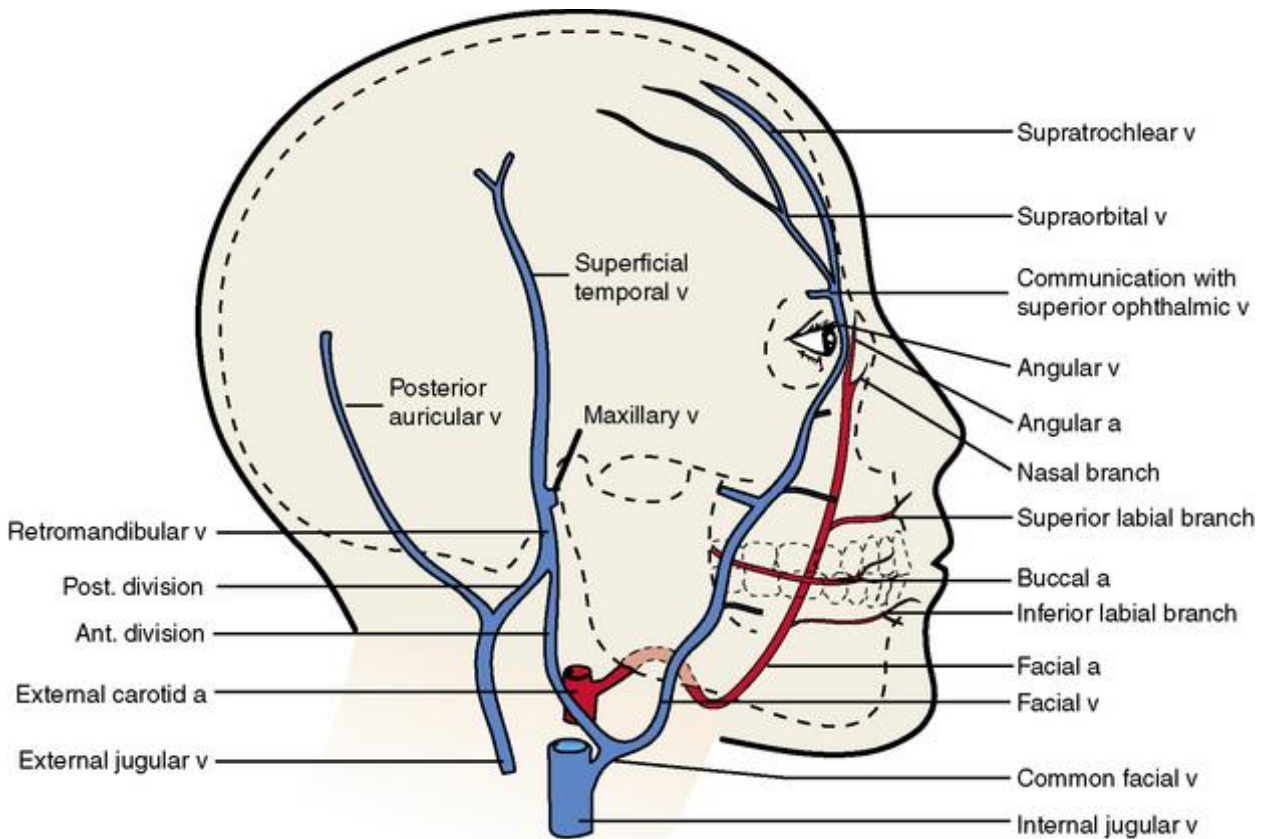
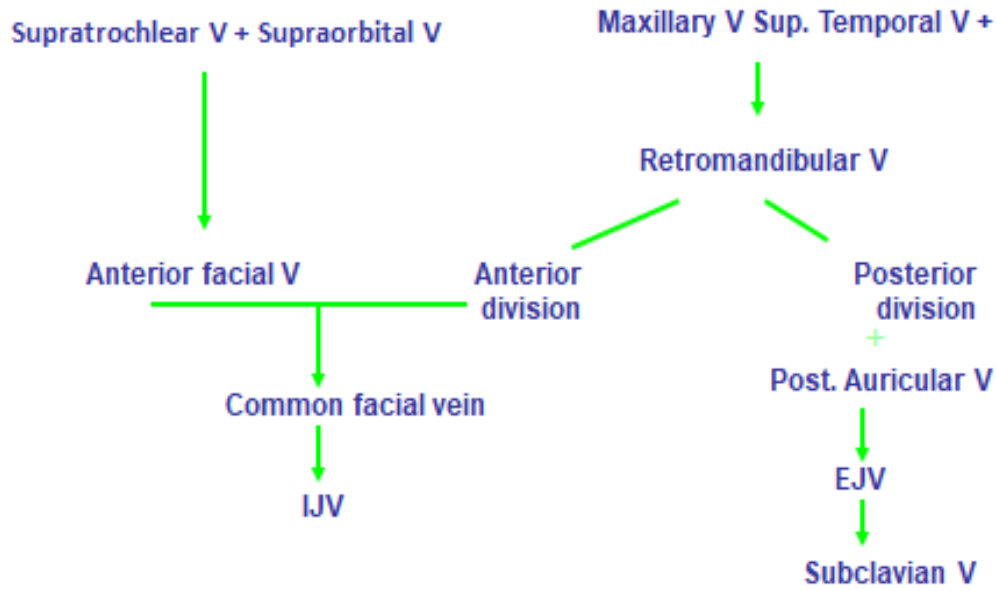
- 1) Infraorbital artery
- 2) Posterior superior alveolar artery

Ophthalmic Artery :

The ophthalmic artery (OA) is the first branch of the internal carotid artery distal to the cavernous sinus. Branches of the OA supply all the structures in the orbit as well as some structures in the nose, face and meninges



Venous Drainage of the Face



1. Facial vein

It's the largest vein of the face.

- *Started at the medial angle of the eye by the union of supratrochlear and supraorbital veins. After formation,
- *Runs straight downwards and backwards behind the facial artery to get to the anteroinferior angle of the masseter.
- *Pierces the deep fascia, crosses superficial to submandibular gland
- *Joins the anterior section of retromandibular vein below the angle of the mandible to create the common facial vein,
- *which empties into the internal jugular vein.

2. Retromandibular vein

The retromandibular vein is composed by the union of the superficial temporal and the maxillary vein inside the parotid gland. On leaving the parotid gland, it splits into 2 sections: anterior and posterior. The anterior section joins the facial vein to create the common facial vein on the other hand posterior section joins the posterior auricular vein to create the external jugular vein.

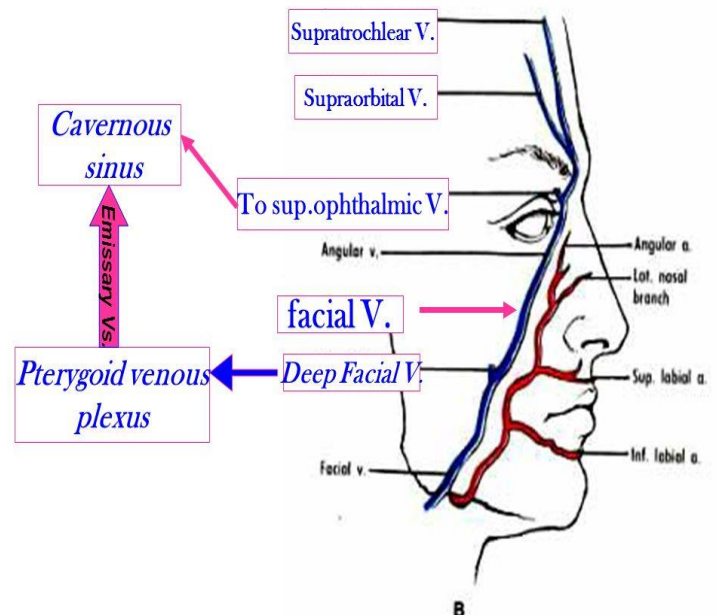
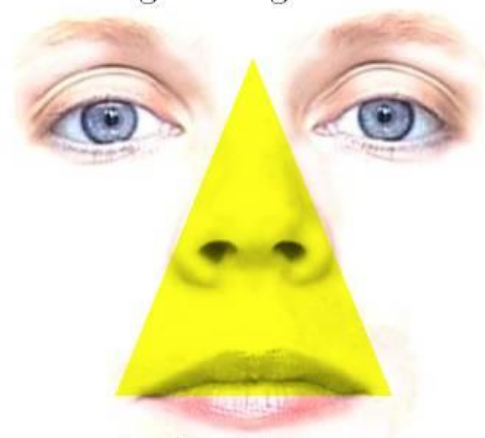
Dangerous Area of the Face

The danger triangle of the face consists of the area from the corners of the mouth to the bridge of the nose, including the nose and maxilla. This area has been so named because boils, infections of the nose and injuries around the nose, especially those that become infected can readily spread to cavernous sinus resulting in cavernous sinus thrombosis.

The facial vein interacts with the entire cavernous sinus via the following 2 roots

- the facial vein communicates with the superior ophthalmic vein, which enters backwards inside the orbit and drains into cavernous sinus.
- In the cheek, the facial vein joins to the pterygoid venous plexus by the deep facial vein. which in turn communicates with the entire cavernous sinus via an emissary vein.

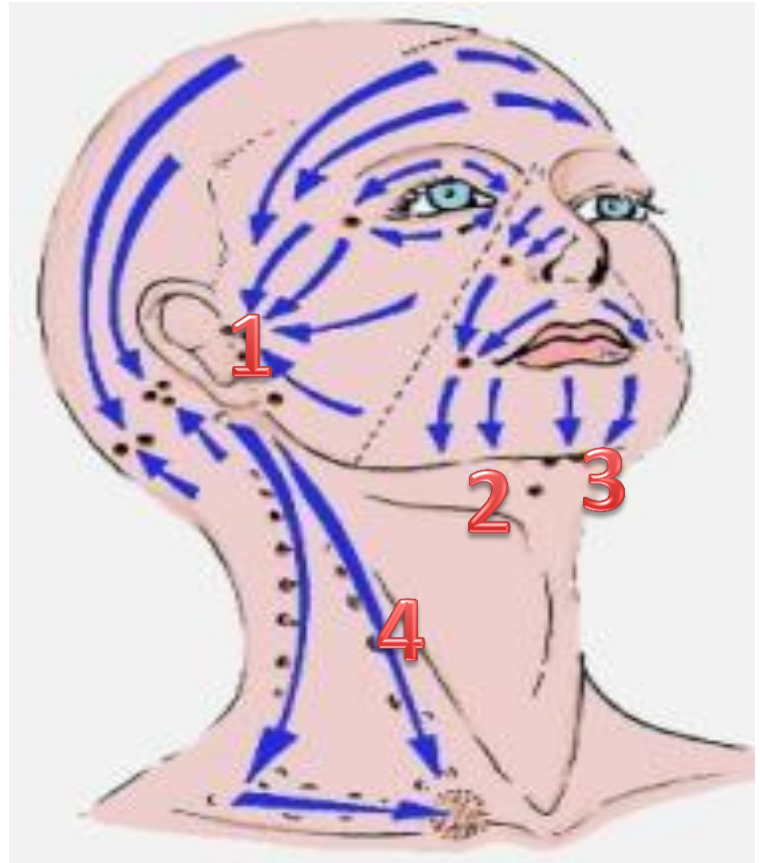
Danger Triangle of Face



Lymphatic Drainage of the Face

1. The lymph from greater part of the forehead, lateral halves of eyes, parotid area and adjoining part of the cheek is drained into preauricular lymph nodes (also termed superficial parotid lymph nodes).
 2. The lymph from 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 is drained into submandibular lymph nodes.
 3. The lymph from central part of the lower lip and chin is drained into submental lymph nodes.
- Then all drain into deep cervical lymph nodes

1. Parotid lymph nodes
2. Submandibular lymph nodes
3. Submental lymph nodes
4. Deep cervicle lymph nodes

**Answer the following questions**

- Q1)** The wounds of the face bleed profusely and heal quickly .Explain (why?)
- Q2)** Identify the dangerous area of the face and discuss its clinical importance .
- Q3)** The lymphatic drainage of the central part of lower lip and chin drain to :
- a. Submandibular lymph nodes
 - b. Sumental lymph nodes
 - c. Parotid lymph node
 - d. Occipital lymph nodes
 - e. Preauricular lymph nodes