Head and Face Anatomy
Epicranial region
The Scalp

The soft tissue that covers the vault of skull.

Extends from supraorbital margin to superior nuchal line.
Layers of the scalp

S = skin
C = connective tissue
A = aponeurosis of occipito
C = Frontalis
L = loose areolar C.T.
( subaponeurotic space )
P = pericranium
( periosteum )
1. **Skin**
- Hairy and rich in sebaceous gland
- Has rich blood supply

2. **Connective tissue**
- Dense & contains blood vessels and nerves of scalp
- Connects the first layer to the third layer (the three layers move as one)
- Prevents retraction of blood vessels after wounds
  - *massive bleeding*
3. Occipito-frontalis

- Frontal belly of occ.front.
- Occipital belly of occ.front.
- Epicranial Aponeurosis

*Frontal belly of occ.front.*

*Occipital belly of occ.front.*
4. **Subaponeurotic space**

- The plane of movement of the scalp
- The site of scalping
- Site of collection of fluid, pus and blood
  - subaponeurotic hge. results in *black eye*
- Contains emissary veins.
  - Infection of this layer may extend to intracranial structures, especially cavernous sinus

5. **Pericranium**

- Loosely attached to skull bones, firmly adherent to sutures
  - Subperiosteal bleeding *takes the shape of the underlying bone*
Arterial supply of scalp

They are 5 arteries on each side

3 in front of auricle
1- supratrochlear
2- supraorbital
3- superficial temporal

2 behind auricle
1- post. auricular
2- occipital
Arteries of scalp
- It extends from lower border of mandible to the hair line (forehead is common for face and scalp)
- It extends laterally to the ear auricle

**Layers of the face:**

1- **skin**: it is thick, has rich blood supply (rapid healing)

2- **superficial fascia**: contains ms, vessels and nerves of the face

No deep fascia in most of the face (to allow for facial expression)
Facial muscles

Thin, flat muscles, connected to the dermis of the skin
- Innervated by the facial nerve
- Considerable individual variation
- Often blend into each other
- Relaxed skin tension lines run perpendicular to the direction of muscle fibers
- **Frontalis** – elevates brow
- **Procerus** – depresses brow
- **Corrugator Supercilii** – depresses brow
- **Orbicularis Oculi** – closes eye, depresses brow
Nose muscles

- **Nasalis** - compresses/dilates nose
- **Depressor Septi Nasi** - depresses tip
- **Levator labii superioris alaeque nasi** - dilates nostrils and elevates upper lip
Lip muscles

Divided into 3 groups:
- **Group 1** (insert into modiolus)
  - **Orbicularis oris** – closes mouth
  - **Buccinator** – presses lips and cheeks against the teeth
  - **Risorius** – draws commissure laterally
  - **Levator anguli oris** – elevates commissure
  - **Depressor anguli oris** – depresses and moves laterally commissure
  - **Zygomaticus major** – elevates and moves laterally commissure
Group 2 (insert into upper lip)

- **Levator labii superioris** – elevates the upper lip
- **Levator labii superioris alaeque nasi** – dilates nostrils and elevates upper lip
- **Zygomaticus minor** - elevates and pulls commissure laterally; contributor to nasolabial fold
Group 3 (insert into lower lip)

- **Depressor labii inferioris** — depresses and pulls lip slightly laterally
- **Mentalis** — elevates lower lip
- **Platysma** - depresses lower lip
Nerve supply of the face

sensory

By branches of trigeminal nerve except the skin covering the angle of mandible (supplied by great auricular nerve)

maxillary div.
1-supratrochlear
2-supraorbital
3-palpebral br. of lacrimal
4-infratrochlear
5-external nasal

ophthalmic div.
1-supratrochlear
2-supraorbital
3-palpebral br. of lacrimal
4-infratrochlear
5-external nasal

motor

By facial N. which supplies all muscles of the face except lev. Palp. Sup. (by oculomotor)

mandibular div.
1-mental
2-buccal
3-auriculotemporal
Nerve supply of the face
Facial nerve

Innervates muscles of facial expression
- Exits stylomastoid foramen and crosses parotid gland, where divides into five major branches:
  - Temporal
  - Zygomatic
  - Buccal
  - Marginal Mandibular
  - Cervical
- Posterior auricular branch arises proximal to parotid

There is significant variability in the course and arborization of this nerve from patient to patient
Nerve supply

Forehead
- Frontalis – temporal
- Procerus – temporal, zygomatic, buccal
- Corrugator supercilii – temporal, zygomatic, buccal
- Orbicularis oculi – temporal, zygomatic
Nerve supply

Nose

- **Nasalis** – zygomatic, BUCCAL
- **Depressor Septi Nasi** – BUCCAL
- **Levator labii superioris alaeque nasi** – BUCCAL
Lips Group 1
- Orbicularis oris – BUCCAL, MARGINAL MANDIBULAR
- Buccinator – BUCCAL, zygomatic
- Risorius – BUCCAL
- Levator anguli oris – BUCCAL, zygomatic
- Depressor anguli oris – BUCCAL, MARGINAL MANDIBULAR
- Zygomaticus major – ZYGOMATIC, BUCCAL
Nerve supply

Group 2 (insert into upper lip)
- Levator labii superioris — BUCCAL
- Levator labii superioris alaeque nasi — BUCCAL
- Zygomaticus minor -- BUCCAL
Nerve supply

Group 3 (insert into lower lip)

- **Depressor labii inferioris** – buccal, MARGINAL MANDIBULAR
- **Mentalis** – MARGINAL MANDIBULAR
- **Platysma** – marginal mandibular, CERVICAL
Sensory supply

Sensory innervation to the face is provided by the branches of the Trigeminal Nerve
- V1 (Ophthalmic Division)
  -- Supraorbital
  -- Supratrochlear
  -- Palpebral branch of lacrimal nerve
  -- Infraorbital nerve
  -- External nasal branch of anterior ethmoidal nerve
- V2 (Maxillary Division)
  -- Infraorbital
  -- Zygomaticofacial
  -- Zygomaticotemporal
- V3 (Mandibular Division)
  -- Mental
  -- Buccal
  -- Auriculotemporal
Sensory supply

Sensory branches of the trigeminal nerve course superficially are prone to damage.
- However, most of the resulting sensory dysfunction is not debilitating because of collateral sprouting of nearby sensory nerves.
- Sensation to the posterior scalp and superior neck is provided by branches of C2 and C3
- Knowledge of sensory nerve anatomy is useful for regional anesthesia/nerve blocks.
Arterial supply

The face is supplied by branches of the external carotid and the internal carotid artery
- Two main branches of the external carotid:
  - Facial artery and superficial temporal artery
- Main branches of the internal carotid that supplies the medial upper face and scalp is the ophthalmic artery
Arterial blood supply

- Mainly by facial artery
- It is a tortuous artery
- It gives the following branches in the face

1. inferior labial
2. superior labial
3. nasal
Venous drainage of scalp and face
Venous drainage of scalp and face

Supratrochlear V + Supraorbital V

Maxillary V Sup. Temporal V +

Retromandibular V

Anterior facial V

Common facial vein

Anterior division

Posterior division

Post. Auricular V

EJV

Subclavian V

* Occipital veins drain into suboccipital plexus of veins