ORBIT-III
Lesson Plan

• Optic nerve.
• Trochlear nerve.
• Abducent nerve.
• Ophthalmic nerve & its branches.
• Ophthalmic artery.
• Ophthalmic veins.
Optic Nerve

Length - 4 cm

• It emerges from the eyeball 3-4 cm nasal to the posterior pole.
• Runs backwards and medially.
• Passes through the optic canal to enter the cranial cavity.
• In the cranial cavity, it joins the optic chiasma.
Optic Nerve contd...

- Optic nerve is enclosed by 3 meningeal sheaths derived from meninges of brain.
- Central artery of retina and central vein of retina pierce the optic nerve about ~ 1.25 cm behind the eyeball.
It is crossed superiorly by:

- Superior Ophthalmic vein.
- Ophthalmic artery.
- Nasociliary nerve.
Trochlear Nerve

• 4th cranial nerve.

• Emerges from dorsal midbrain.

• Enters the orbit through superior orbital fissure, superolateral to the common tendinous ring.

• It supplies Superior Oblique muscle.
Abducent Nerve

• 6th cranial nerve.
• Enters the orbit through **superior orbital fissure** within the common tendinous ring, lateral to two divisions of oculomotor nerve and nasociliary nerve.
• It supplies **Lateral Rectus muscle.**
**Ophthalmic Nerve**

- **1st division** of Trigeminal nerve (5th cranial nerve).
- It is purely sensory.
- It arises from trigeminal ganglion (Semilunar ganglion).
- It enters the orbit through superior orbital fissure by dividing into 3 branches: Lacrimal, Frontal and Nasociliary.
Lacrimal Nerve

- Smallest branch of Ophthalmic nerve.
- Runs along the lateral wall of orbit.
- It is joined by a communicating twig from Zygomaticotemporal nerve.
- It supplies:
  - Lacrimal gland.
  - Conjunctiva.
  - Lateral part of skin of upper eyelid.
Frontal Nerve

- It is the largest branch of Ophthalmic nerve.

- It divides into:
  - Supraorbital nerve.
  - Supratrochlear nerve.
Nasociliary Nerve

- It crosses the optic nerve from above and from lateral to medial side.

- It ends by dividing into:
  - Anterior Ethmoidal Nerve.
  - Infratrochlear Nerve.

BRANCHES-
- Long ciliary nerves.
- Sensory root to the Ciliary ganglion.
- Posterior Ethmoidal Nerve.
Branches of Nasociliary Nerve contd...

**Long Ciliary Nerves-**
- 2-3 in number.
- Supply:
  - Ciliary body.
  - Iris.
  - Cornea.

**Posterior Ethmoidal Nerve-**
- Enters the posterior ethmoidal foramen.
- Supplies:
  - Ethmoidal air sinuses.
  - Sphenoidal air sinuses.
Branches of Nasociliary Nerve contd...

**Anterior Ethmoidal Nerve**-

- Enters the anterior ethmoidal foramen.

- Passes through anterior ethmoidal canal.

- Enters the nasal cavity by passing through a slit at the side of crista galli.

- Gives **Internal nasal branches**.

- Leaves the nasal cavity at the lower border of nasal bone as **external nasal nerve**.
Ophthalmic Artery

- It is a branch of Internal Carotid Artery.

- It enters the orbit through the optic canal, inferolateral to the optic nerve.

- It crosses the optic nerve superiorly from lateral to medial side.

- It runs along the medial wall of orbit.

- Near the medial angle of eye, it terminates by dividing into:
  - Supra-trochlear artery and
  - Dorsal nasal artery.
Branches of Ophthalmic Artery

I. To the eyeball.

II. To the orbital muscles.

III. Along the lateral wall of the orbit.

IV. Along the medial wall of the orbit.
Branches of Ophthalmic Artery

**BRANCHES TO THE EYEBALL:**

i. Central artery of retina.

ii. Posterior ciliary arteries.

**BRANCHES TO THE ORBITAL MUSCLES:**

• Anterior ciliary arteries.

**BRANCHES ALONG THE LATERAL WALL OF THE ORBIT:**

• Lacrimal artery.
Branches of Ophthalmic Artery

BRANCHES ALONG THE MEDIAL WALL OF THE ORBIT:

i. Posterior ethmoidal artery.

ii. Anterior ethmoidal artery.

iii. Medial palpebral arteries.

iv. Supra-orbital artery.

v. Supra-trochlear artery.

vi. Dorsal nasal artery.
Branches of Lacrimal Artery

- Glandular branches to lacrimal gland.
- Lateral palpebral arteries.
- Zygomatic artery.
- Recurrent meningeal artery.
Ophthalmic Veins

- There are two venous channels in the orbit, the superior and inferior ophthalmic veins.

- These pass through the superior orbital fissure to join the cavernous sinus.
Thank you