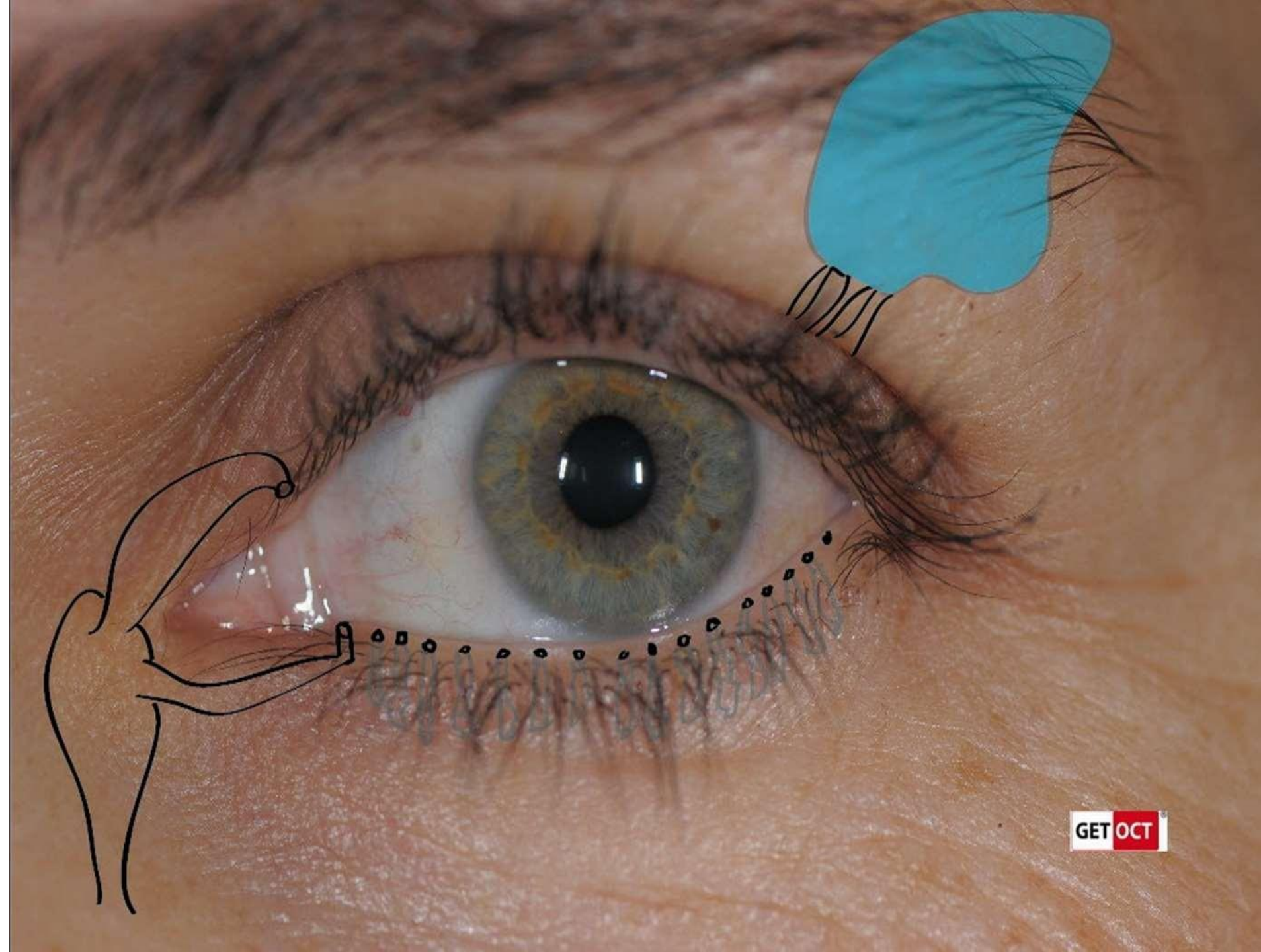


ANATOMY OF LACRIMAL GLAND

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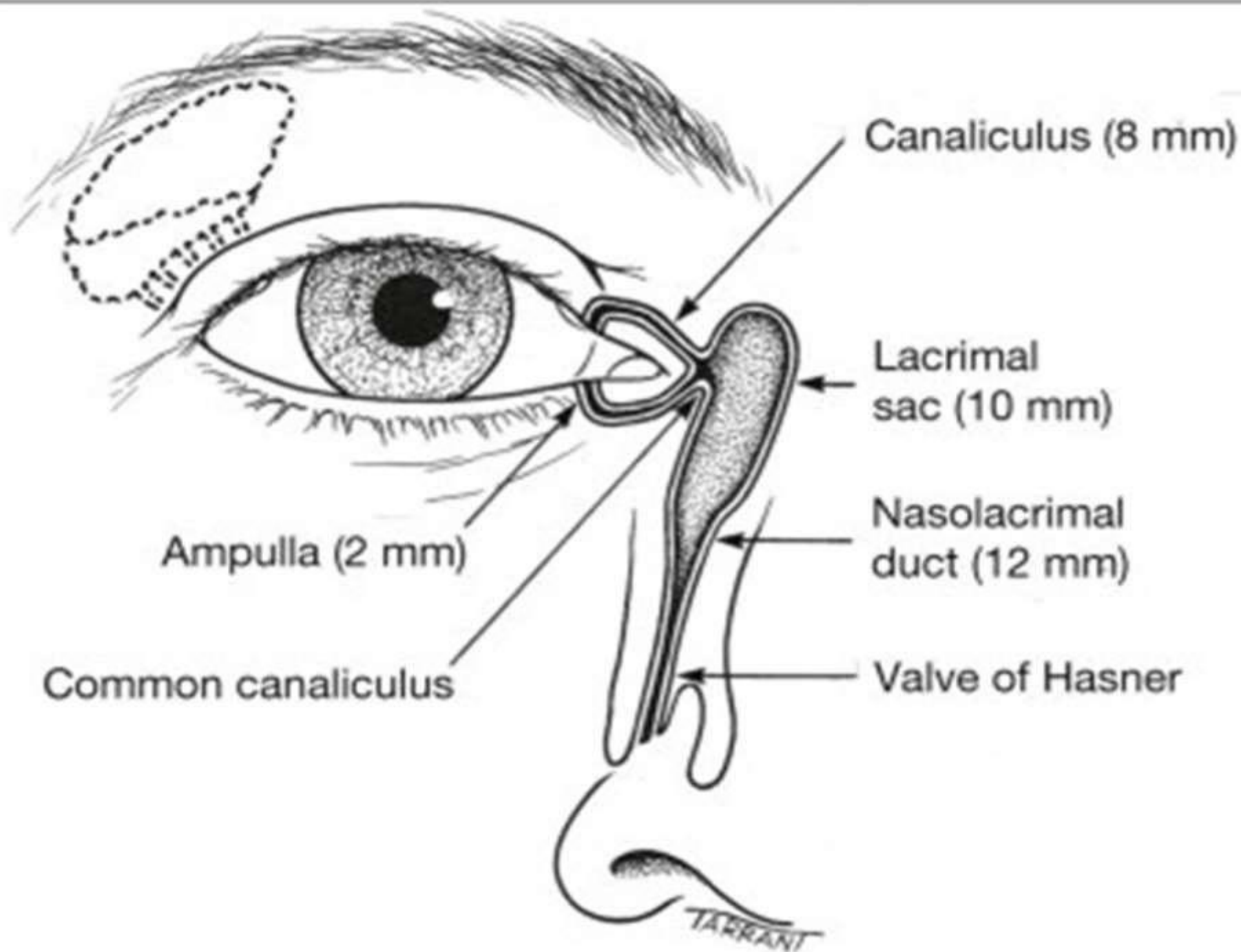


Lacrimal apparatus

It is concerned with the tear formation & transport.

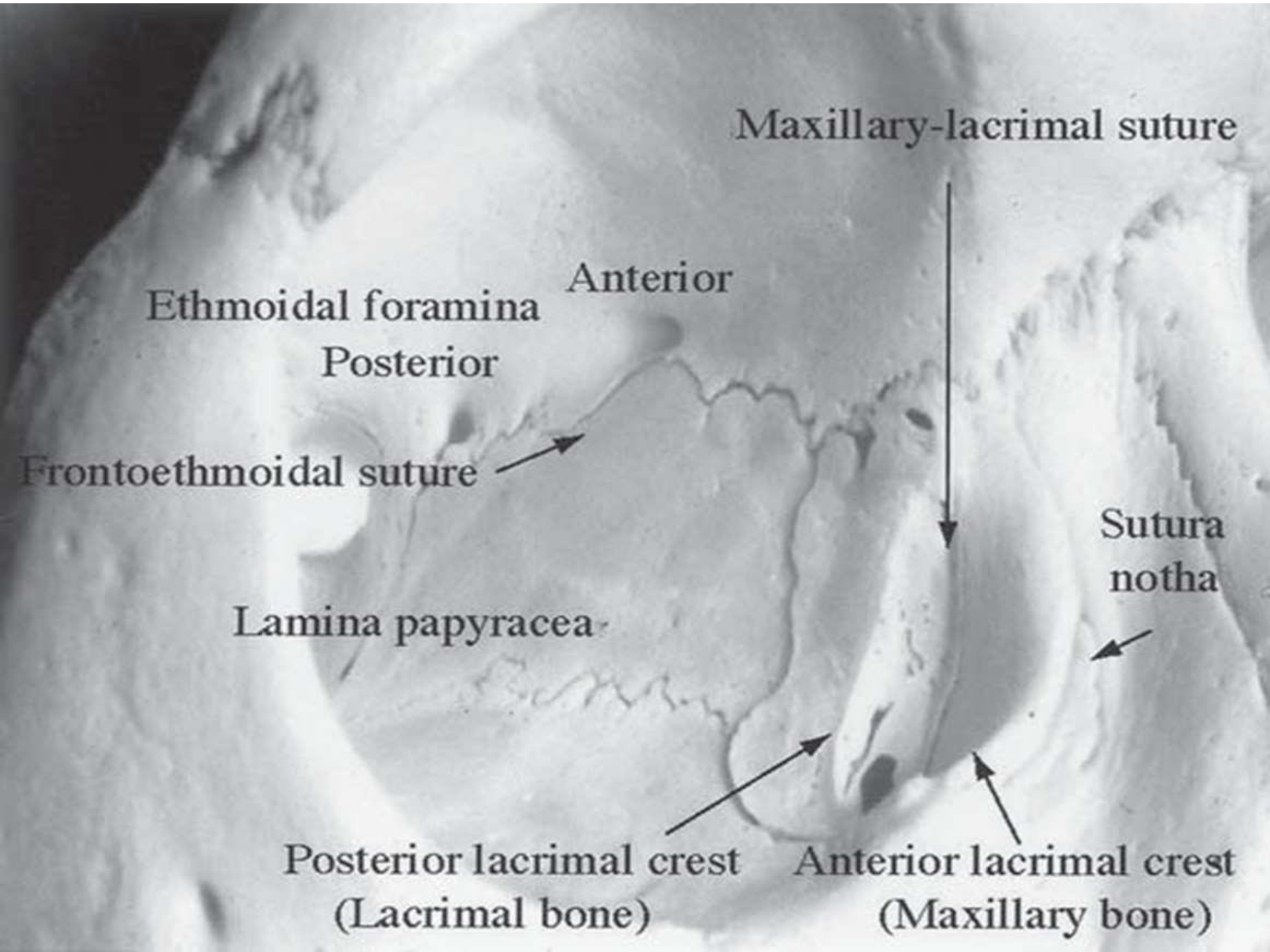
Lacrimal passage includes :

- **Lacrimal gland**
- **Conjunctival sac**
- **Lacrimal puncta**
- **Lacrimal canaliculi**
- **Lacrimal sac**
- **Nasolacrimal duct**



Osteology

- The lacrimal sac is a depression in inferomedial orbital rim .
- Maxillary and lacrimal bones.
- Bordered by the anterior lacrimal crest (maxillary bone) & posterior lacrimal crest (lacrimal bone).



Maxillary-lacrima l suture

Anterior

Ethmoidal foramina

Posterior

Frontoethmoidal suture

Lamina papyracea

Posterior lacrimal crest
(Lacrimal bone)

Anterior lacrimal crest
(Maxillary bone)

Sutura
notha

- The nasolacrimal canal originates at base of lacrimal fossa.
- Formed by the maxillary bone laterally and the lacrimal and inferior turbinate bones medially.
- The width of superior opening is 4–6 mm.
- The duct courses posteriorly and laterally in the bone for 12 mm to drain into the inferior meatus of the nasal cavity.

Secretory system

- It includes lacrimal gland, accessory glands
- Lacrimal gland is above & anterolateral to globe.
- Secretes tears into superior fornix.
- Tears moisten & lubricates the : cornea , conjunctiva.

❑ Lacrimal gland

- Yellowish soft lobulated serous gland.
- It consists of

- ❑ ***Large Orbital Part***

- ❑ ***Smaller Palpebral Part***

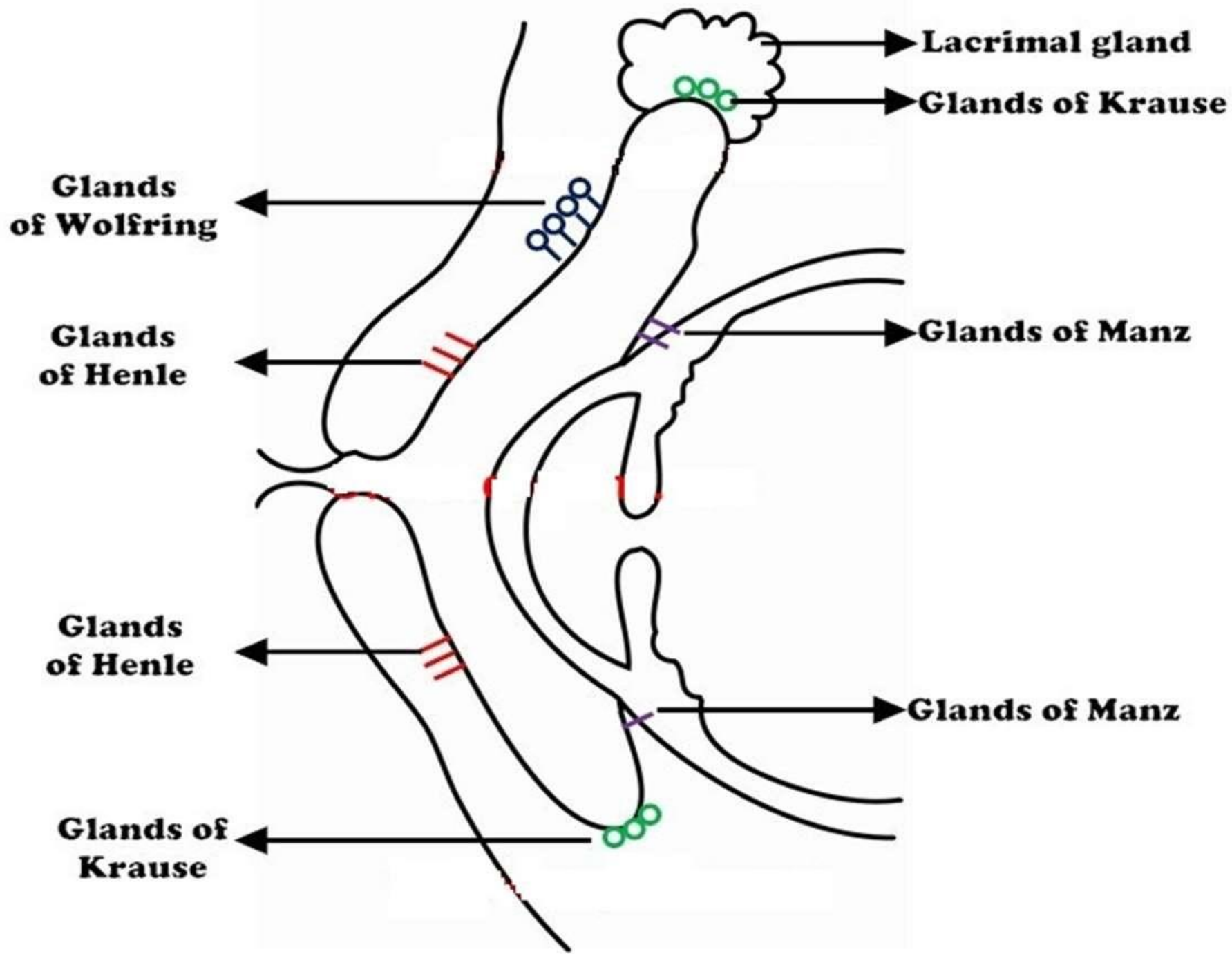
■ The orbital part

- It has the shape and size of an almond.
- Lodged in the lacrimal fossa in the anterolateral part of the roof of the orbit
- Posterior to the orbital septum

- The palpebral part
 - $\frac{1}{3}$ size of the orbital part.
 - Lodged in the lateral part of upper eyelid.
 - Continuous with the orbital part around the lateral margin of the aponeurosis of the levator palpebrae superioris.

■ Accessory glands

- Are small, compound, branched, tubular glands .
- Located in the middle of lid (Wolfring glands) or superior & inferior fornices (Krause glands).
- Ectopic portions of lacrimal gland tissue .



■ Blood supply



- Artery supply : Lacrimal artery , branch of ophthalmic artery.
- Venous drainages : Ophthalmic Vein.
- Lymphatic drainage : Joins that of conjunctiva & drain into the preauricular lymph nodes.

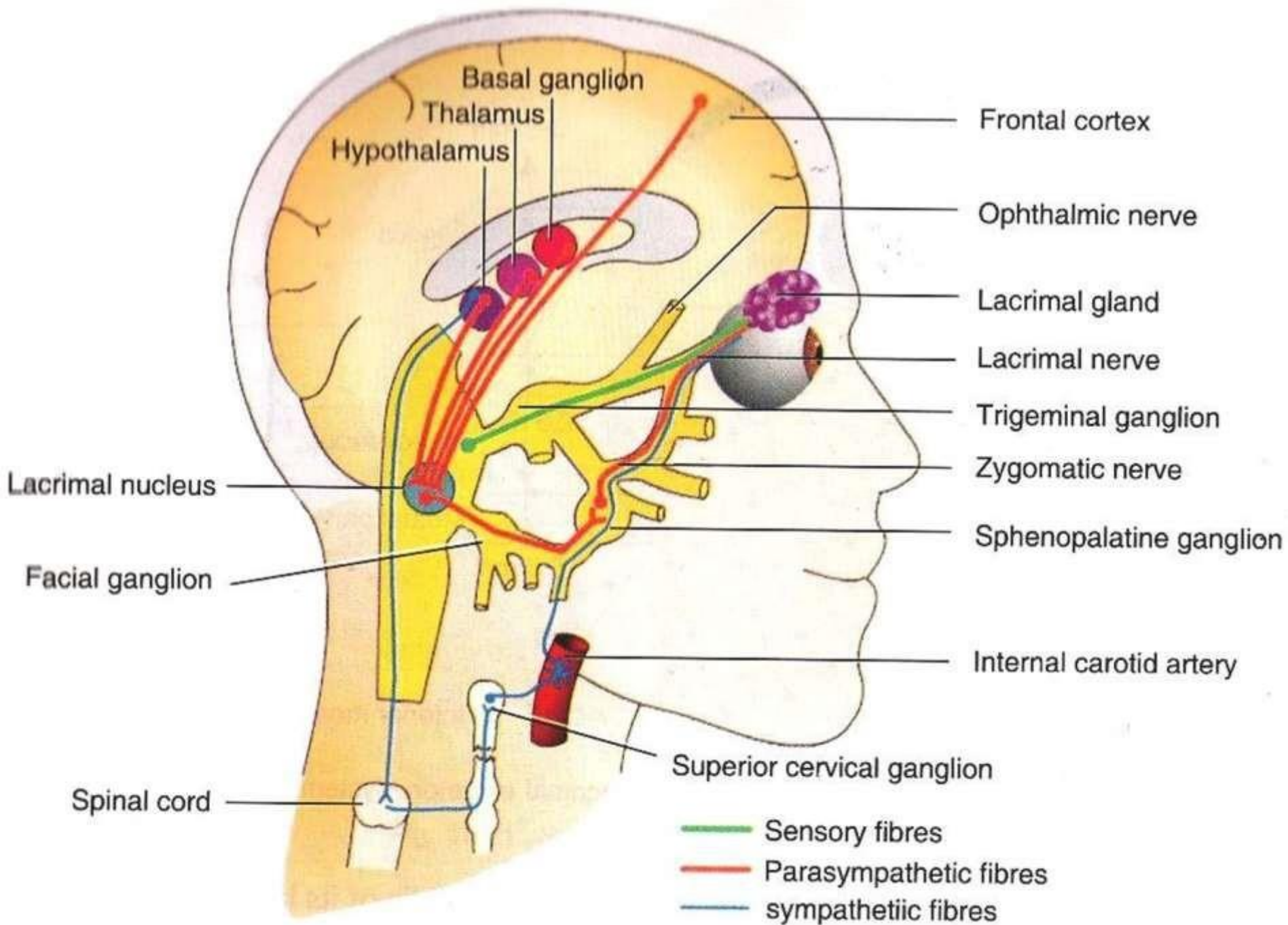
■ Nerve supply

- Parasympathetic :

- The parasympathetic secretomotor fibres are driven from the lacrimal nucleus of facial nerve .
- They reach the Sphenopalatine ganglion via the Greater superficial petrosal nerve
- The postganglionic fibres join the Maxillary nerve then through its Zygomatic nerve and further through its Zygomaticotemporal branch

- They join the lacrimal nerve by a communication between it and zygomaticotemporal nerve.
- They reach the gland through lacrimal nerve.
- Some postganglionic fibres from the sphenopalatine ganglion reach the gland through the periosteum of the orbit via its orbital branches.

- Sympathetic :
 - From carotid plexus
- Sensory :
 - lacrimal nerve , branch of ophthalmic division of trigeminal nerve.



■ Duct system :

- The gland has about 12 short, slender ducts.
- They arise from the lower surface of the gland.
- Open into the lateral part of the superior fornix of the conjunctiva.

- Lacrimal canaliculi :
 - They are two slender ducts 10 mm in length.
 - They run in the medial parts of the margins of both eyelids.
 - Each duct begins by an opening called Lacrimal Punctum on the summit of an elevation called Lacrimal Papilla.
 - They drain the lacrimal fluid into the Lacrimal Sac.





Jordan M Graff, MD
U of Iowa, 2004

■ Lacrimal sac :



- This is a small sac lodged in the lacrimal groove.
- It is about 12 mm in length having blind upper and lower ends.
- The lower end is continuous with the Nasolacrimal duct.
- It is covered by lacrimal fascia, which separates the lacrimal sac from the medial palpebral ligament anteriorly and from the lacrimal part of orbicularis oculi posteriorly.

■ Nasolacrimal duct :

- This is a tube , half an inch in length runs through the nasolacrimal canal.
- It begins from lower end of the lacrimal sac, run downwards, backwards and laterally to open into the anterior part of the inferior meatus of the nose.
- The lower end of the duct is guarded by a mucous fold called lacrimal fold, which acts as a valve preventing nasal secretion from ascending up into the duct.

■ Lacrimal Pump Mechanism

Contraction of pretarsal fiber of orbicularis



Compress the punctum & shortens canaliculi



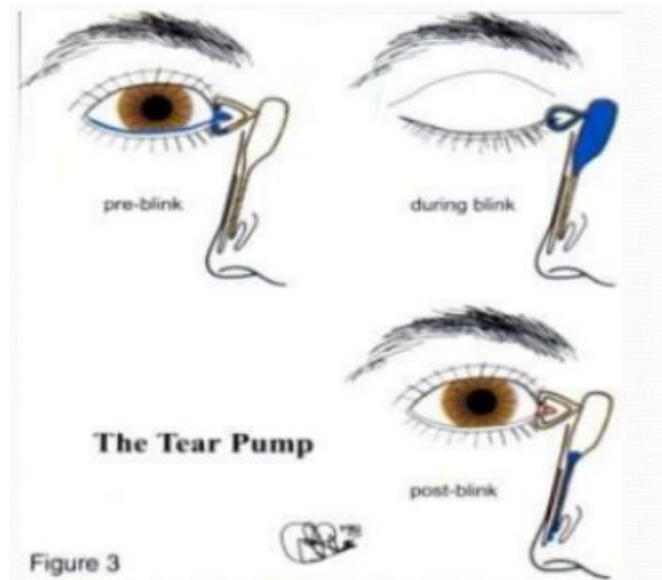
Fluid present in punctum & horizontal part of canaliculi toward lacrimal sac



Contraction of preseptal fiber of orbicular pulls lacrimal fascia & lacrimal wall laterally – opening of lacrimal sac

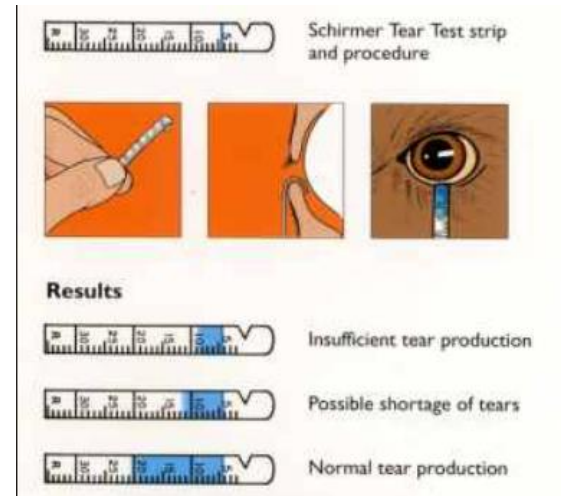


Produce the negative pressure & draws tear into lacrimal sac



■ Schirmer's Test

- Done with Whatmann's filter paper strip measuring 5x35mm
- Placed at junction of lateral 1/3 and medial 1/3 of lower fornix
- >15mm wetting in 5 mins is normal



THANK YOU