

Relations and structures passing through orbit

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Objectives

- Identify the foramina, fissures, and fossae associated with the orbit and what are the structures transmitted through these openings.

Contents

- Extraocular Muscles: they are responsible for movement of eyeball and superior eyelid.
- Eyelids
- Nerves
- Blood vessels
- Any empty space in orbit is filled by orbital fat.
- Fascia
- Lacrimal apparatus

Bones of the Orbit

It is made of seven bones.

1. Frontal
2. Maxilla
3. Zygomatic
4. Palantine
5. Ethmoid
6. Lacrimal
7. Sphenoid

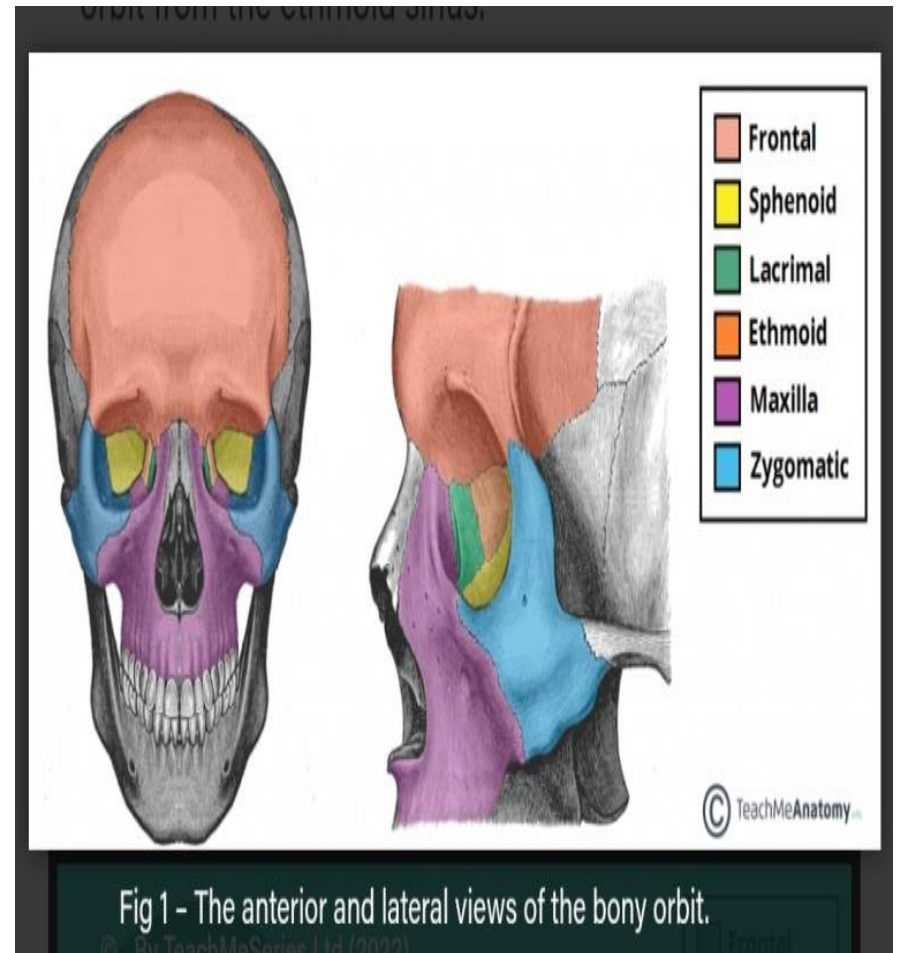


Fig 1 - The anterior and lateral views of the bony orbit.

Anatomical relations

- **Roof:**

Formed by frontal bone and lesser wing of sphenoid. Frontal bone separates it from anterior cranial fossa.

- **Floor:**

formed by maxilla, palatine and zygomatic. Maxilla separates it from maxillary sinus.

- **Medial wall**

Formed by ethmoid, maxilla, lacrimal and sphenoid bones. Ethmoid bone separates it from ethmoid sinus.

- **Lateral wall:**

Formed by zygomatic bone and greater wing of sphenoid.

- **Apex:**

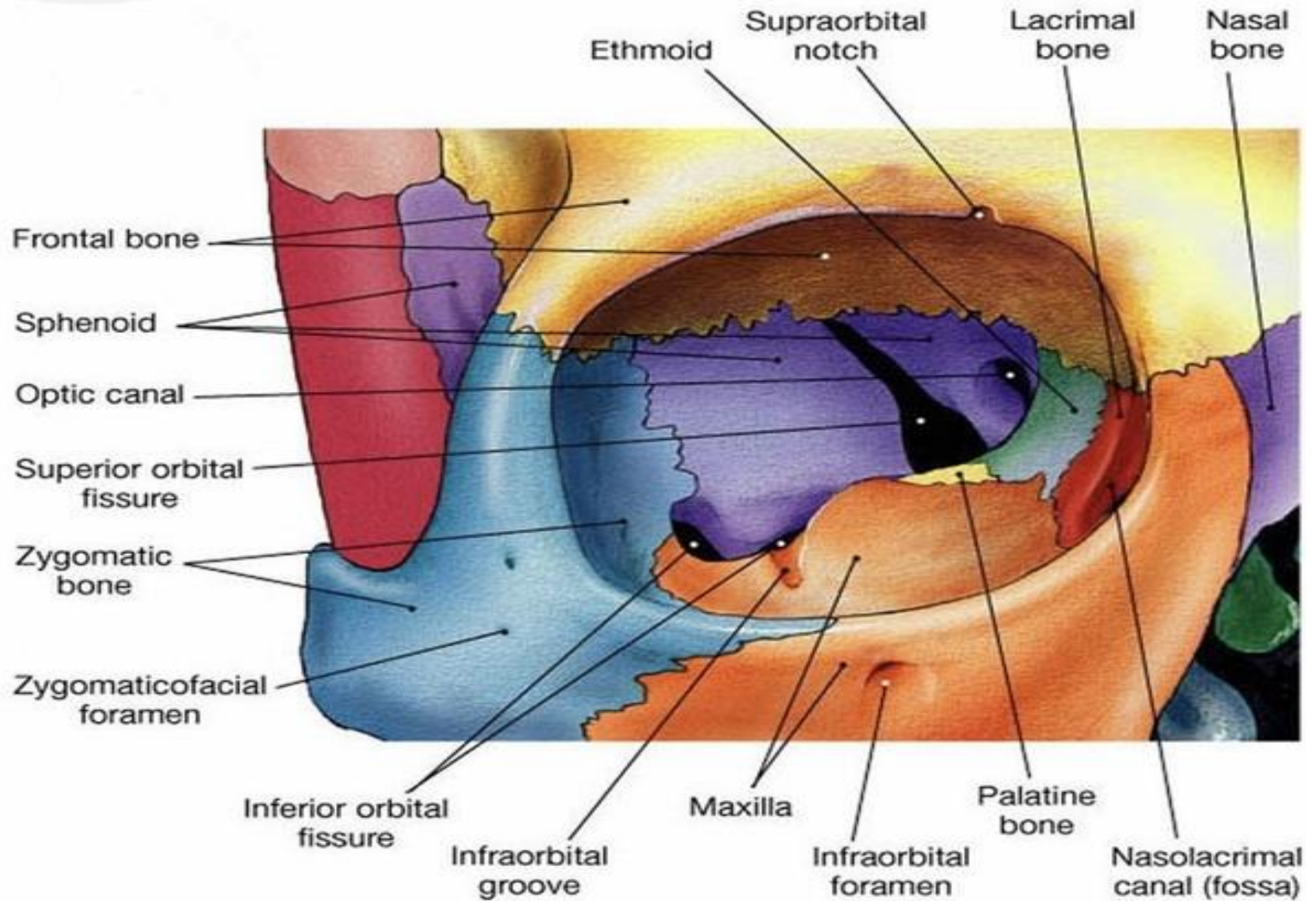
located at opening of optic canal, optic foramen.

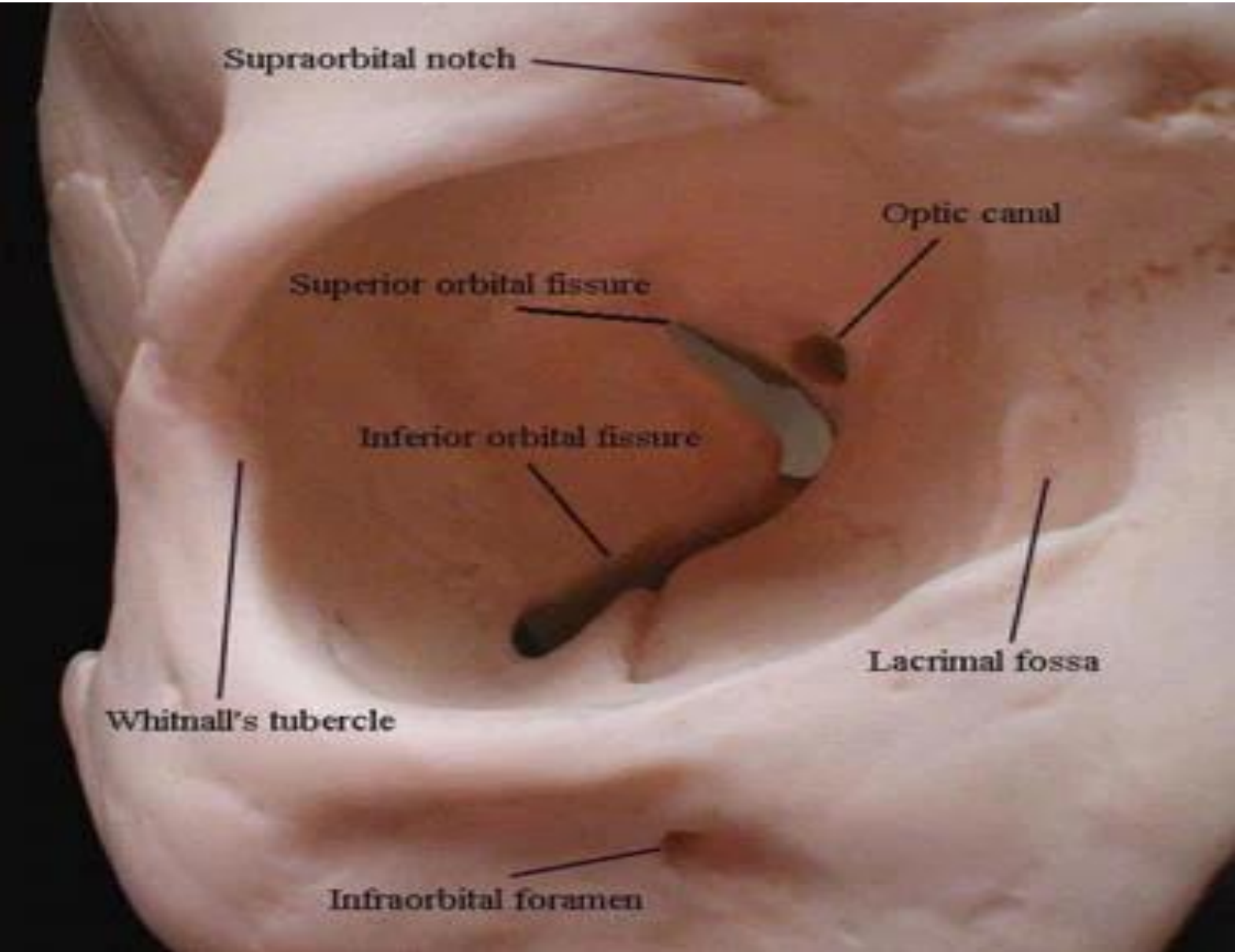
- **Base:**

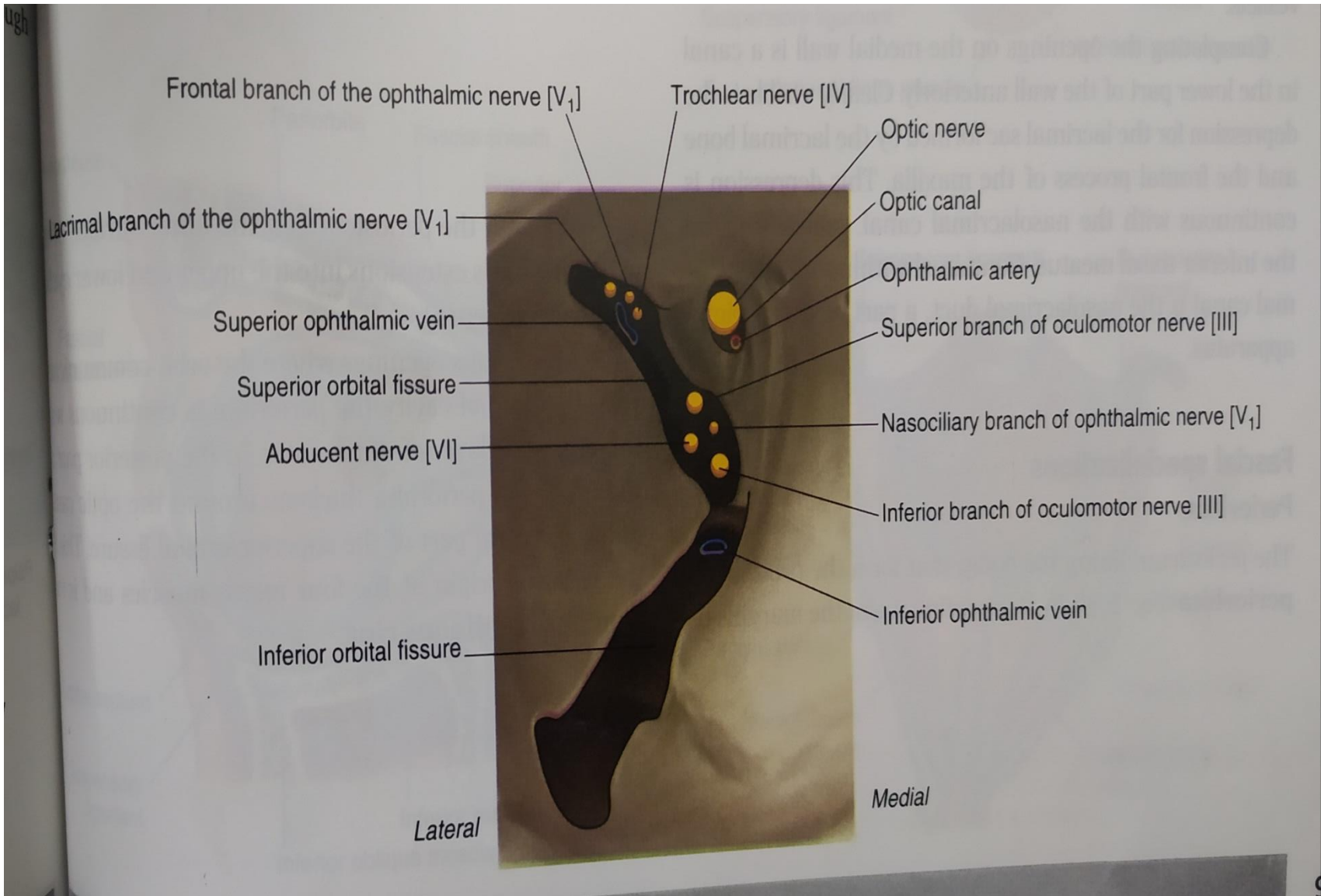
Opens out into face and is bounded by eyelids. Also called optic rim.

Openings into Orbital Cavity

- Superior orbital fissure
- Inferior orbital fissure
- Optic canal
- Orbital opening
- Supraorbital notch
- Infraorbital groove and canal
- Nasolacrimal canal
- Anterior and posterior ethmoidal foramina
- Zygomaticotemporal and facial foramina





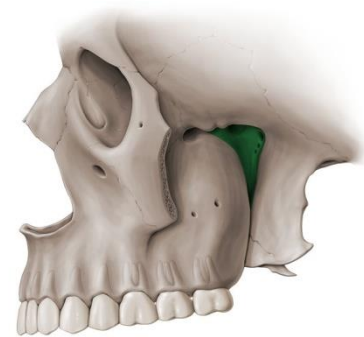


Superior orbital fissure

- Located posteriorly between greater and lesser wings of sphenoid.
- **Contents:**
 1. Oculomotor nerve[III]
 2. Trochlear nerve[IV]
 3. Abducent nerve[VI]
 4. Ophthalmic nerve branches: lacrimal, frontal and nasociliary.
 5. Superior ophthalmic vein.

Inferior Orbital fissure

- Located between maxilla and greater wing of sphenoid.
- Communicates with pterygopalatine fossa.
- **Contents:**
 1. Maxillary nerve and its zygomatic and Infraorbital branches.
 2. Inferior Ophthalmic vein.
 3. sympathetic nerves.



Optic Canal

- Located posteriorly in lesser wing of sphenoid at the apex of canal.
- Communicates with middle cranial fossa
- Contents:
 1. Optic nerve
 2. Ophthalmic artery

Orbital Opening:

- Large Anterior Opening.
- Forming the base of Orbit.
- 1/6 of eyeball protrudes through it.

Supraorbital Notch:

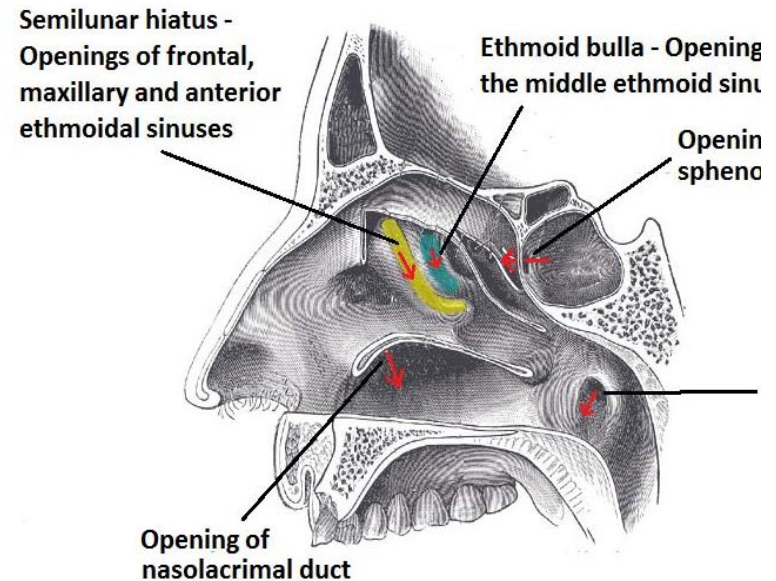
- Present in frontal bone on superior orbital margin.
- **Contents:**
 1. Supraorbital Nerve.
 2. Supraorbital blood vessels.

Infraorbital Groove and canal:

- **Contents:**
 1. Infraorbital nerve
 2. Infraorbital blood vessels

Nasolacrimal Canal:

- Present anteriorly on medial wall.
- Transmit nasolacrimal duct
- Communicates with inferior meatus of nose.



Anterior and Posterior ethmoidal foramina:

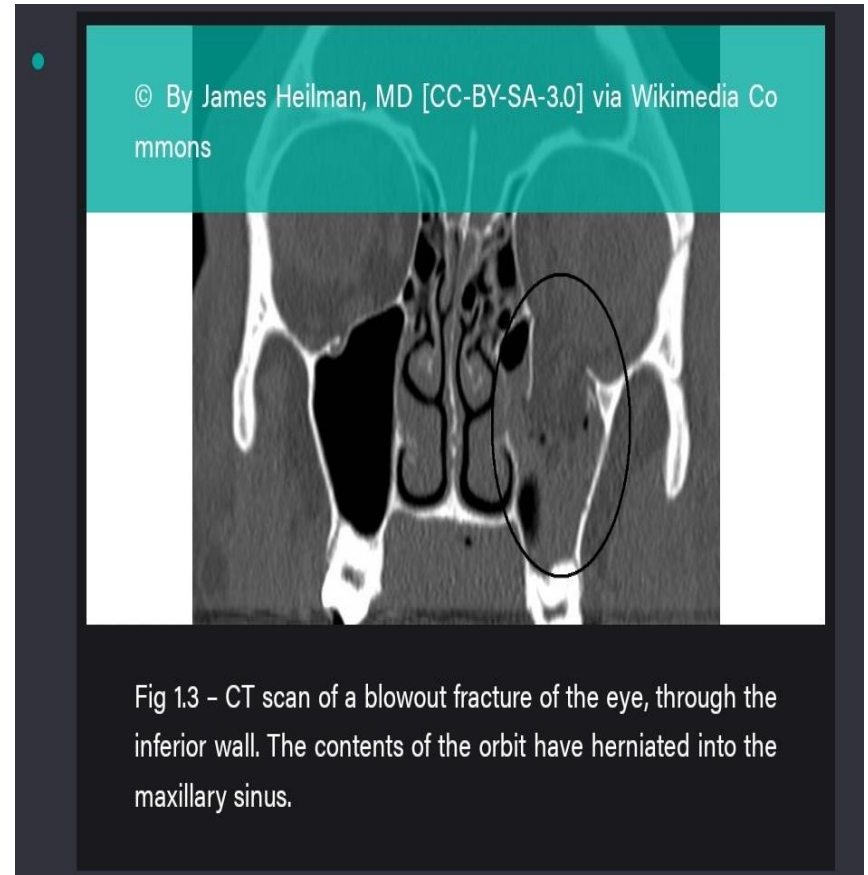
- Two small openings on the medial wall in ethmoid bone.
- Transmit anterior and posterior ethmoid nerves.

Zygomaticotemporal and Zygomaticofacial Foramina:

- Two small openings in lateral wall in zygomatic bone.
- Transmit Zygomaticotemporal and Zygomaticofacial nerves.

Clinical Relevance

- Orbital Fractures
- Two types
 1. **Orbital rim fracture:**
Fracture of bones forming rim of orbit.
 2. **Blowout fracture:**
Partial herniation of orbital content through one of its wall.



Paranasal Sinuses

