

Anatomy of Nose and Paranasal Sinus



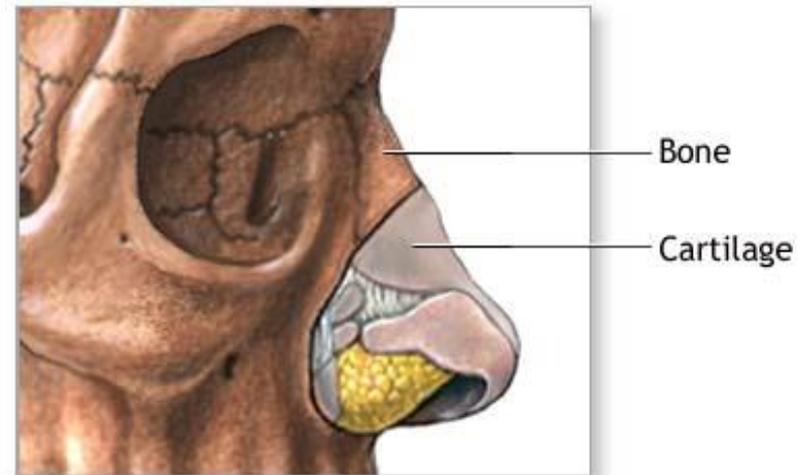
By:

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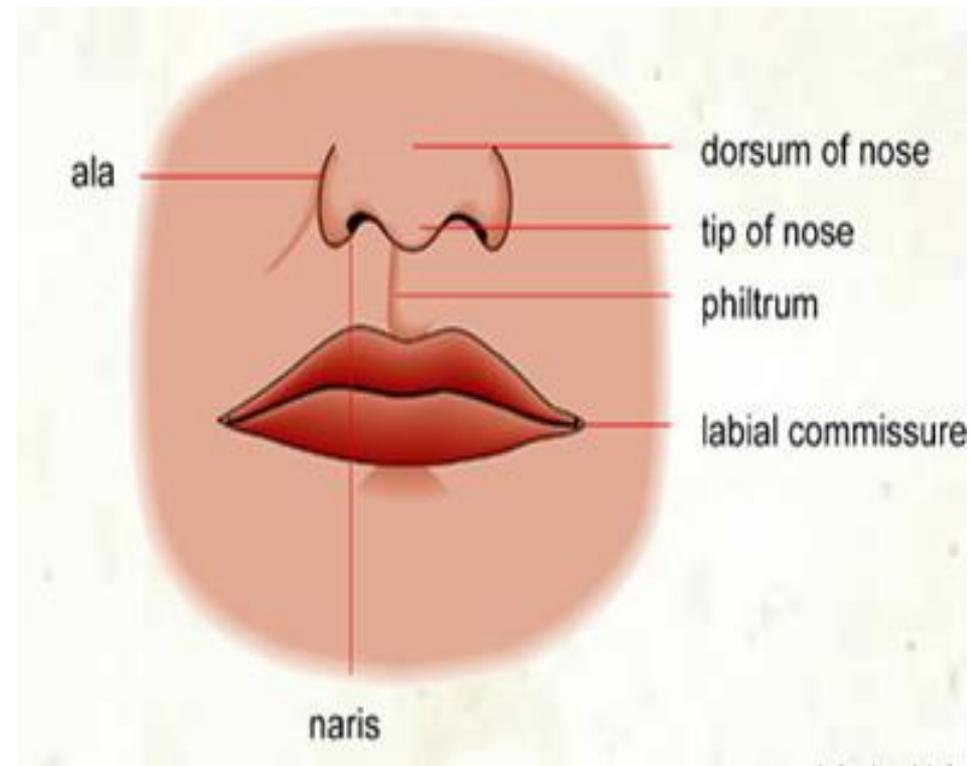
The Nose

- The nose consists of the ***external nose*** and the ***nasal cavity***,
- Both are divided by a septum into right and left halves.

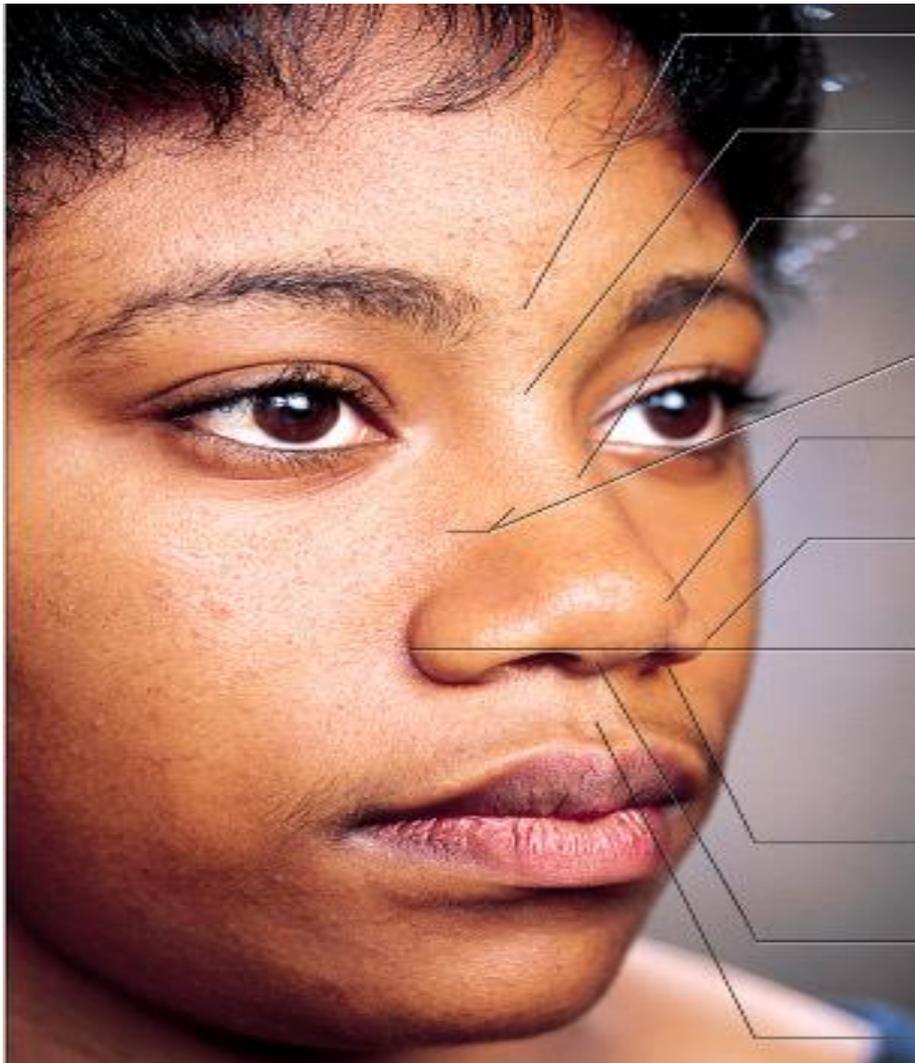


External Nose

- The external nose has two elliptical orifices called the ***naris*** (***nostrils***), which are separated from each other by the ***nasal septum***.
- The lateral margin, the ***ala nasi***, is rounded and mobile.



External Nose



Root

Bridge

Dorsum nasi

Nasofacial angle

Apex

Ala nasi

Alar nasal sulcus

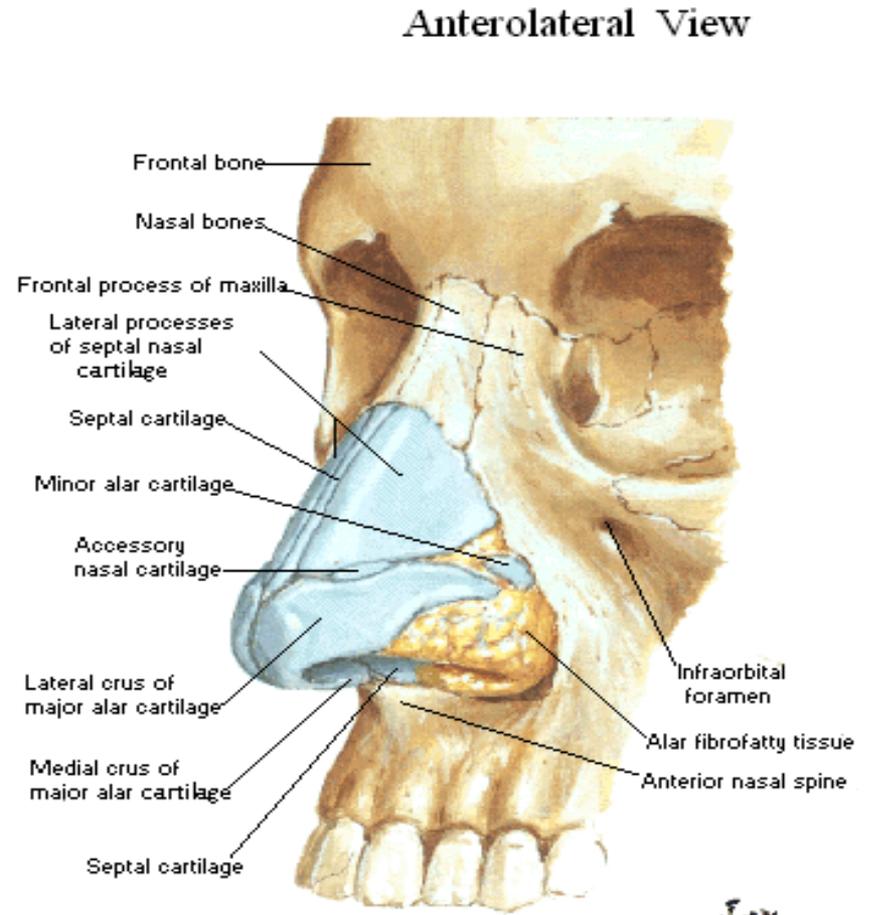
Anterior naris (nostril)

Nasal septum

Philtrum

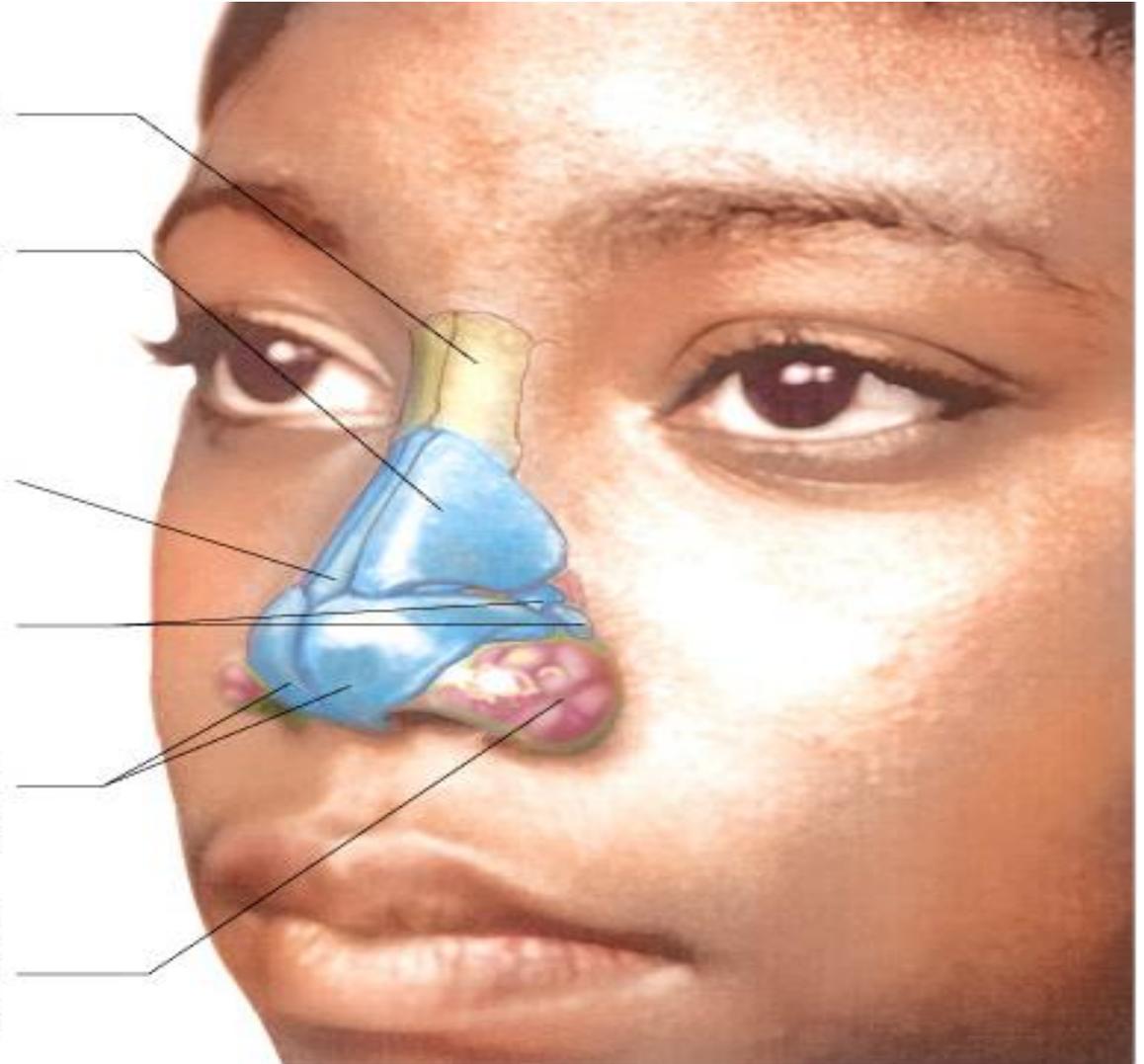
External Nose

- The framework of the external nose is made up above by the ***nasal bones***, the ***frontal processes of the maxillae***, and the ***nasal part of the frontal bone***.
- Below, the framework is formed of plates of hyaline cartilage



External Nose

- Nasal bone**
- Lateral cartilage**
- Septal cartilage**
- Lesser alar cartilages**
- Greater alar cartilages**
- Dense connective tissue**



Blood Supply of the External Nose

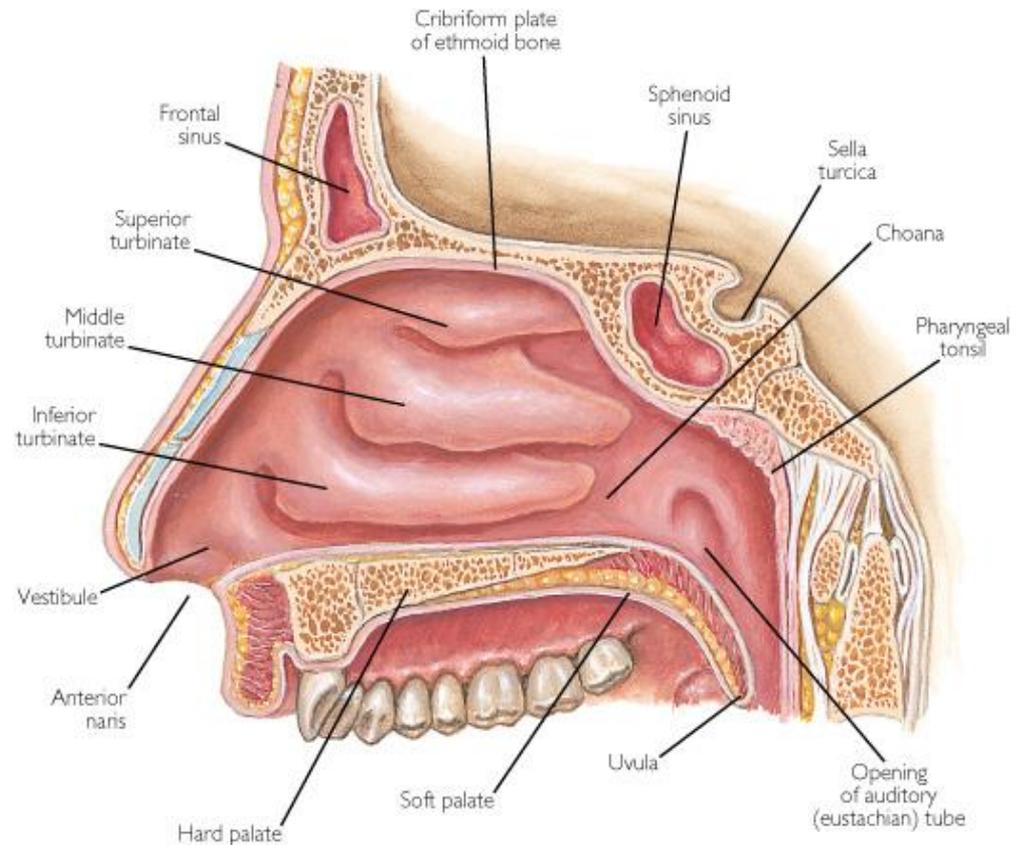
- The skin of the external nose is supplied by branches of the ophthalmic and the maxillary arteries.
- The skin of the ala and the lower part of the septum are supplied by branches from the facial artery.

Nerve Supply of the External Nose

- The infratrochlear and external nasal branches of the ophthalmic nerve (CN V) and the infraorbital branch of the maxillary nerve (CN V).

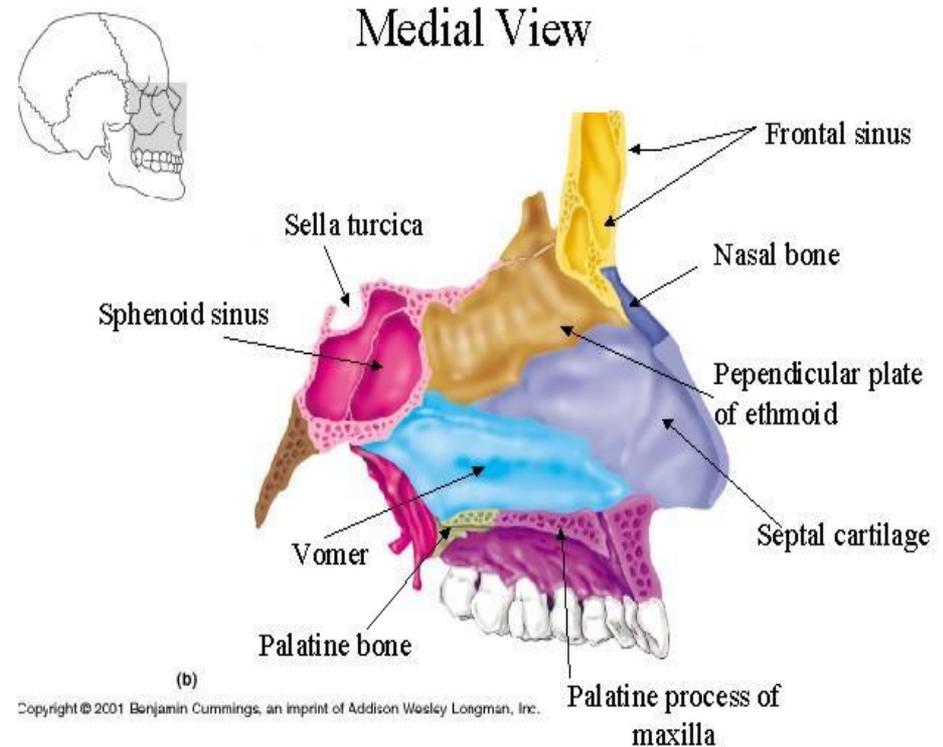
Nasal Cavity

- The nasal cavity has
 - a floor,
 - a roof,
 - a lateral wall,
 - a medial or septal wall.



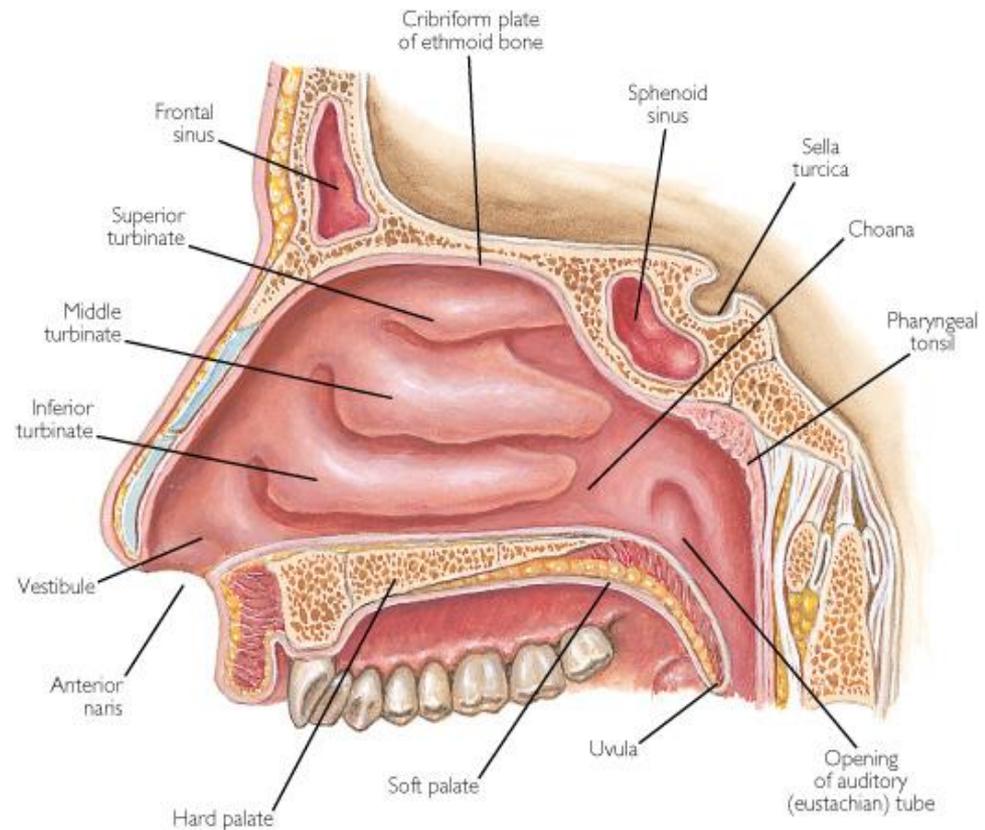
The Floor of Nasal Cavity

- Palatine process maxilla
- Horizontal plate palatine bone



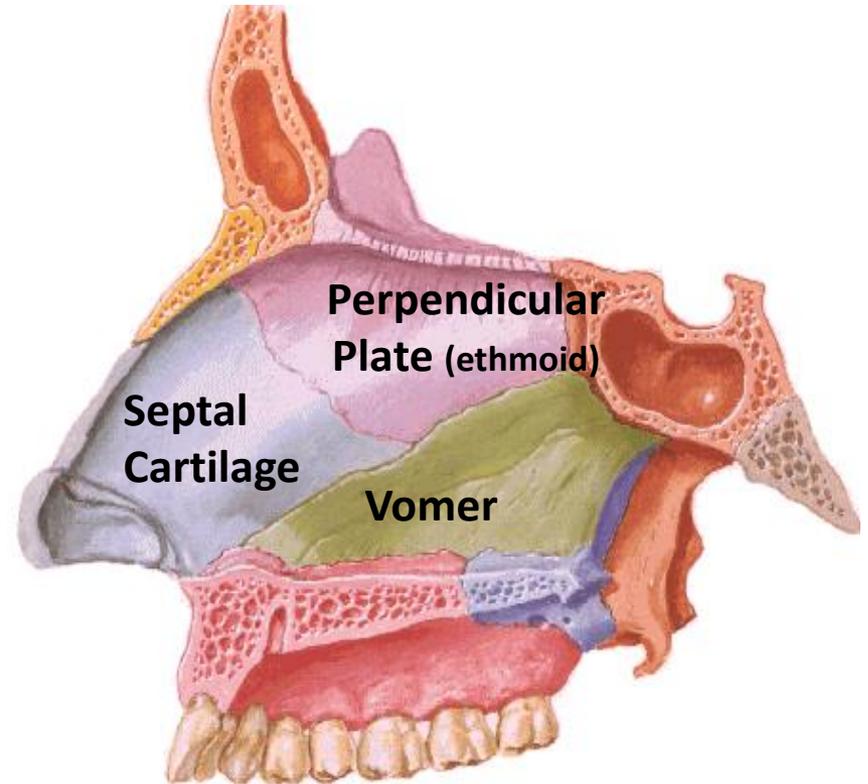
The Roof of Nasal Cavity

- Narrow
- It is formed
 - anteriorly beneath the bridge of the nose by the nasal and frontal bones,
 - in the middle by the cribriform plate of the ethmoid,
 - located beneath the anterior cranial fossa,
 - posteriorly by the downward sloping body of the sphenoid

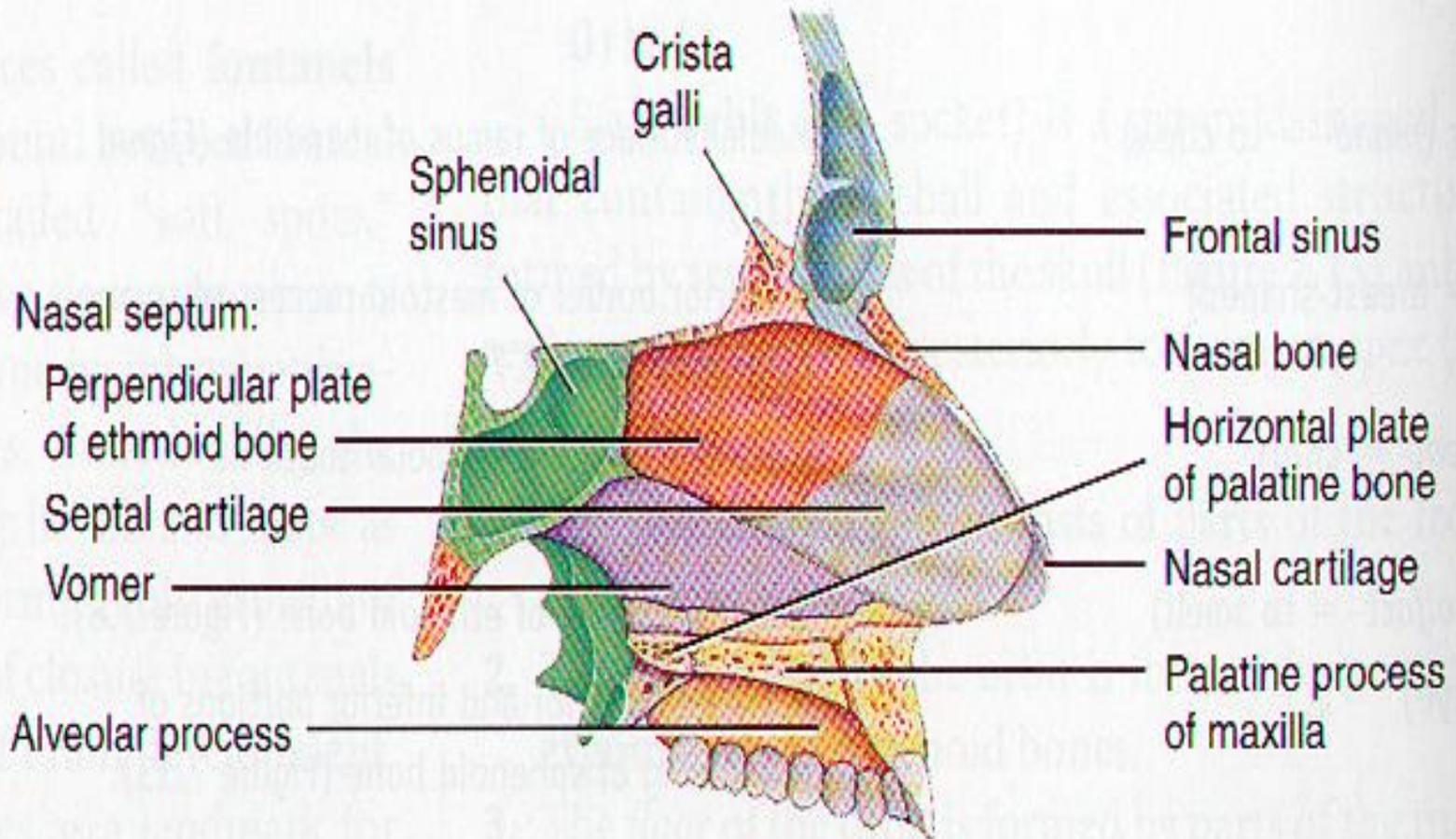


The Medial Wall of Nasal Cavity

- The Nasal Septum
- Divides the nasal cavity into right and left halves
- It has osseous and cartilaginous parts
- Nasal septum consists of the **perpendicular plate of the ethmoid bone** (superior), the **vomer** (inferior) and **septal cartilage** (anterior)



The Nasal Septum

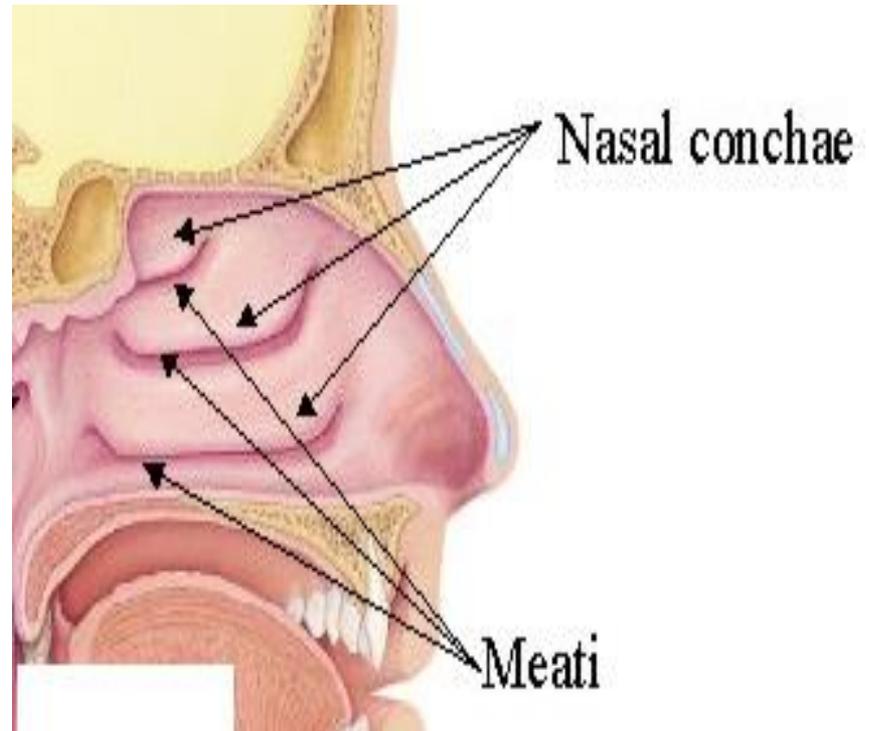


Sagittal section

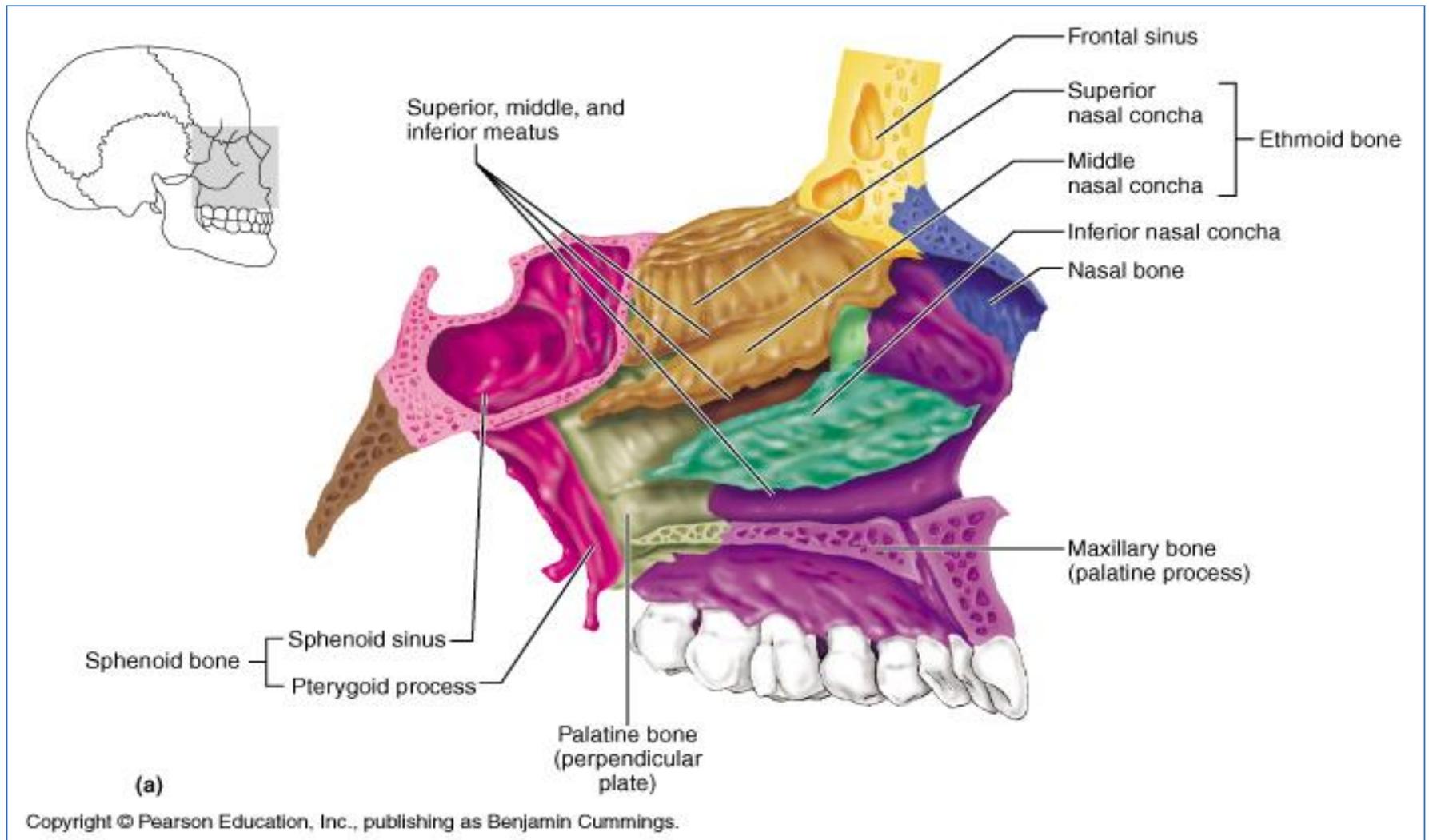
The Lateral Walls of Nasal Cavity

Marked by 3 projections:

- Superior concha
- Middle concha
- Inferior concha
- The space below each concha is called a meatus.

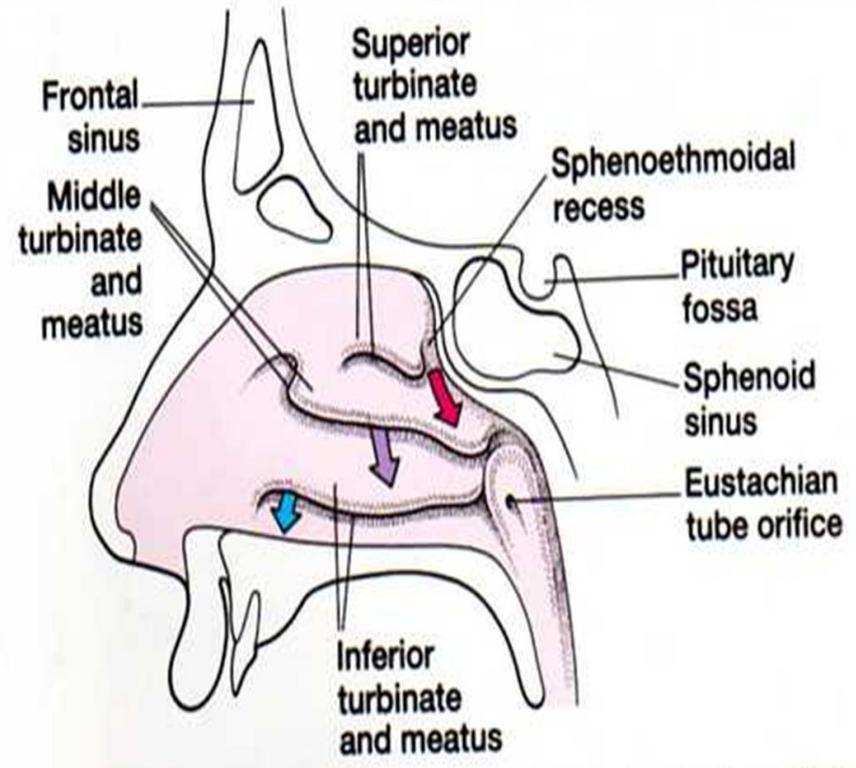


The Lateral Walls of Nasal Cavity



The Lateral Walls of Nasal Cavity

1. **Inferior meatus:**
nasolacrimal duct
2. **Middle meatus:**
 - Maxillary sinus
 - Frontal sinus
 - Anterior ethmoid sinuses
3. **Superior meatus:**
posterior ethmoid sinuses
4. **Sphenoethmoidal recess:**
sphenoid sinus

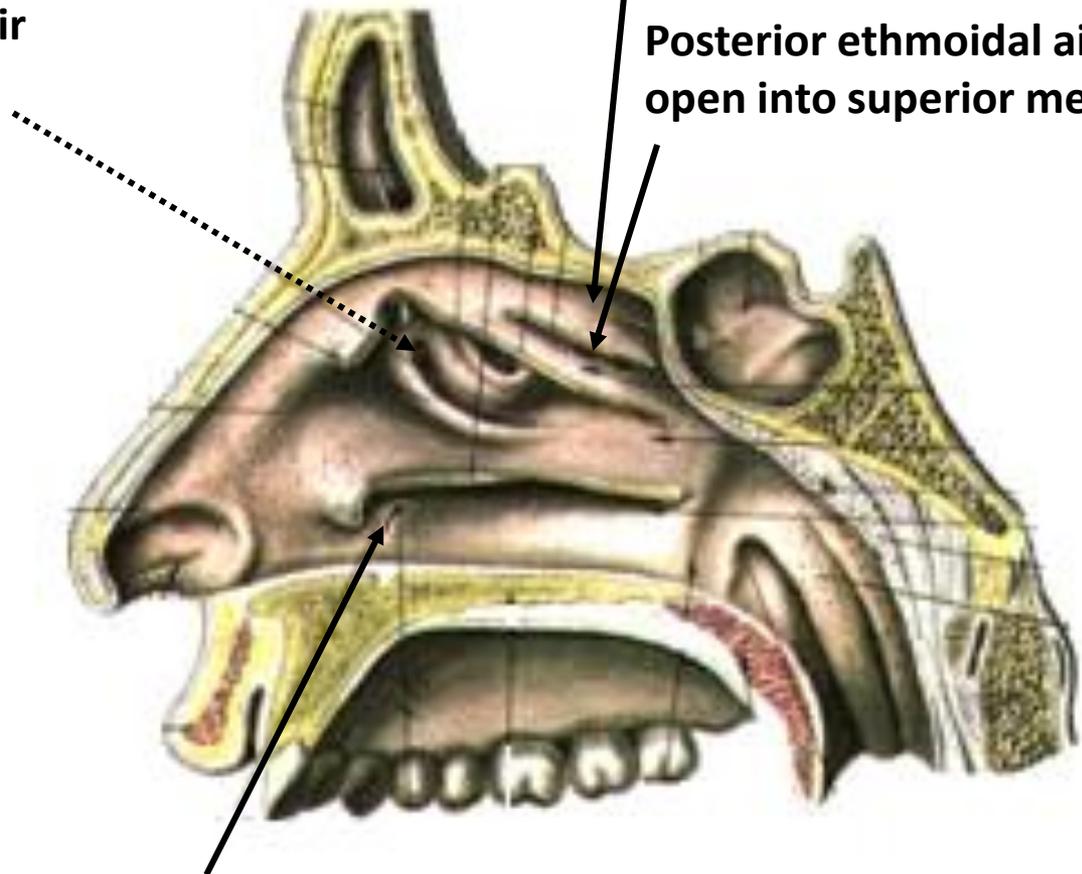


Openings Into the Nasal Cavity

Anterior & middle ethmoid air cells, maxillary and frontal sinuses open into middle meatus

Sphenoid sinus opens into sphenoidal recess

Posterior ethmoidal air cells open into superior meatus

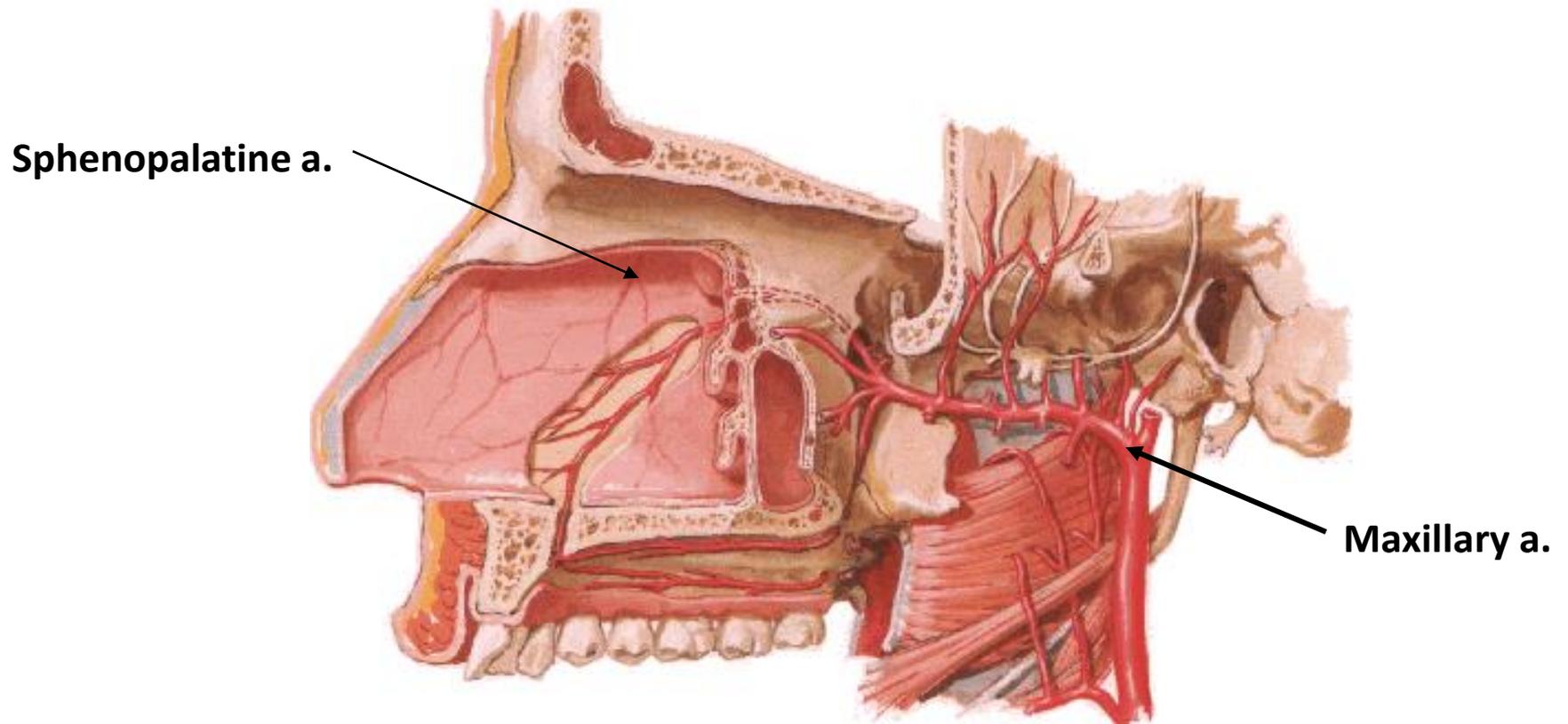


Nasolacrimal Canal drains into Inferior Meatus

Blood Supply to the Nasal Cavity

- From branches of the maxillary artery, one of the terminal branches of the external carotid artery.
- The most important branch is the sphenopalatine artery.
- The sphenopalatine artery anastomoses with the septal branch of the superior labial branch of the facial artery in the region of the vestibule.
- The submucous venous plexus is drained by veins that accompany the arteries.

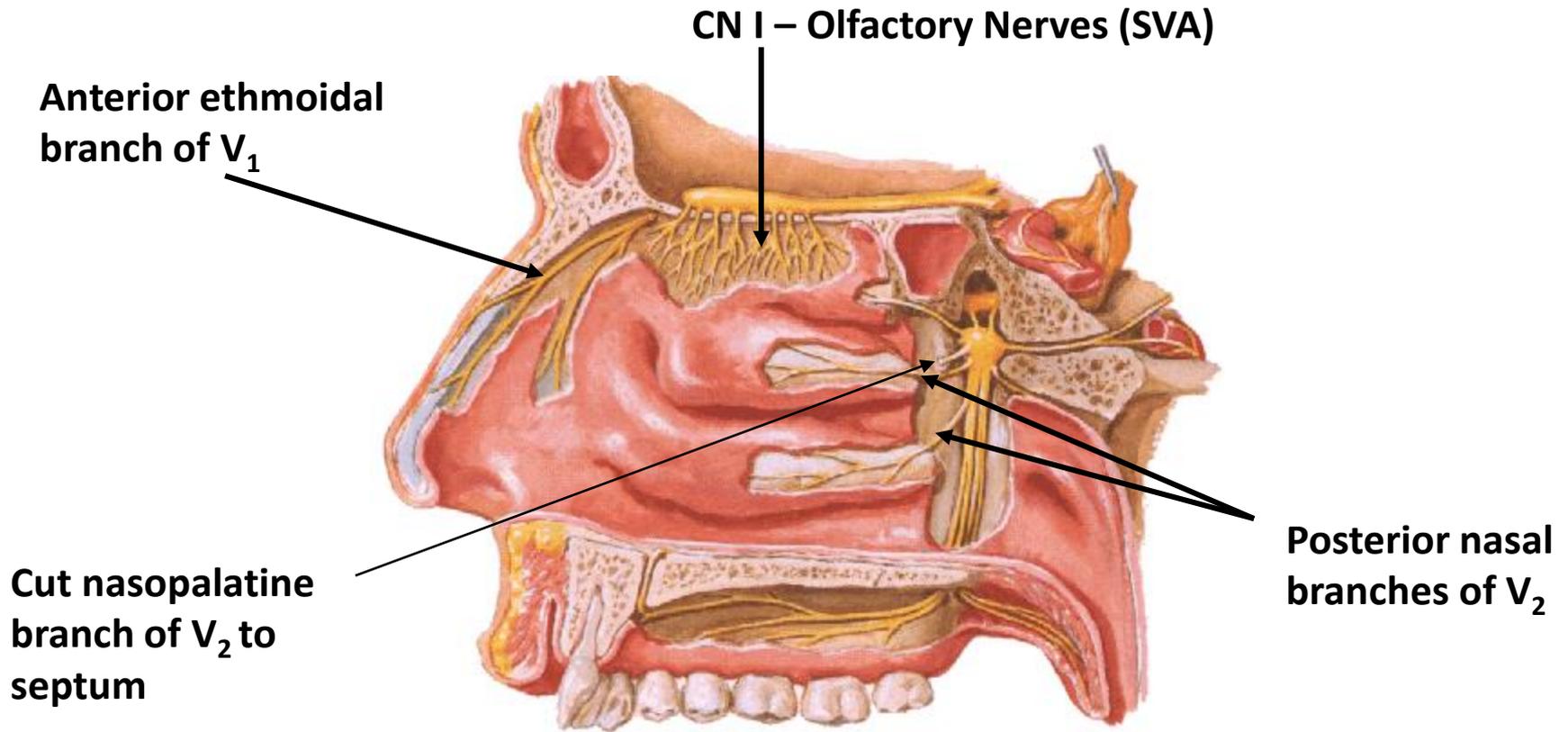
Blood Supply to the Nasal Cavity



Nerve Supply of the Nasal Cavity

- The olfactory nerves from the olfactory mucous membrane ascend through the cribriform plate of the ethmoid bone to the olfactory bulbs .
- The nerves of ordinary sensation are branches of the ophthalmic division (V1) and the maxillary division (V2) of the trigeminal nerve.

Nerve Supply of the Nasal Cavity

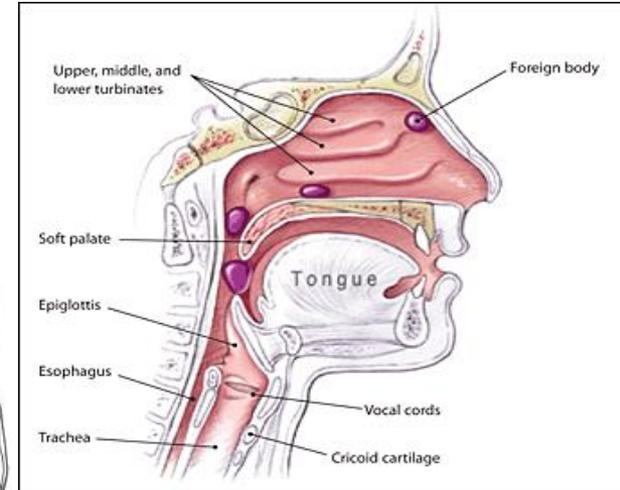
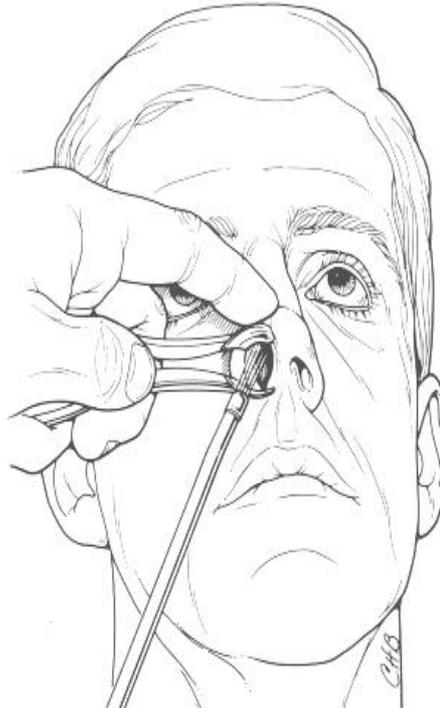


Lymph Drainage of the Nasal Cavity

- The lymph vessels draining the vestibule end in the ***submandibular nodes***.
- The remainder of the nasal cavity is drained by vessels that pass to the ***upper deep cervical nodes***.

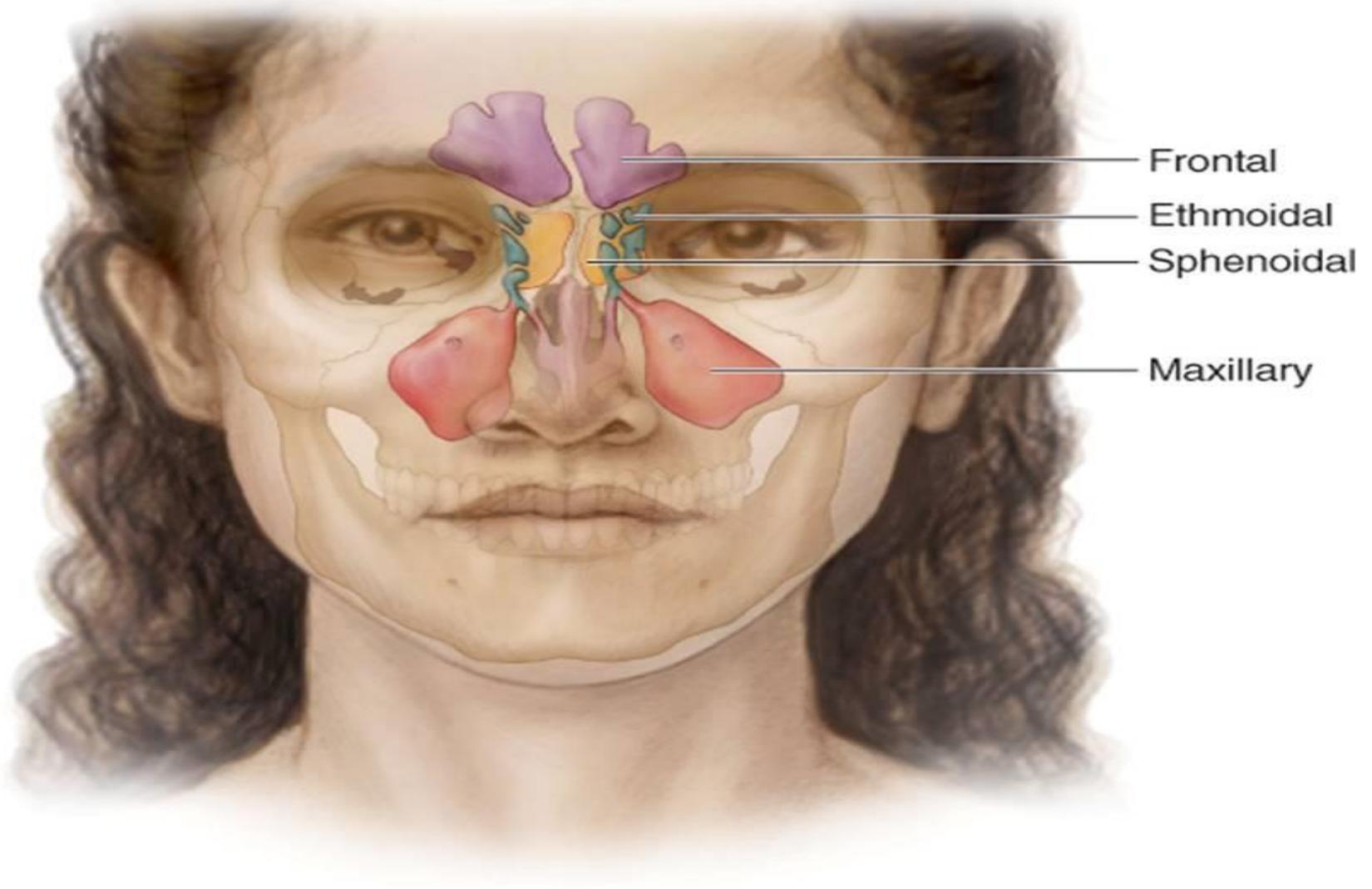
Clinical Notes

- Examination of the Nasal Cavity
- Trauma to the Nose
- Infection of the Nasal Cavity
- Foreign Bodies in the Nose
- Nose Bleeding (Epistaxis)



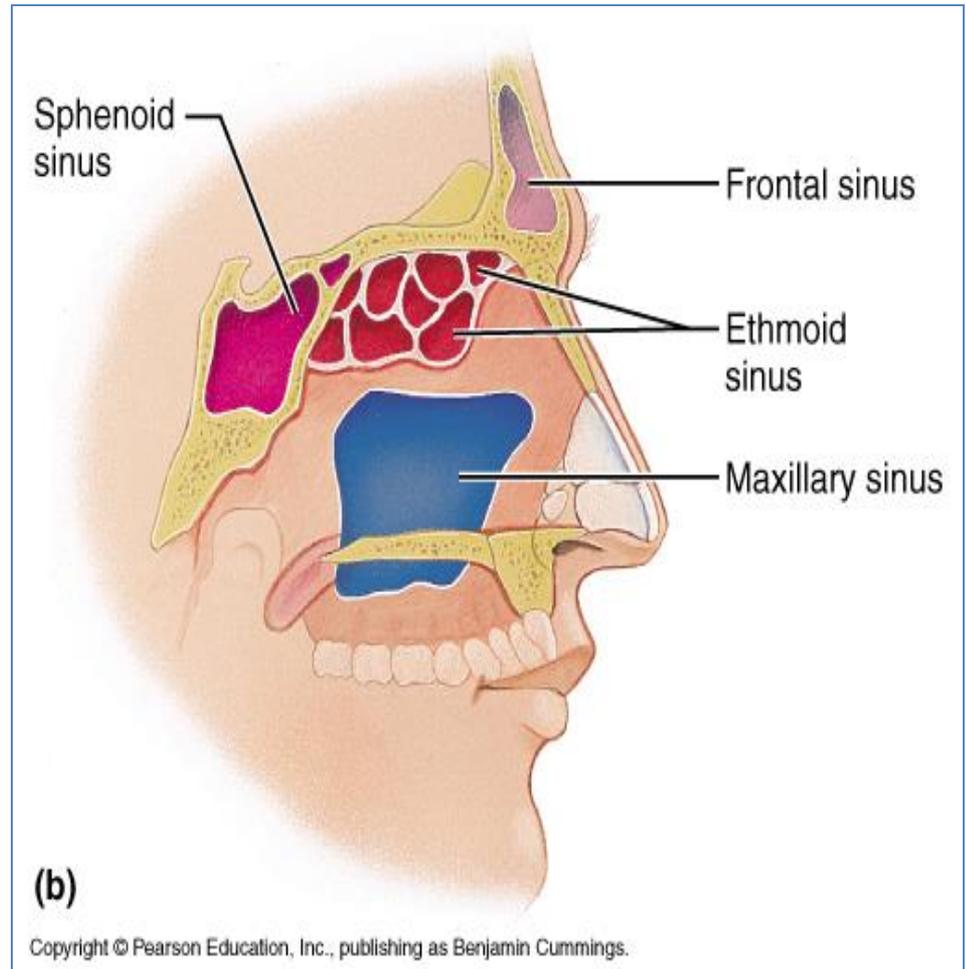
The Paranasal Sinuses

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The Paranasal Sinuses

- The paranasal sinuses are cavities found in the interior of the maxilla, frontal, sphenoid, and ethmoid bones .
- They are lined with mucoperiosteum and filled with air.
- They communicate with the nasal cavity through relatively small apertures.

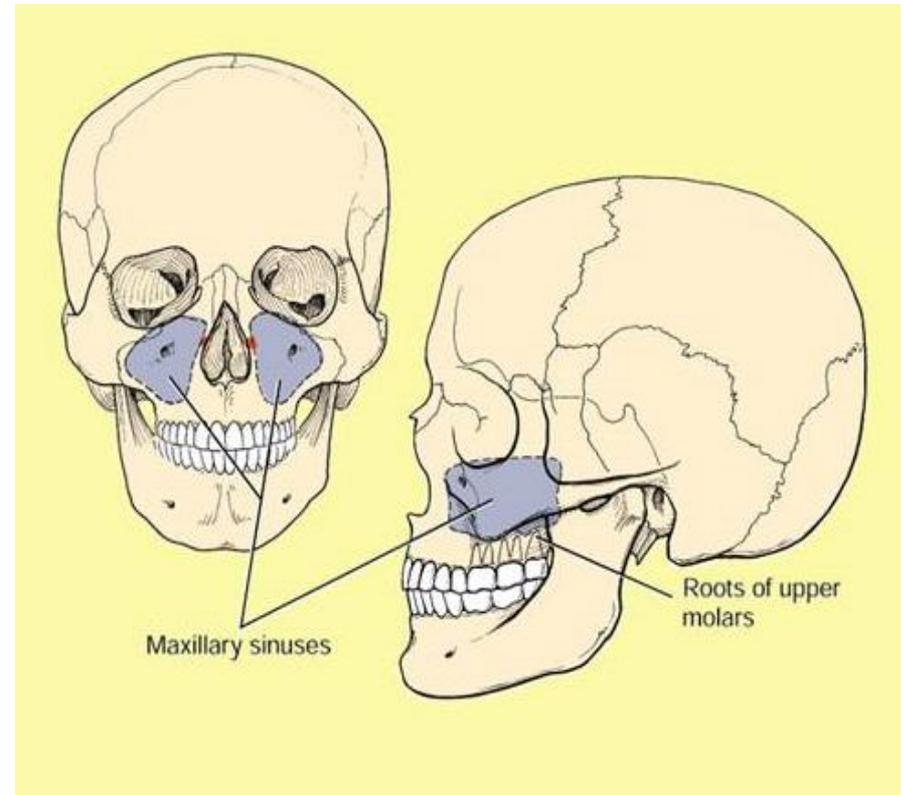


Drainage of Mucus and Function of Paranasal Sinuses

- The mucus produced by the mucous membrane is moved into the nose by ciliary action of the columnar cells.
- Drainage of the mucus is also achieved by the siphon action created during the blowing of the nose.
- Functions:
 1. Resonators of the voice
 2. They also reduce the skulls weight
 3. Help warm and moisten inhaled air
 4. Act as shock absorbers in trauma

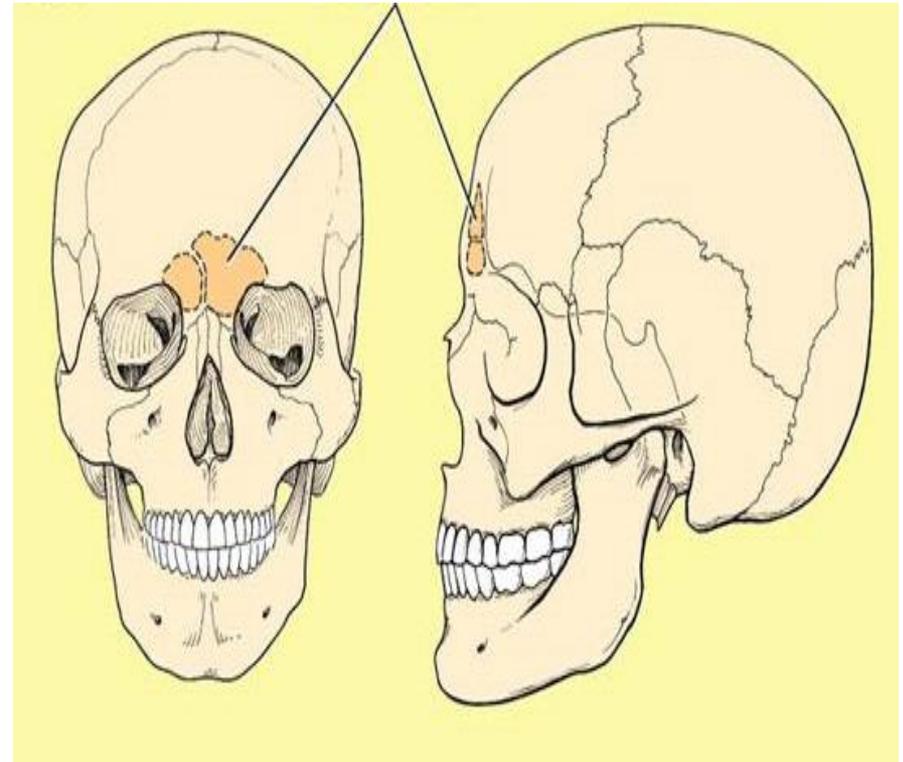
Maxillary Sinus

- Pyramidal in shape
- Paired & symmetric
- Located within the body of the maxilla behind the skin of the cheek.
- The roof is formed by the floor of the orbit, and the floor is related to the roots of the 2nd premolars and 1st molar teeth.
- The maxillary sinus opens into the middle meatus of the nose



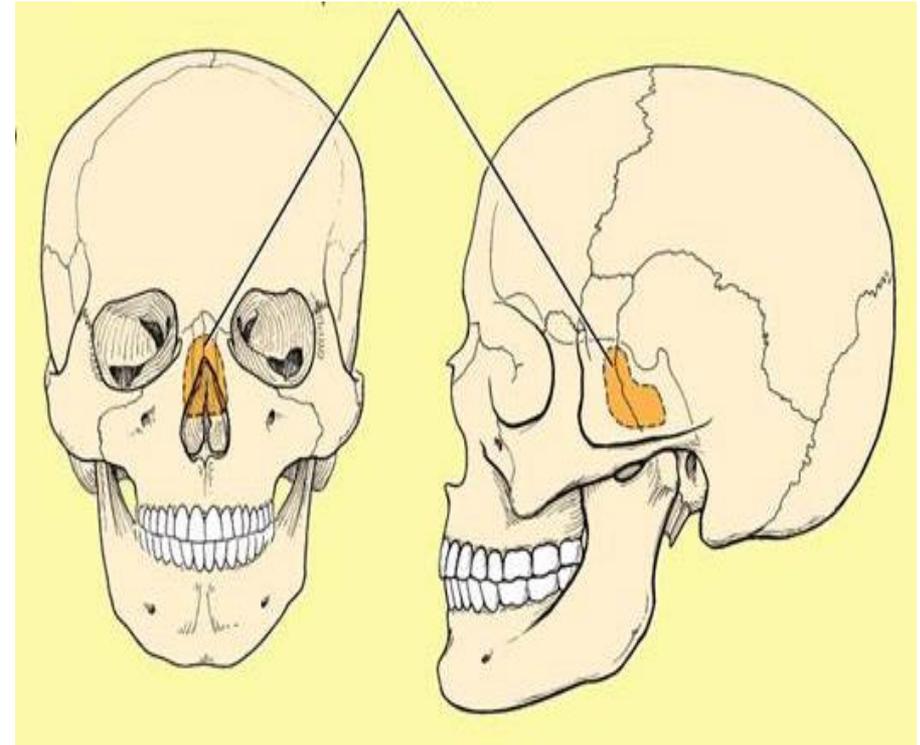
Frontal Sinuses

- Rarely symmetrical
- Contained within the frontal bone .
- Separated from each other by a bony septum.
- Each sinus is roughly triangular
- Extending upward above the medial end of the eyebrow and backward into the medial part of the roof of the orbit.
- Opens into the middle meatus



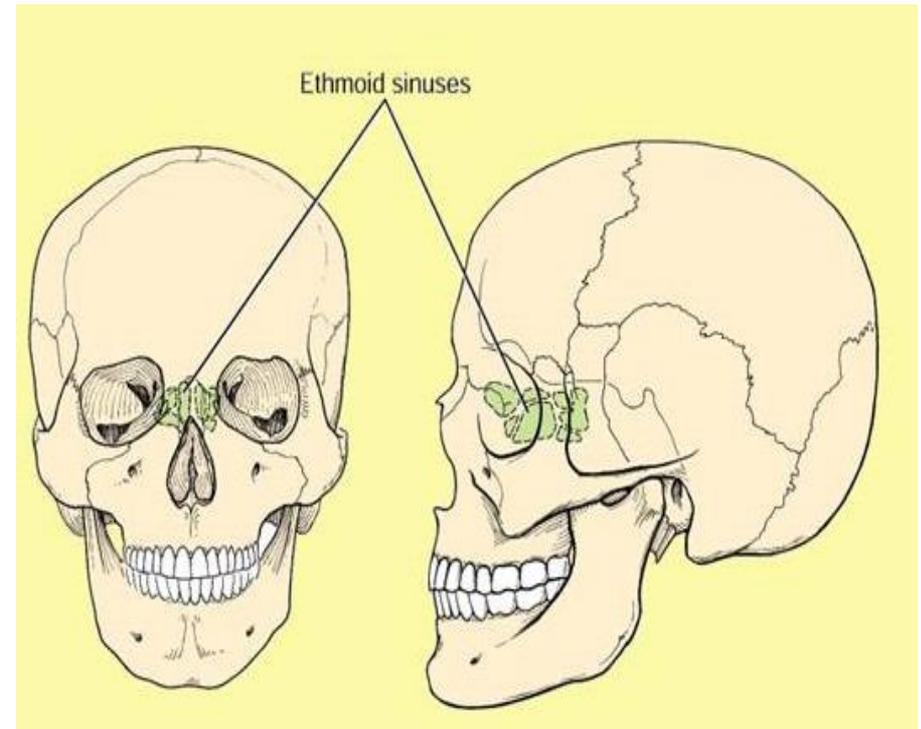
Sphenoidal Sinuses

- Lie within the body of the sphenoid bone
- Below sella turcica
 - Extends between dorsum sellae and post clinoid processes
- Opens into the sphenoethmoidal recess above the superior concha

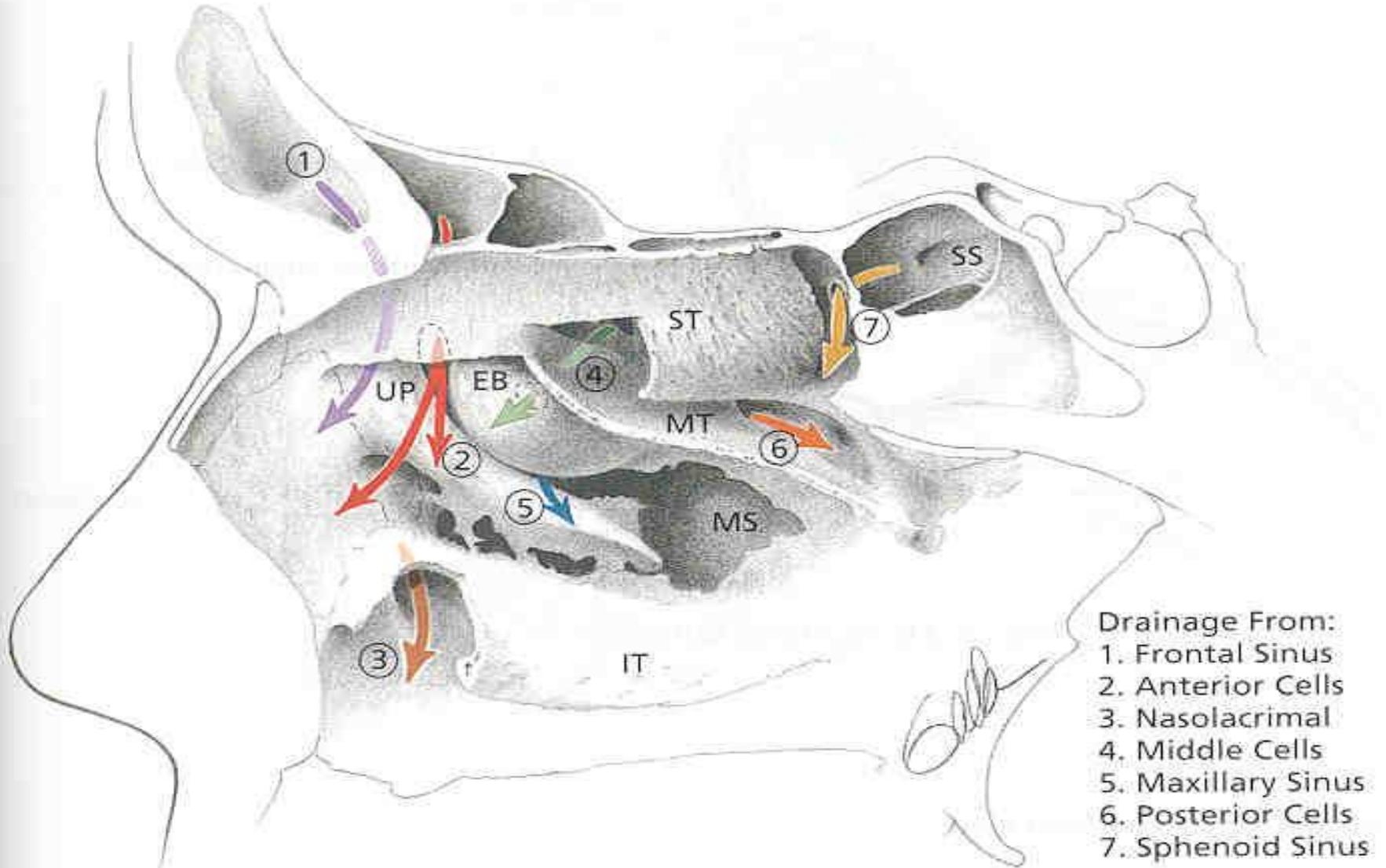


Ethmoid Sinuses

- They are anterior, middle, and posterior
- They are contained within the ethmoid bone, between the nose and the orbit
- Anterior & middle
 - Drains into middle nasal meatus
- Posterior
 - Drain into superior nasal meatus
- Separated from the orbit by a thin plate of bone so that infection can readily spread from the sinuses into the orbit

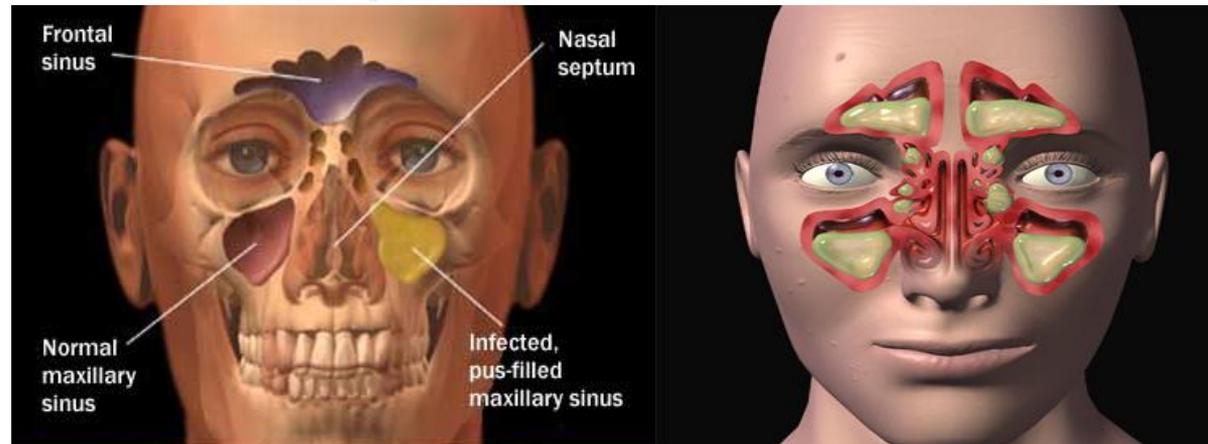
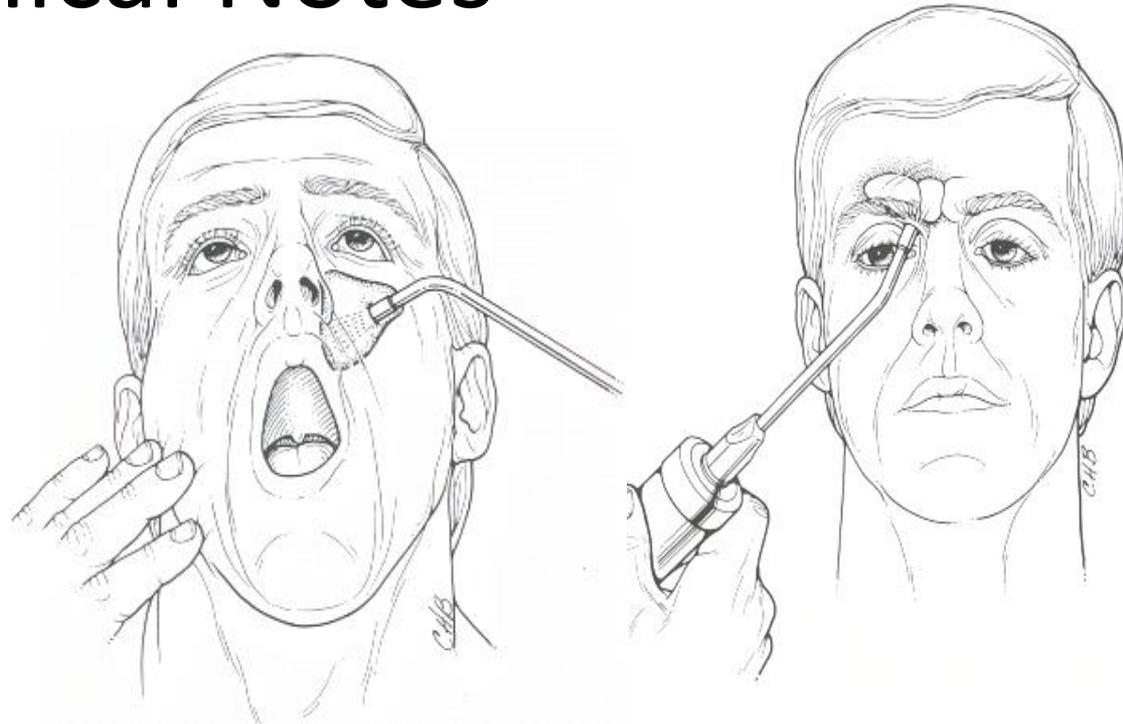


Sinus Drainage Schema



Clinical Notes

- Examination of the Paranasal Sinuses
- Sinusitis
- Basal skull fracture





Thank you