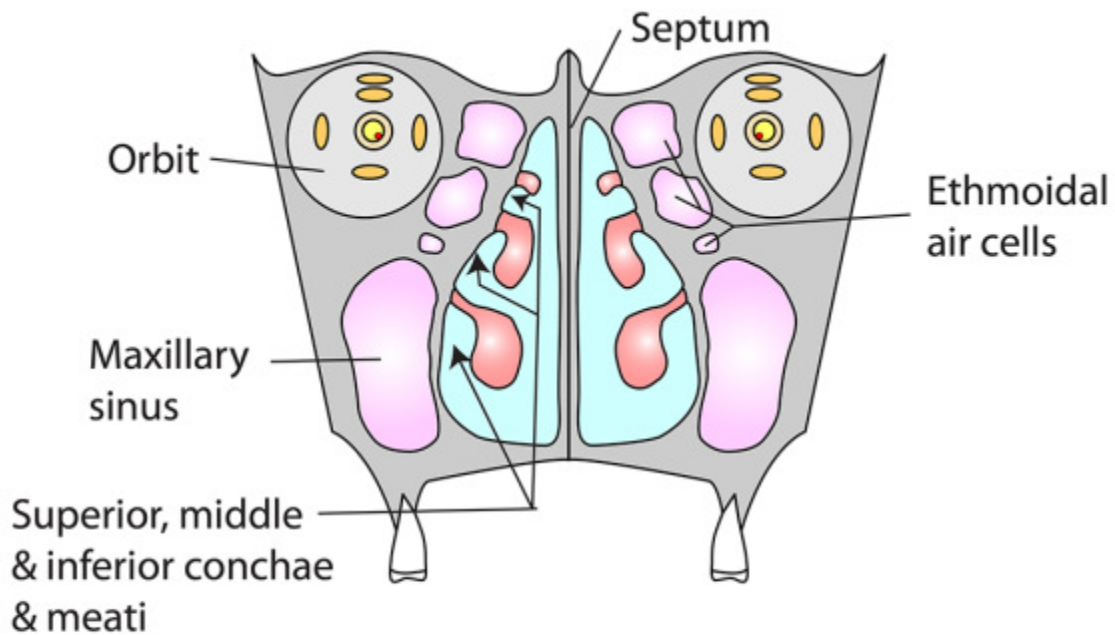


## NASAL CAVITY BOUNDARIES & CORONAL VIEW

- Nasal cavity extends from nares to choanae (posterior septum)
- **Floor:** Hard palate
- **Roof:** Sphenoid and ethmoid
- **Medial wall:** Septum
- **Lateral wall:** medial orbit, ethmoidal air cells, maxillary sinus



### MUCOSA

Olfactory nerve

Vestibular - skin & hair

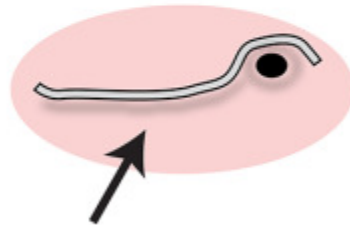
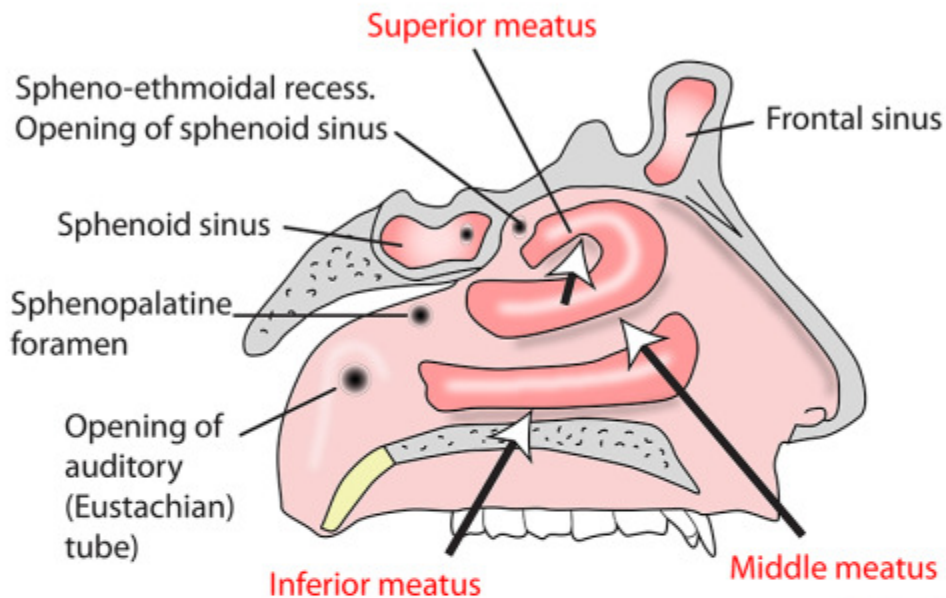
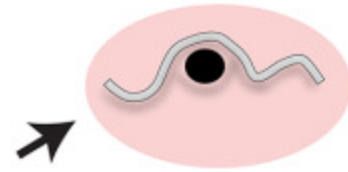
Respiratory - Pseudostratified ciliated columnar

Nerves: CN I, Va, Vb

## LATERAL WALL OF LEFT NASAL CAVITY

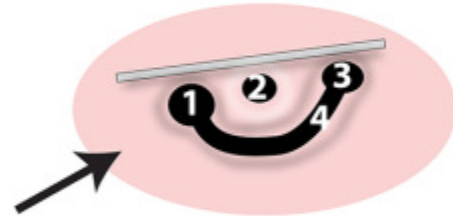
### Superior meatus

Under superior concha (cut away).  
Opening of posterior ethmoidal  
air cells



### Inferior meatus

Under inferior concha  
(cut away). Opening  
of nasolacrimal duct

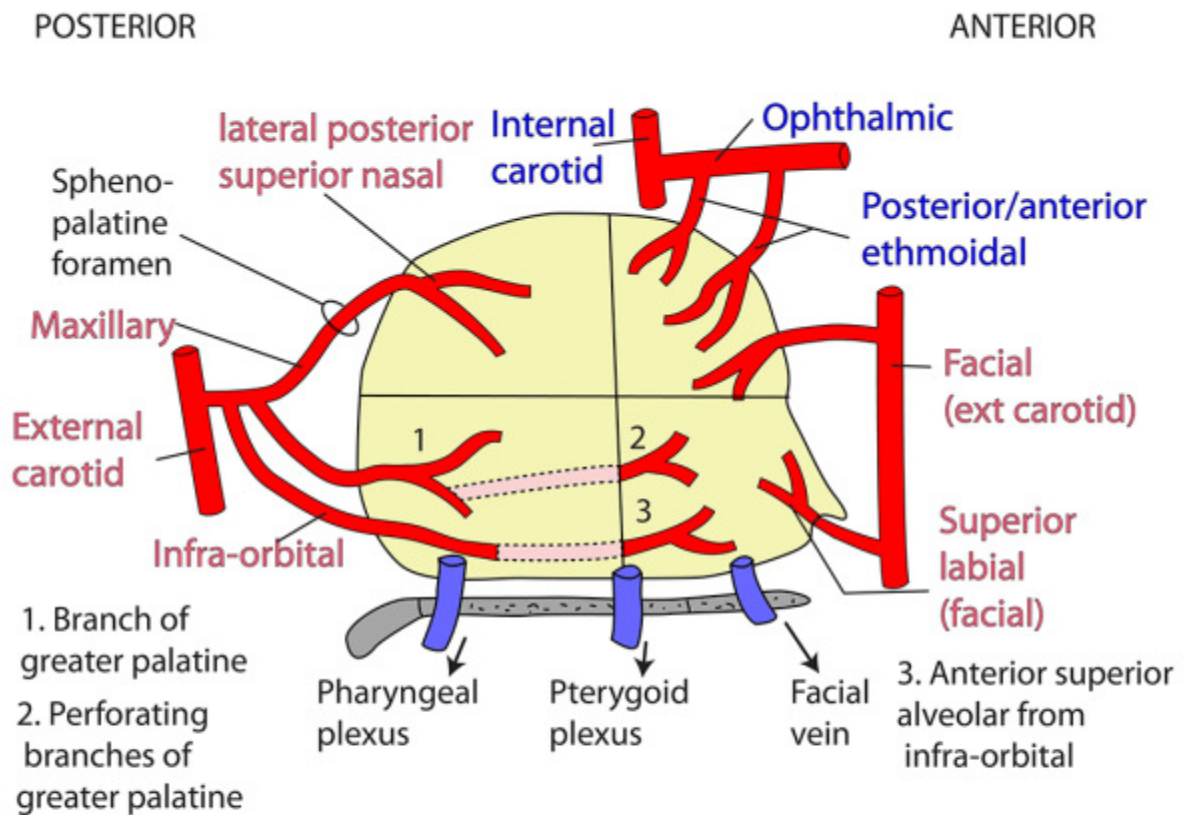


### Middle meatus

Under middle concha (cut away).  
Opening of

1. Maxillary sinus
2. Bulla ethmoidalis. Drainage for anterior group (previously anterior and middle ethmoidal sinus)
3. Infundibulum from frontal sinus into which some of the anterior ethmoidal group drain. The infundibulum is at the anterior end of the
4. Hiatus semilunaris

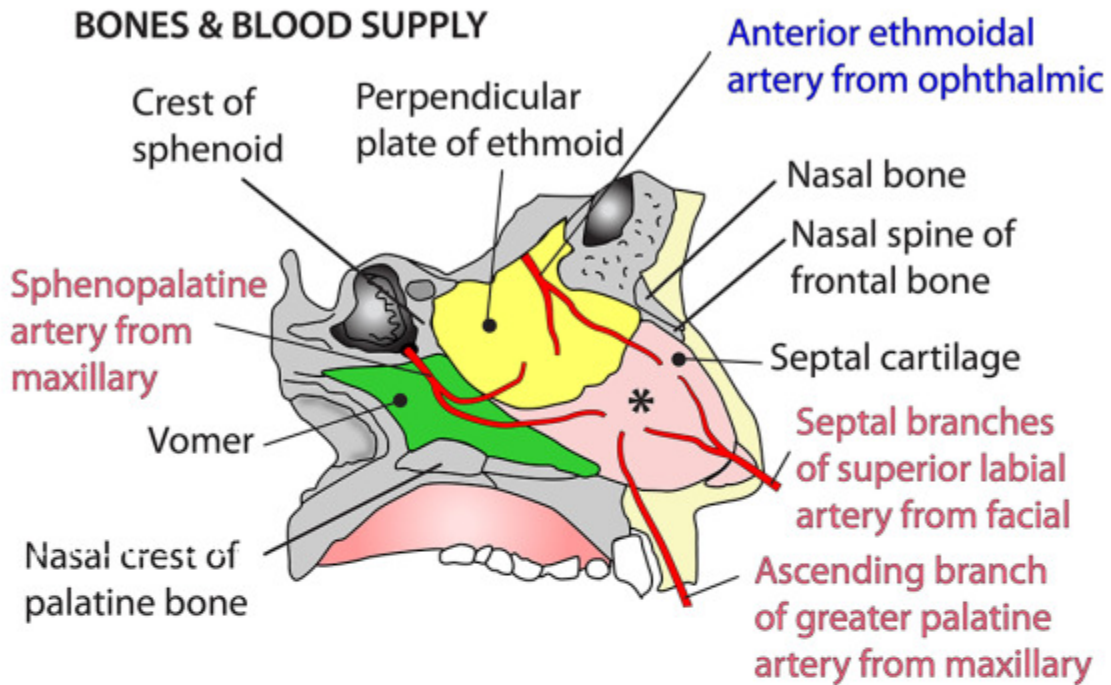
## BLOOD SUPPLY OF LATERAL WALL OF NOSE



1. Branch of greater palatine
2. Perforating branches of greater palatine
3. Anterior superior alveolar from infra-orbital

Note anastomoses between **internal & external carotid** arteries on both medial & lateral walls of the nasal cavity

## NASAL SEPTUM LITTLE'S AREA (Nose bleeds)



Note anastomoses between **internal** & **external carotid** arteries on both medial & lateral walls of the nasal cavity

### VENOUS DRAINAGE

Anterior - to face

Posterior - to pterygoid plexus. Also via ethmoidal veins to ophthalmic and inferior cerebral veins. 1% via foramen caecum to superior sagittal sinus

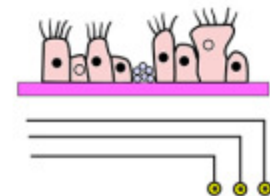
### LYMPHATIC DRAINAGE

Lateral wall and septum. **Posterior:** to retropharyngeal and to anterior/superior deep cervical. **Anterior:** to submandibular

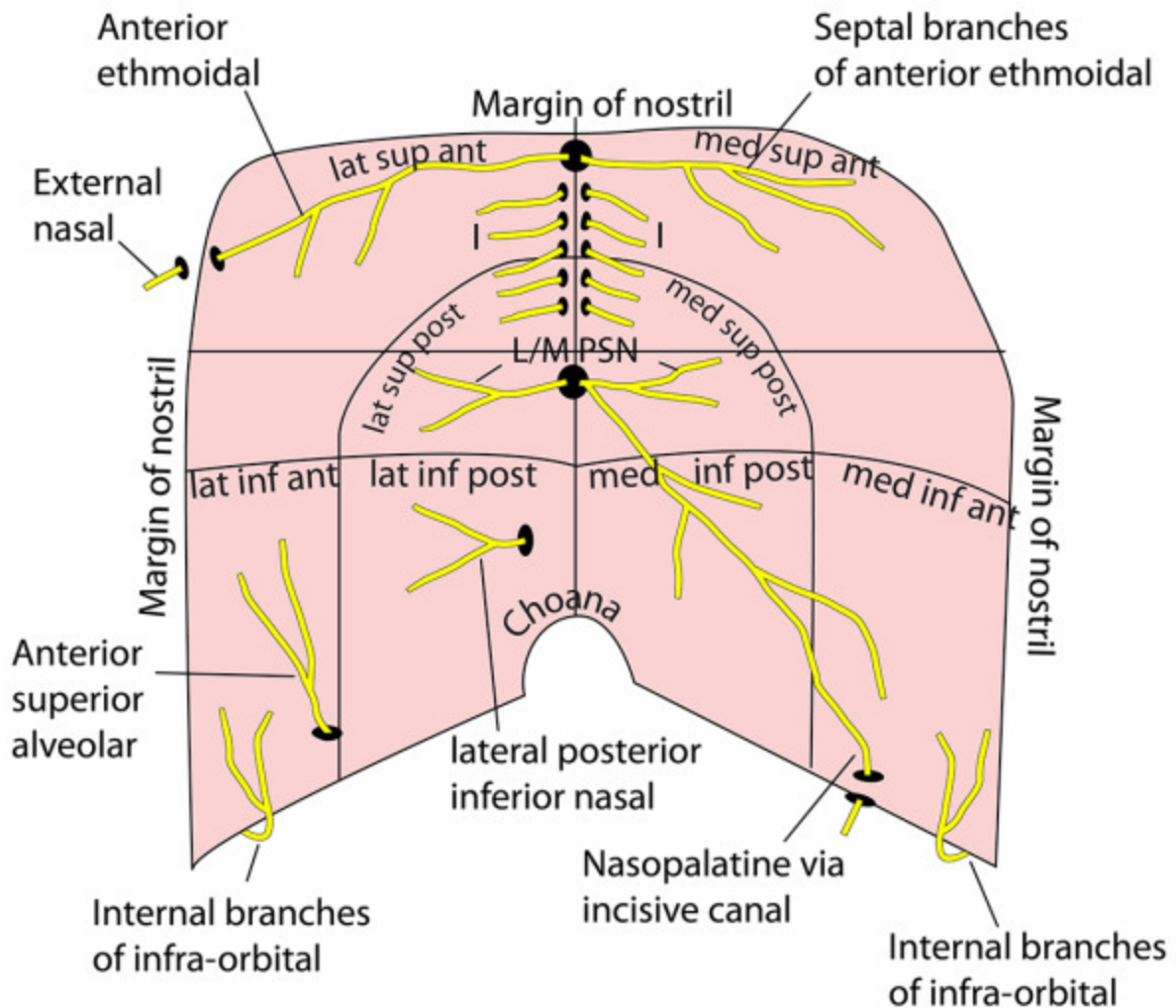
### LINING

**Respiratory epithelium** - pseudostratified ciliated columnar with mucous cells and very vascular

**Olfactory epithelium** - ciliated nerve cells, yellowish, on roof & septum, under superior concha & in sphenothmoidal recess



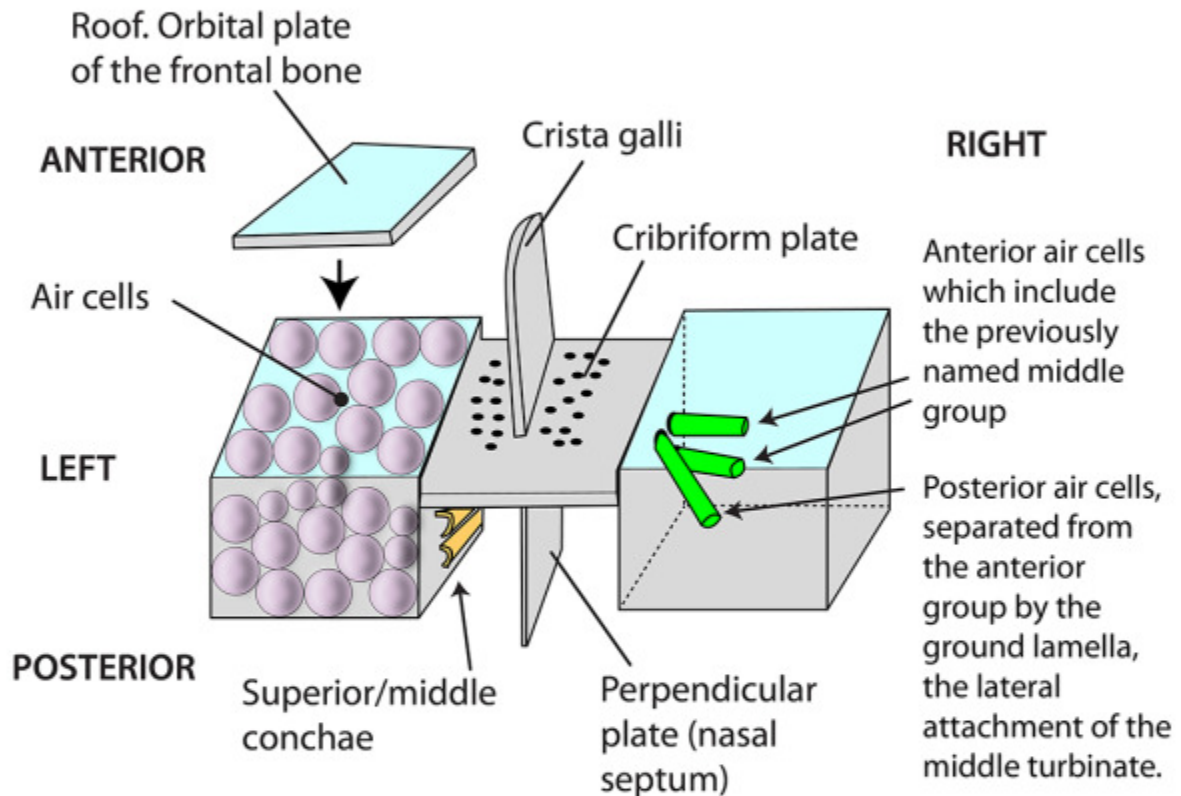
## NASAL CAVITY - NERVE SUPPLY VIEW UP RIGHT NOSTRIL



- L/M PSN = **Lateral & medial posterior superior nasal**, from nasopalatine, from Vb, from pterygopalatine ganglion
- Anterior ethmoidal** from nasociliary, from Va
- Lateral posterior inferior nasal**, from greater palatine, from Vb, from pterygopalatine ganglion
- Nasopalatine** from Vb, from pterygopalatine ganglion
- Anterior superior alveolar**, from infra-orbital, from Vb
- Infra-orbital**, from Vb

## ETHMOIDAL SINUSES

Diagrammatical representation of the ethmoid bone to show the left and right ethmoidal sinus joined by the cribriform plate. The roof of the air cell containing sinuses on each side is the orbital plate of the frontal bone. Anterior to the ethmoid bone is the lacrimal bone & posterior is the sphenoid bone



**Ethmoidal sinuses** lie between the orbit & nose in the lateral (labyrinthine) part of the bone

**Septa** lie between 3-18 lots of air cells

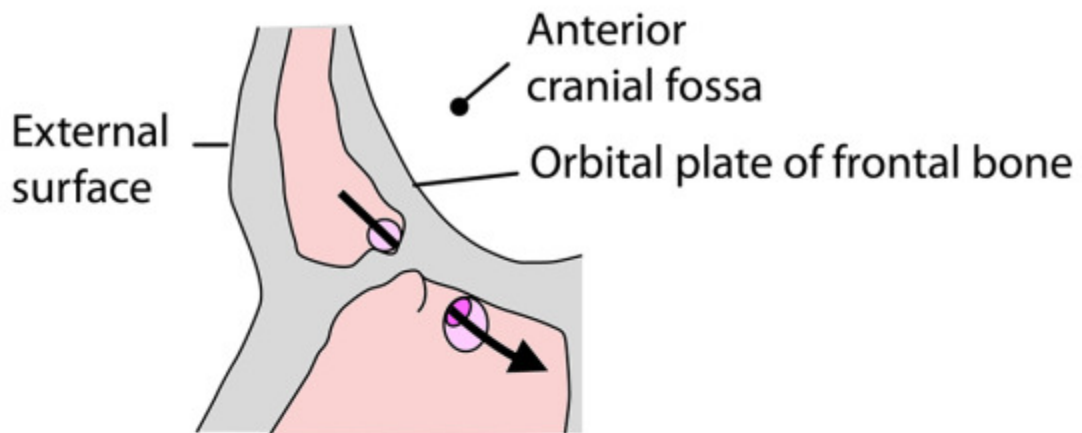
**Blood supply:** Supra-orbital, anterior/posterior ethmoidal, sphenopalatine

**Lymph drainage:** Submandibular and retropharyngeal

**Nerve:** Supra-orbital (Va), Anterior ethmoidal (Va), lateral posterior superior nasal (Vb), posterior ethmoidal (Va)

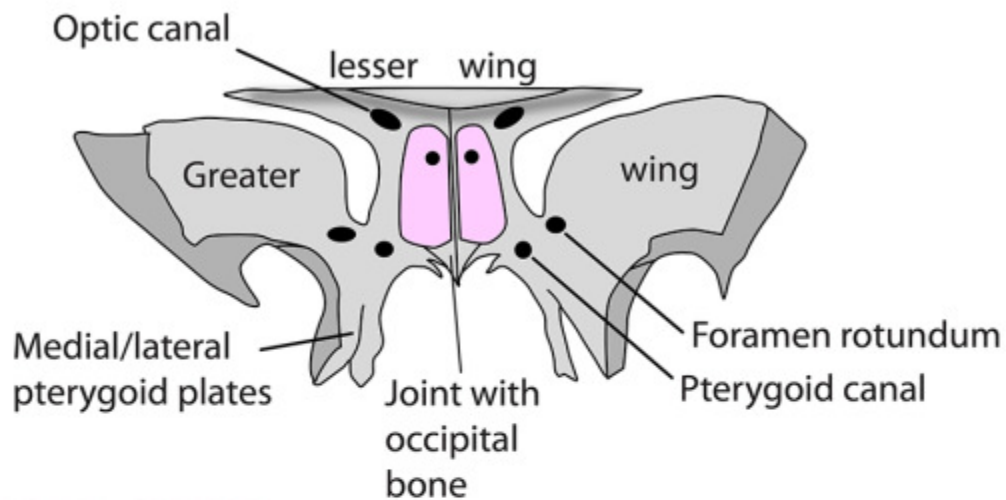
# FRONTAL SINUSES

- Appear at 2 years
- Unequal in size
- Bony septum
- Lie between orbit and anterior cranial fossa
- **Nerves:** Supra-orbital & supratrochlear nerves
- **Blood supply:** Supra-orbital & supratrochlear arteries
- **Lymph drainage:** Submandibular
- **Veins:** Diploic & superior ophthalmic



- Drainage (diagrammatic)
- Ostium: lower medial aspect
- To middle meatus via frontonasal canal (anterior end of hiatus semilunaris)
- May drain via infundibulum from anterior ethmoidal sinus

## SPHENOID BONE VIEWED POSTERIORLY TO SHOW SINUSES



### **SPHENOIDAL SINUSES**

**Paired** in body of sphenoid

**Septum:** Asymmetrical

**If small:** Then anterior to pituitary fossa

**If large:** Then beneath pituitary fossa, extending posteriorly to basi-occiput and laterally into greater wing

**Ostium:** In anterior wall, opening into spheno-ethmoidal recess

**Laterally:** Cavernous sinuses, internal carotid artery and maxillary nerve

**Posteriorly:** Posterior cranial fossa and pons

**Inferiorly:** Roof of nasopharynx, nerve of pterygoid canal & palatovaginal canal (containing pharyngeal branch of Vb)

**Walls:** Indented by pterygoid & palatovaginal canals, internal carotid artery and maxillary nerve (Vb)

**Nerve supply:** Posterior ethmoidal (Va) & branches of pterygopalatine ganglion

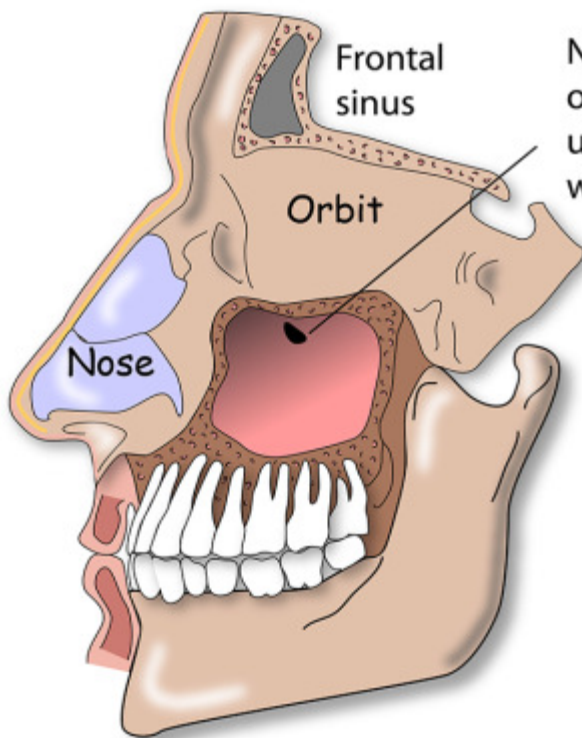
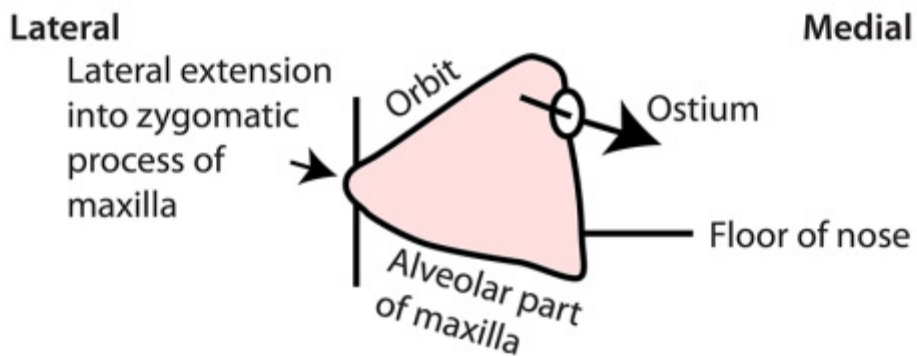
**Blood supply:** Posterior ethmoidal & sphenopalatine branches of maxillary artery

**Lymph drainage:** Retropharyngeal



## MAXILLARY SINUS

- Pyramidal shape
- Anterior & posterior walls are maxilla
- Drains into posterior hiatus semilunaris of middle meatus
- Ostium is 3-4mm high on posterior end of nasal wall
- May be a second ostium
- **Blood supply:** Small arteries from facial, maxillary, infra-orbital & greater palatine
- **Lymph drainage:** Submandibular glands
- **Nerve supply:** Anterior/middle/posterior superior alveolar with secretomotor from pterygopalatine ganglion
- **Feature:** The infra-orbital nerve lies in its ridge (junction of roof and anterior wall)

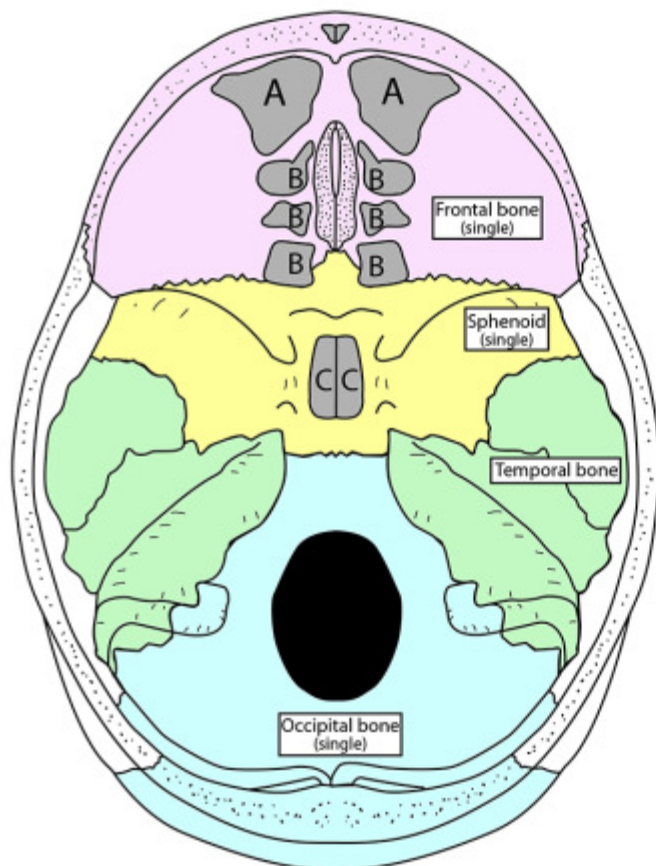


- Largest sinus.
- Drains to middle meatus.
- Small at birth, enlarges 6-7 years.
- Respiratory epithelium.
- Lighten skull.
- Warm & moisten air.
- Resonate voice.

## PARANASAL SINUSES - GENERAL

- 4 pairs
- Lined by respiratory epithelium
- Communicate with nose via ostia
- Abundant sensory nerve supply at ostia
- Mucus is drained by cilia
- Function unknown but they lighten the skull, warm & moisten the air, resonate the voice

	MAXILLARY ETHMOIDAL SPHENOIDAL	FRONTAL
AT BIRTH	Small	Absent (appear at 2y)
6-7 YEARS (2ND DENTITION)	Enlarge	Enlarge
POST PUBERTY BONE GROWTH	Large	Large



### PARANASAL AIR SINUSES

- A Frontal
- B Ethmoidal
  - anterior
  - middle
  - posterior
- C Sphenoidal

## NASOPHARYNX - RIGHT

- From **CHOANAE** to **LOWER BORDER OF SOFT PALATE**
- **Back and sides:** pharyngobasilar fascia
- **Posterior:** prevertebral space/fascia, body of C1 vertebra
- **Anterior:** choanae & back of soft palate
- **Inferior:** Soft palate & pharyngeal isthmus
- **Superior:** Pharyngeal tonsil (adenoid), sphenoid & occiput
- **Epithelium:** Ciliated columnar
- **Features:**
  - Opening of auditory tube
  - Pharyngeal tonsil
  - Tubal tonsil
  - Pharyngeal recess (of Rosenmuller)
  - Salpingopharyngeus & levator palati
  - N: Pharyngeal br of Vb

