

Anatomy and physiology of the nose

by

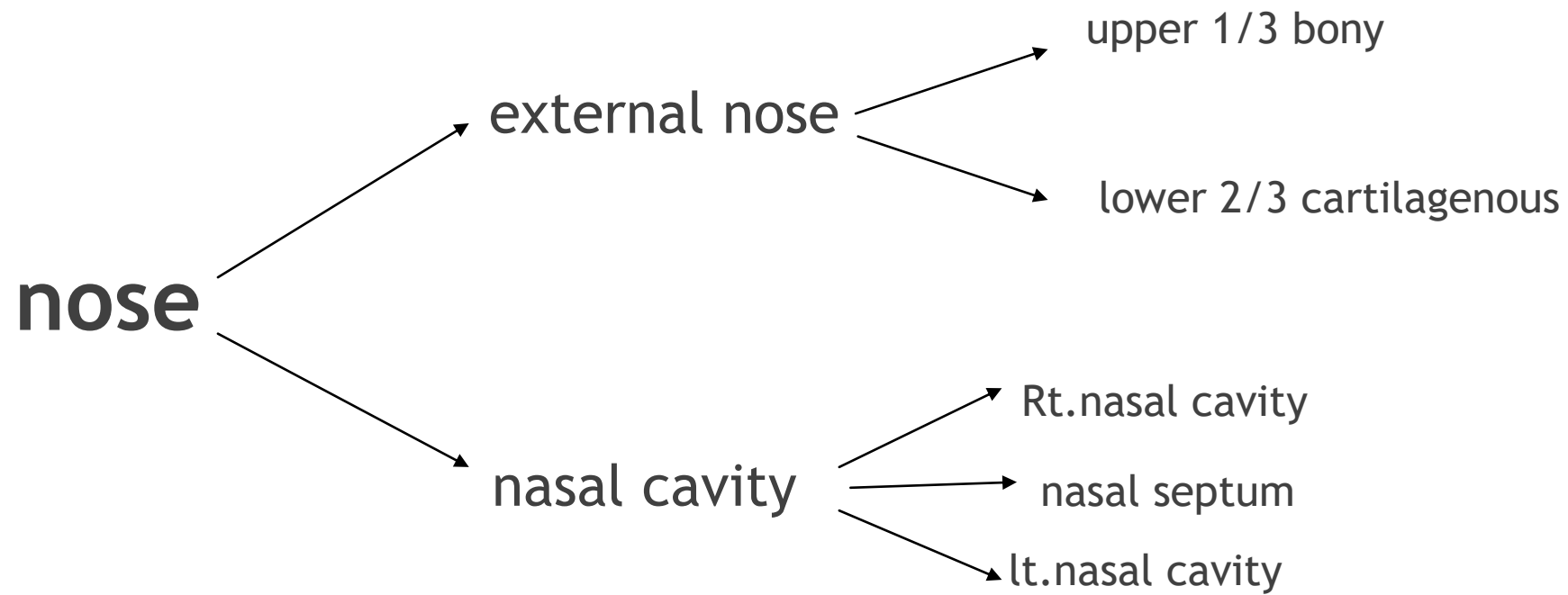
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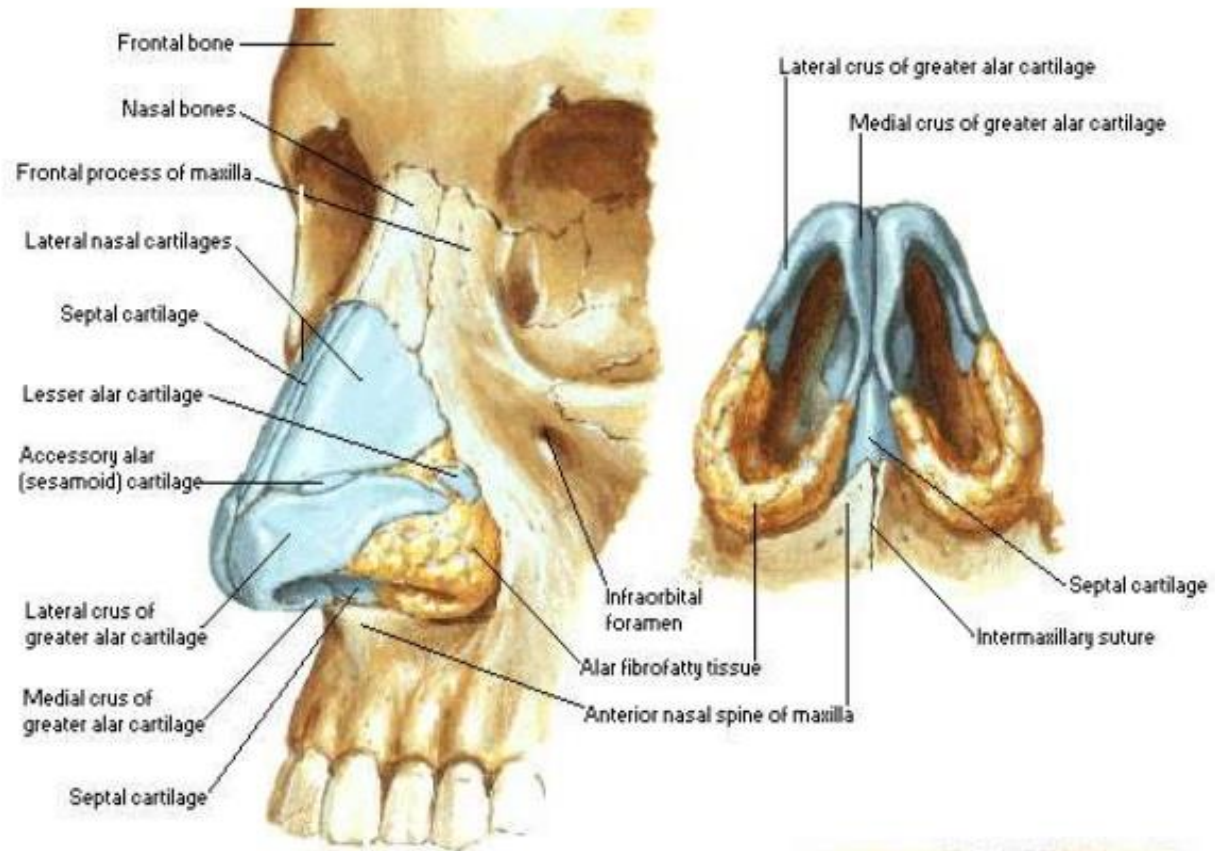
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- Its pyramidal in shape with tip caudally and base cranially
- the bony part of the external nose formed of 2 rectangular bones (nasal bone)
- the cartilaginous part of the external nose formed of **upper lateral cartilage** , **lower lateral cartilage** , **quadrilateral cartilage of the nasal septum** .

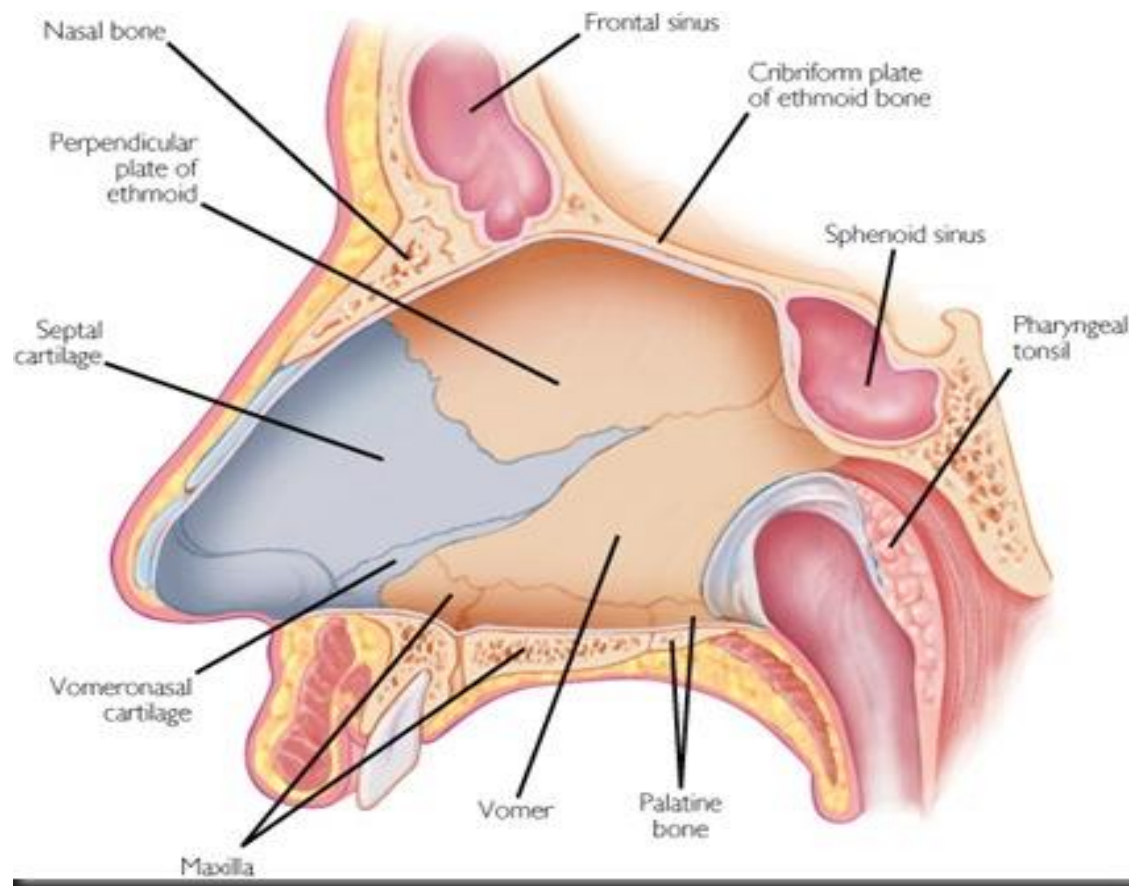


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- ▣ The **vestibule**
- is the dilated part of the nose
- represents the entrance to the nose
- lined by skin and containing sebaceous glands and hair (vibressia)

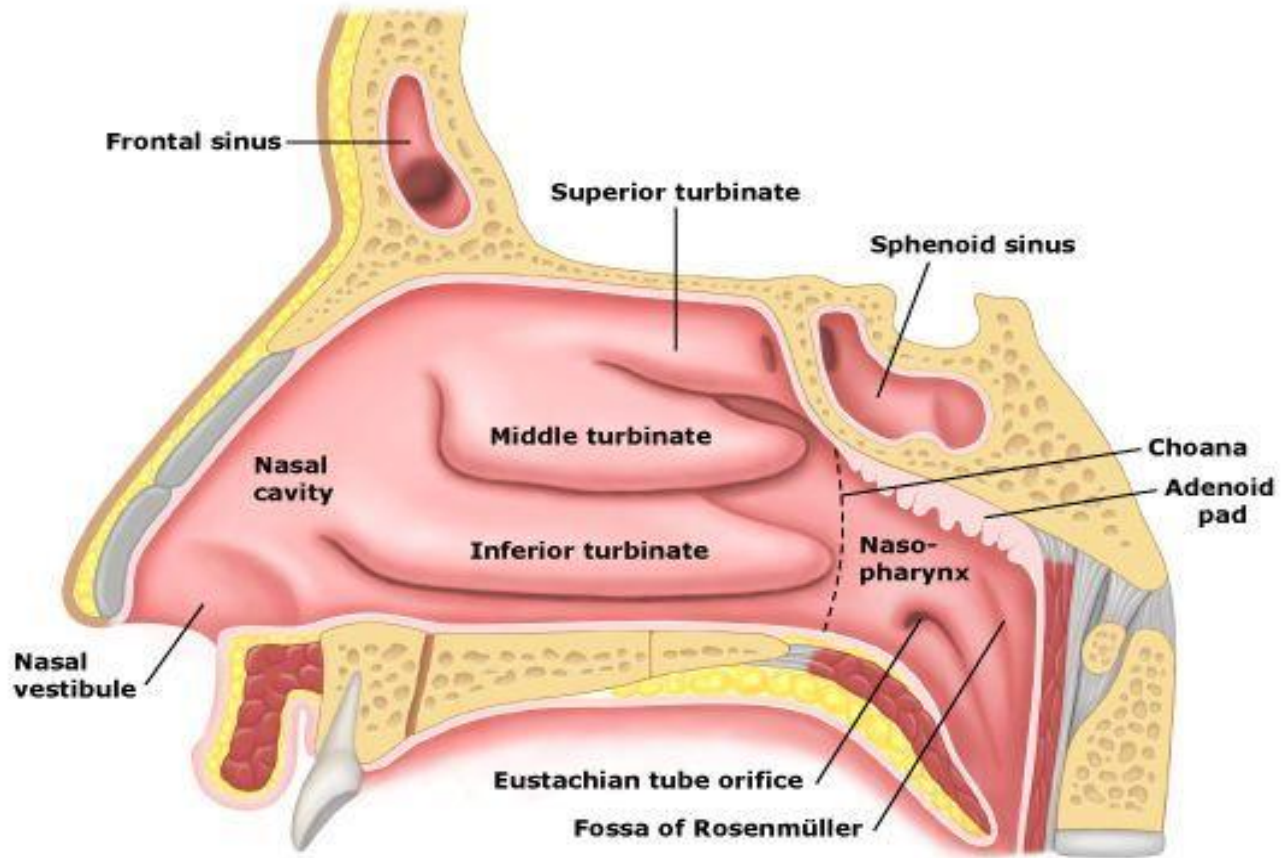
- ❑ the nasal cavity divided into equal halves via the nasal septum
- ❑ the nasal cavity communicate posteriorly with the nasopharynx and with the paranasal sinuses by their ostia
- ❑ each cavity have floor, roof, lateral wall and medial wall.

- The floor formed by palatine process of maxilla and horizontal plate of palatine bone
- the roof formed by nasal bone , cribriform plate of ethmoid and the body of sphenoidal sinus.
- the medial wall formed by nasal septum which in turn formed of quadrilateral cartilage, perpendicular plate of ethmoid bone and the vomer.
- the lateral wall represented by medial wall of maxilla, lacrimal bone and ethmoid.

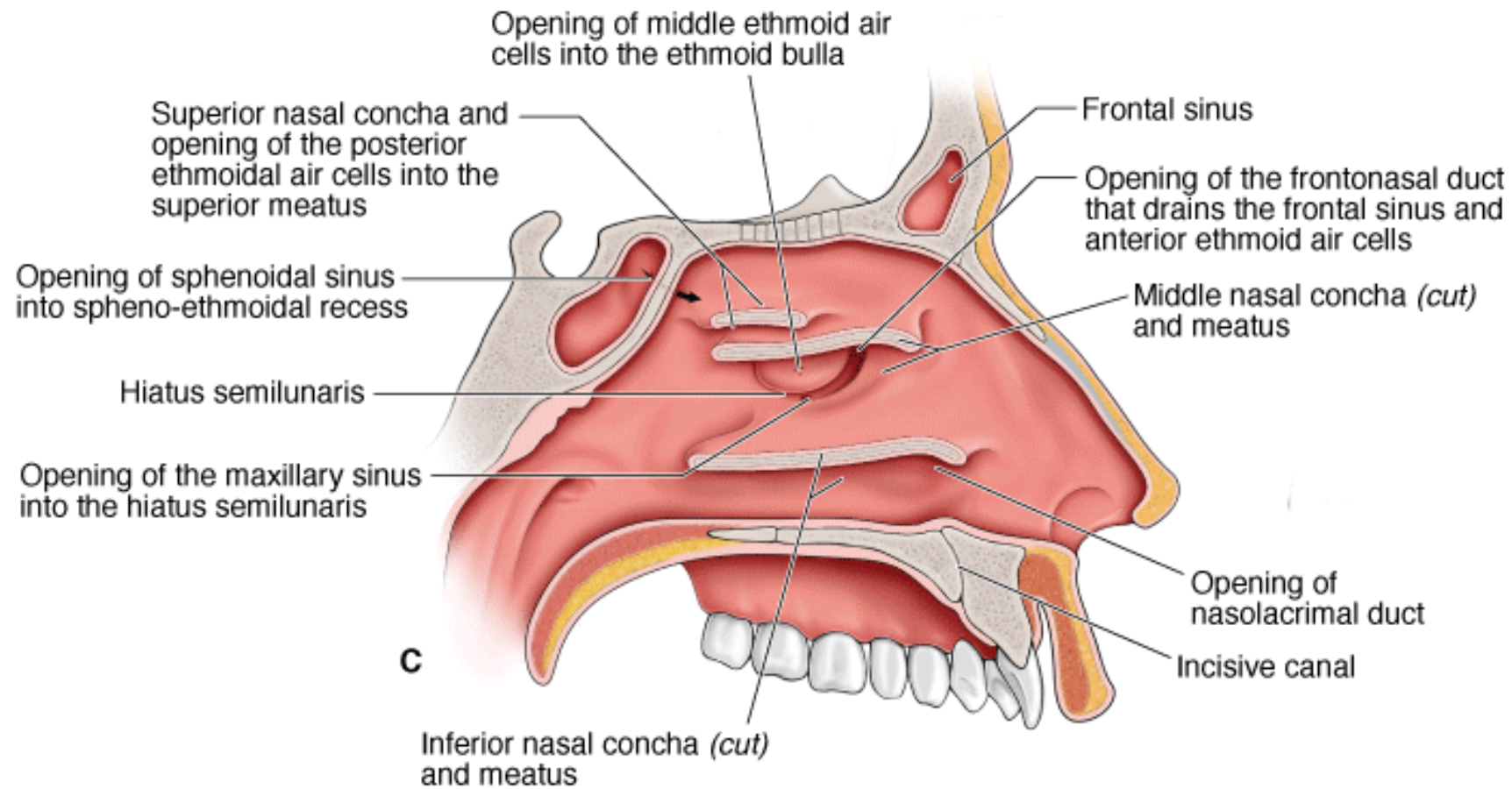


Lateral wall characteristic parts

- ❑ 3 turbinate (concha) superior, middle and inferior (largest)
- ❑ 3 meati each below the corresponding turbinate
- ❑ sphen- ethmoidal recess between the superior turbinate and nasal septum
- ❑ bulla ethmoidalis which is the largest anterior ethmoidal air cell
- ❑ hiatus semilunaris which represent the doorway to the infundibulum its bounded anteriorly by the uncinate process and posteriorly by the bulla.



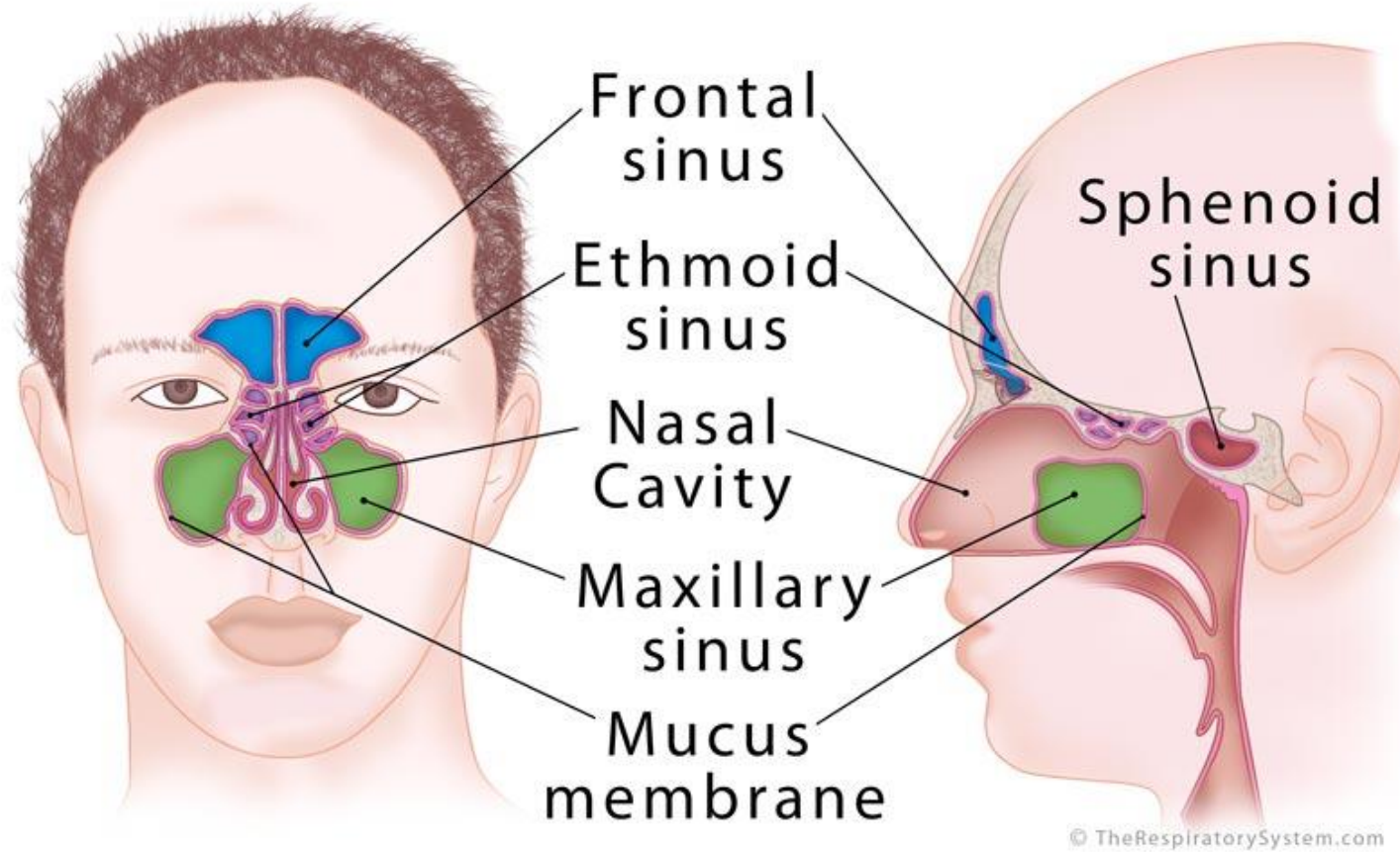
- ❑ the sphenoidal recess receive the drainage of the sphenoidal sinus
- ❑ the superior meatus receive the drainage of posterior ethmoidal sinus
- ❑ the middle meatus receive the drainage of maxillary, frontal and anterior ethmoidal sinus
- ❑ The inferior meatus receive the drainage of the nasolacrimal duct



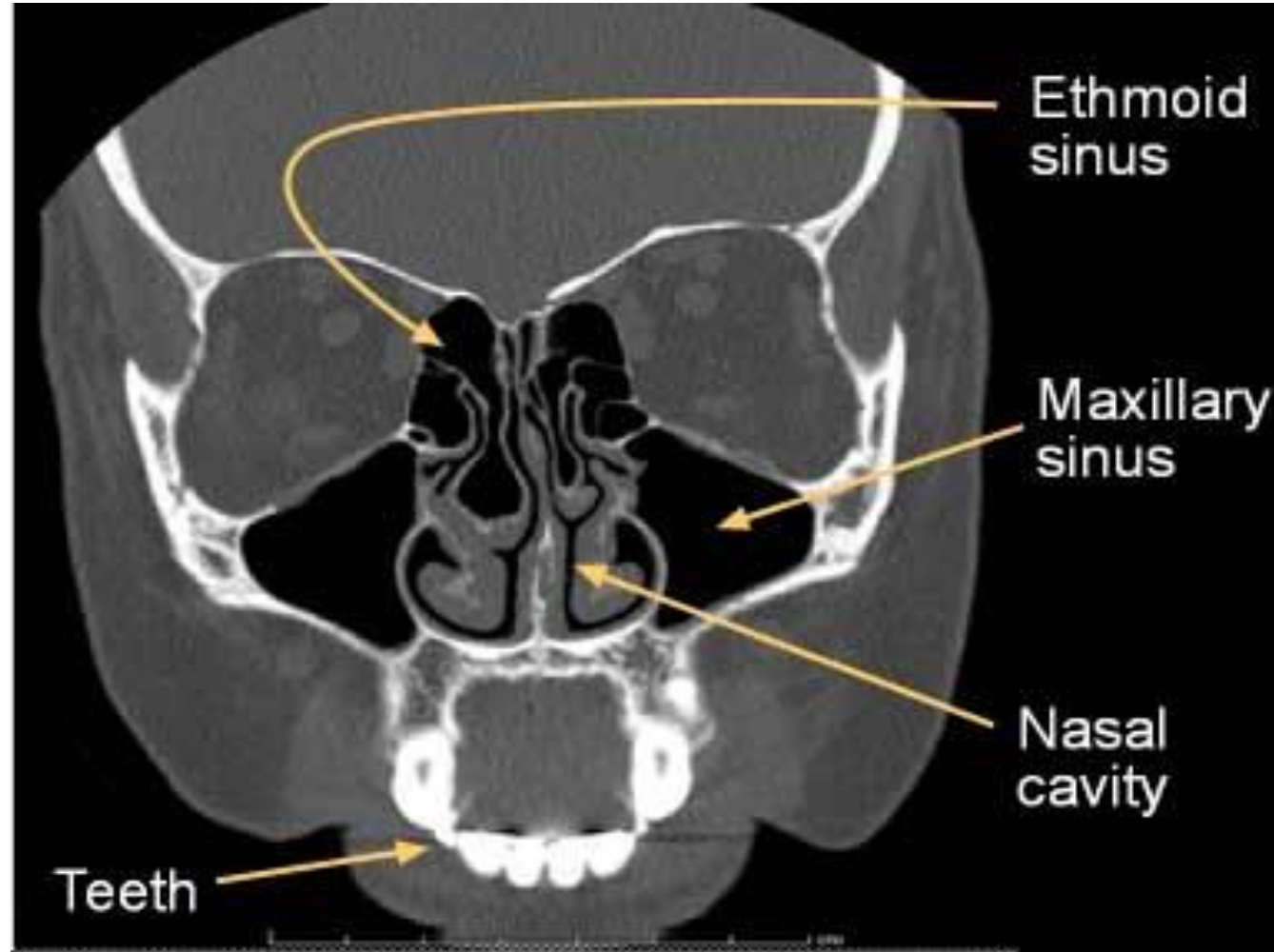
Paranasal sinuses

- ❑ They are air filled cavities within skull bones
- ❑ they includes maxillary , ethmoidal , frontal and sphenoid sinus.
- ❑ maxillary sinus are present at birth while frontal sinus develop later (after 6 y)

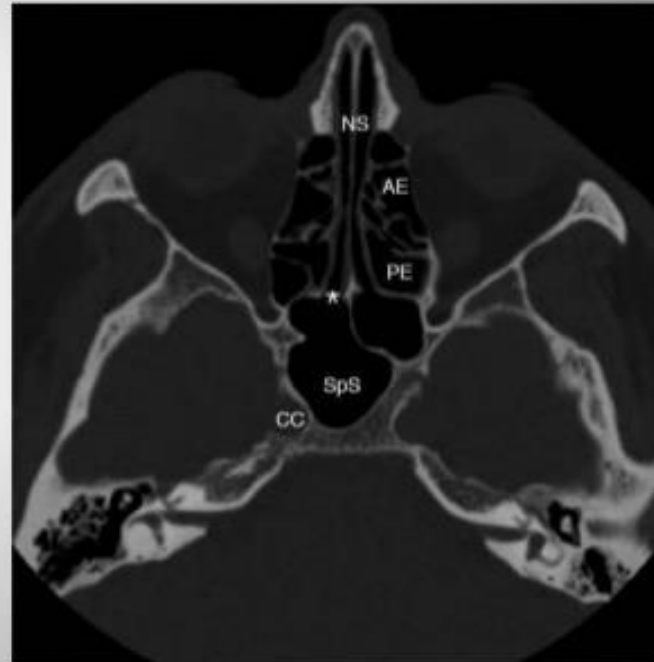
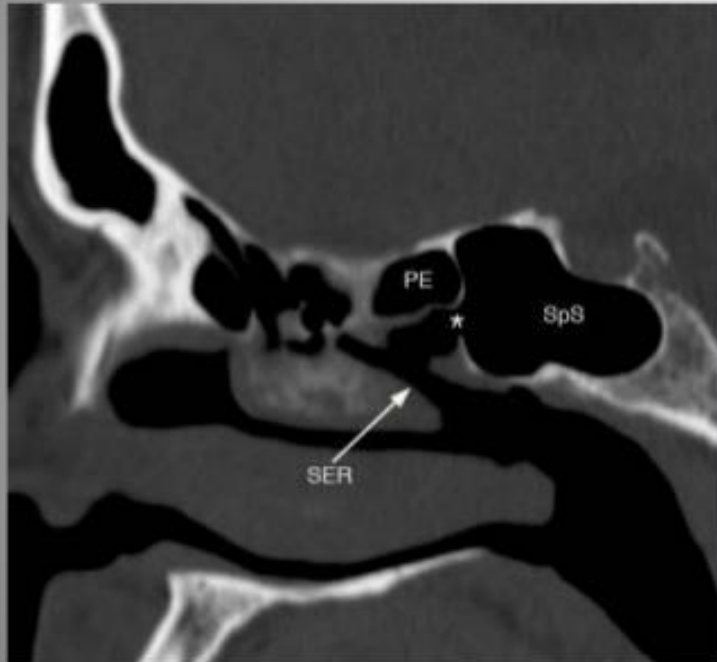
Paranasal Sinuses

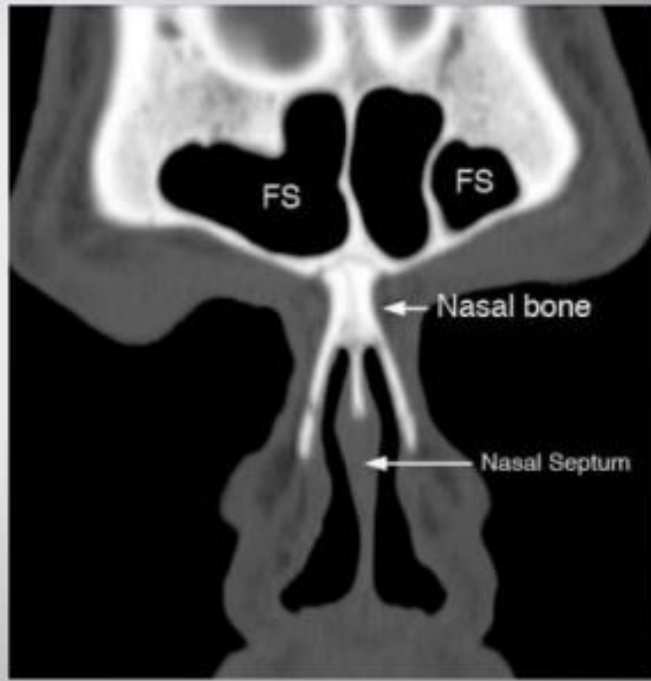
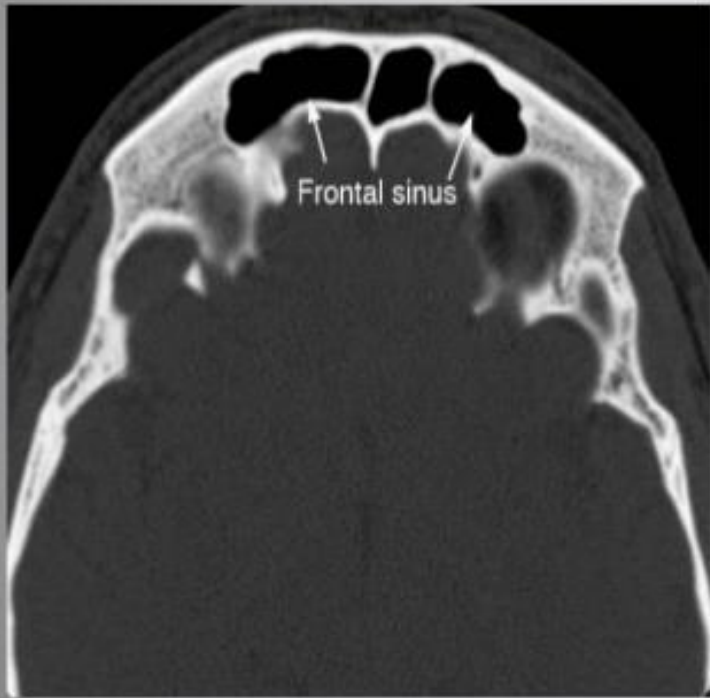






Sphenoid sinus





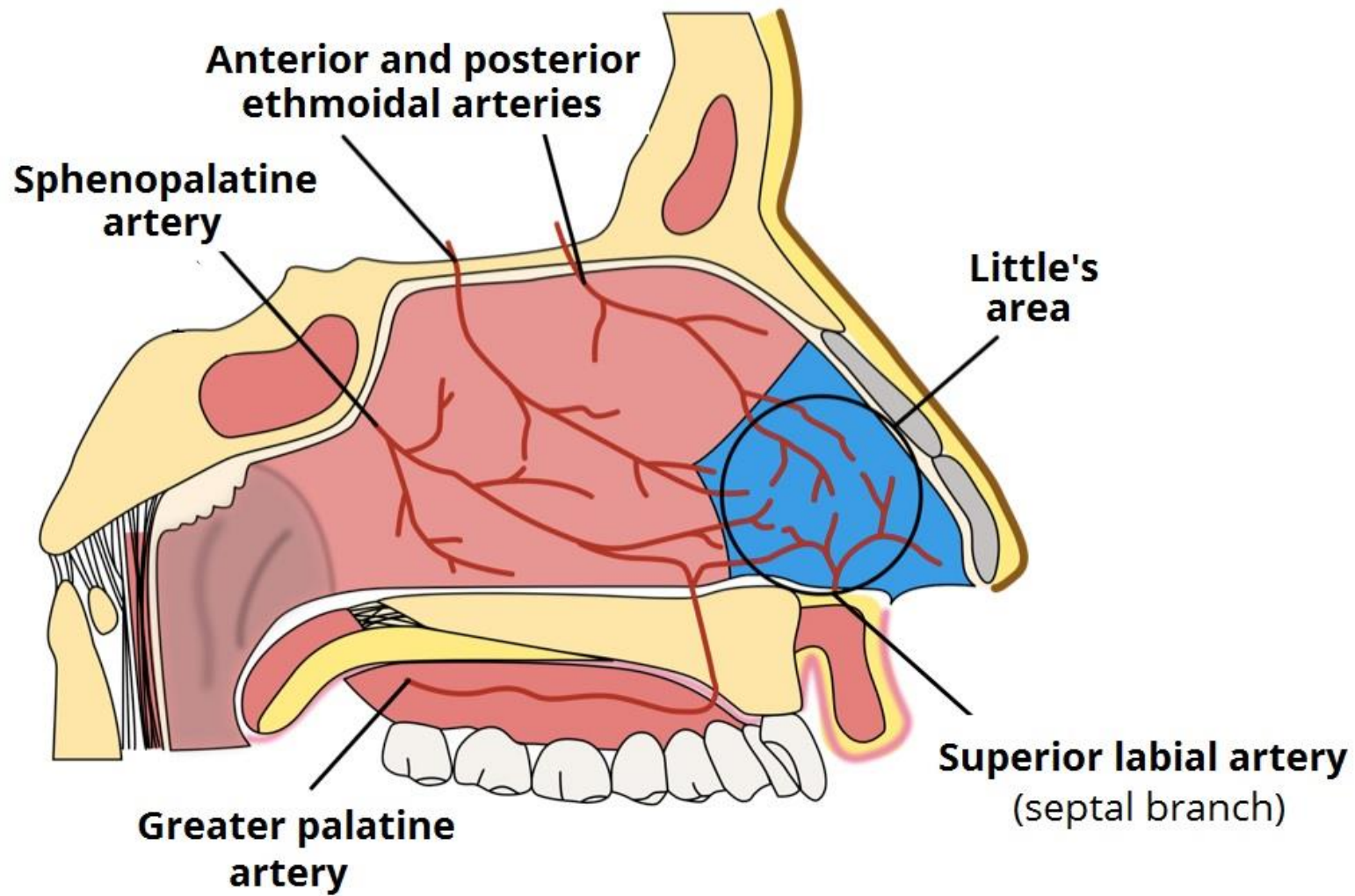
Mucous membrane of nose and PNS

Most of the nasal cavity and PNS are covered by respiratory epithelium which is ciliated pseudostratified columnar epithelium with exception of the upper part of the nasal septum and the lateral nasal wall above the level of the superior turbinate and the nasal roof which is covered by the olfactory epithelium which is yellow non ciliated columnar epithelium.

Blood supply

Arterial :

1. internal carotid artery
 - anterior ethmoidal A.
 - posterior ethmoidal A.
2. external carotid artery
 - sphenopalatine A
 - greater palatine A
 - septal branch of superior labial A.



Kiesselbach plexus :

A highly vascularized network present in the antero-inferior part of the nasal septum (**little area**) formed by the following arteries and responsible for most of the cases of anterior epistaxis.

1. sphenopalatine
2. greater palatine
3. septal branch of superior labial
4. ant.ethmoidal

Venous drainage:

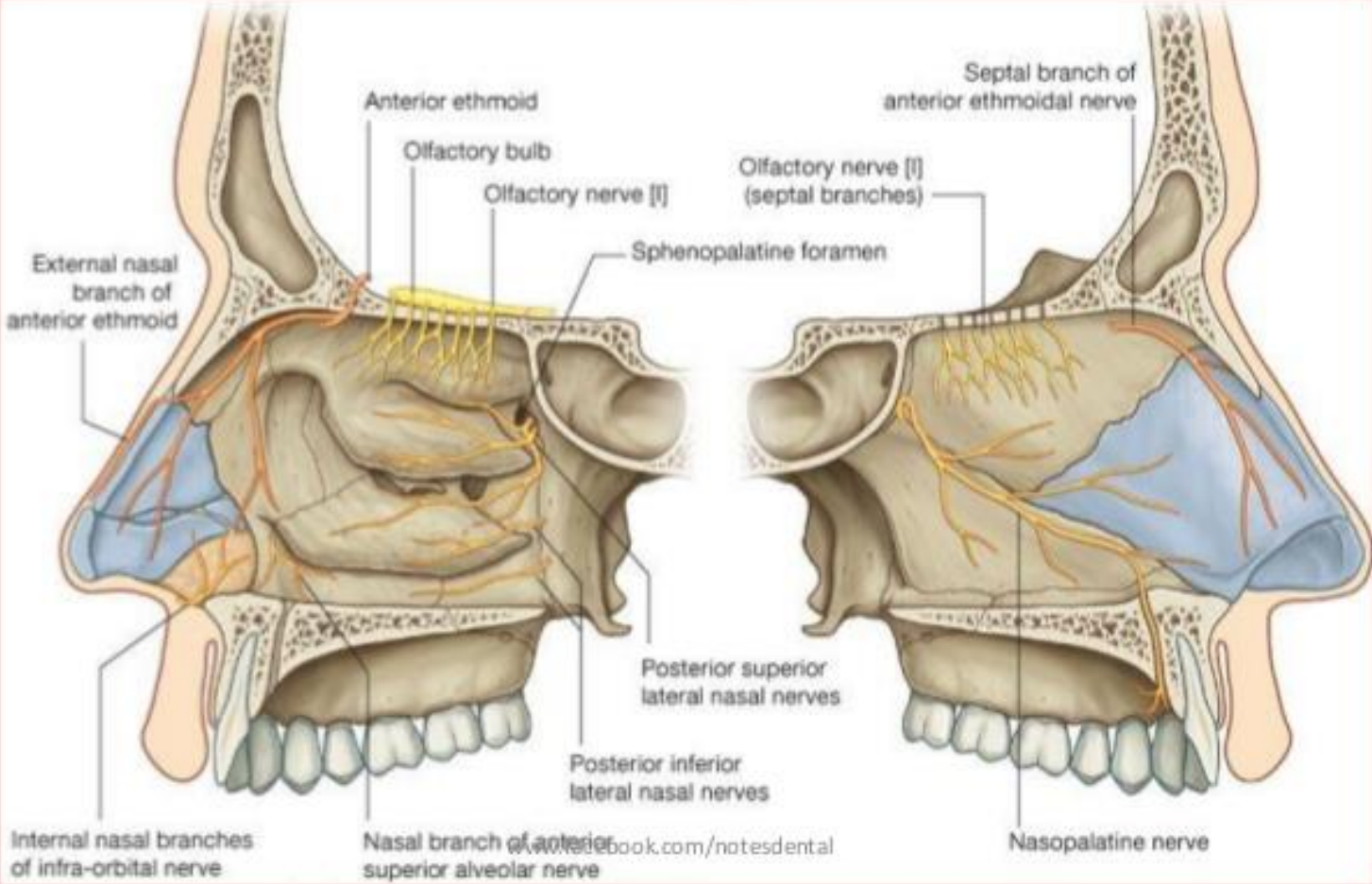
Mainly by

1. facial vein
2. maxillary vein
3. ophthalmic veins

Nerve supply:

- ❑ general supply via 1st and 2nd division of trigeminal
- ❑ special supply via olfactory nerve (smell detection)
- ❑ autonomic via pterygopalatine ganglia from vidian nerve
 - sympathetic --- vasoconstrictor
 - parasympathetic --- vasodilator (secretomotor)

Nerve Supply



Function of the nose

1. respiration
2. olfaction
3. humidification of the inspired air
4. filtration of the inspired air
5. warming of the inspired air

Function of the paranasal sinuses

- ▶ vocal resonance
- ▶ diminution of auditory feedback
- ▶ air conditioning
- ▶ pressure damper
- ▶ reduction of skull weight
- ▶ flotation of skull in water
- ▶ mechanical rigidity
- ▶ heat insulation

Thank you

The background features abstract, overlapping geometric shapes in various shades of blue, ranging from light sky blue to deep navy blue. The shapes are primarily triangles and polygons, creating a dynamic, layered effect. The overall composition is clean and modern, with the text centered on a white background.