

# NOSE & PARANASAL SINUSES

## The Nose

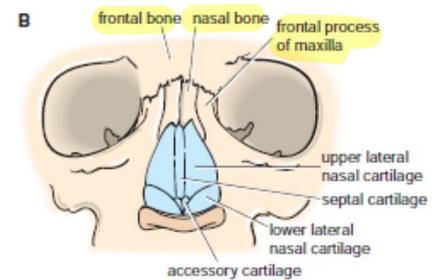
The nose consists of:

- External nose
- Nasal cavity

Both are divided by the nasal septum into right and left halves.

### 1. External Nose

- Nostrils: Two elliptical orifices separated by the nasal septum.
- Lateral margin (Ala nasi): Rounded and mobile.

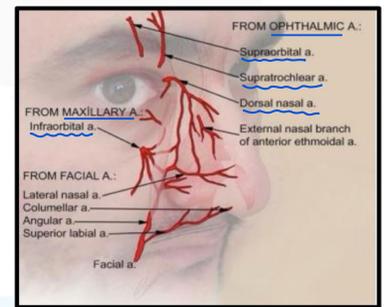


### Framework

- Above: Nasal bones, frontal processes of maxillae, nasal part of frontal bone.
- Below: Plates of hyaline cartilage.

### Blood Supply

- Skin of external nose: branches of **ophthalmic** and **maxillary** arteries.
- Skin of the ala and lower part of the septum: branches of **facial artery**.

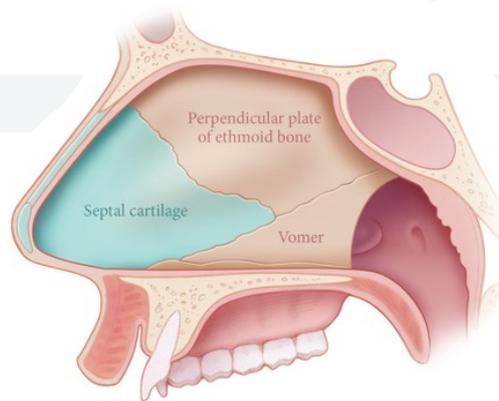


### Nerve Supply

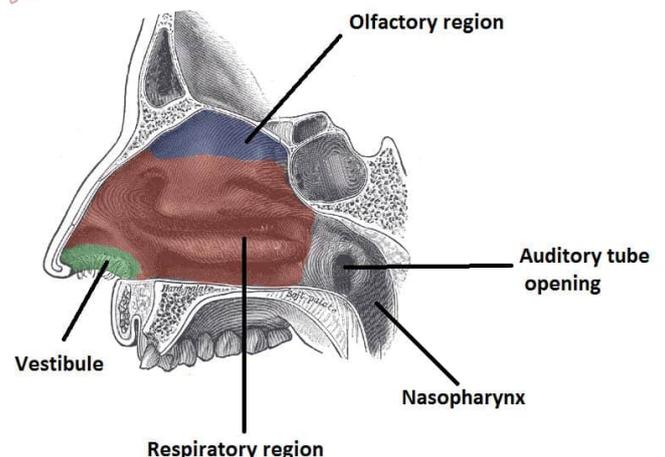
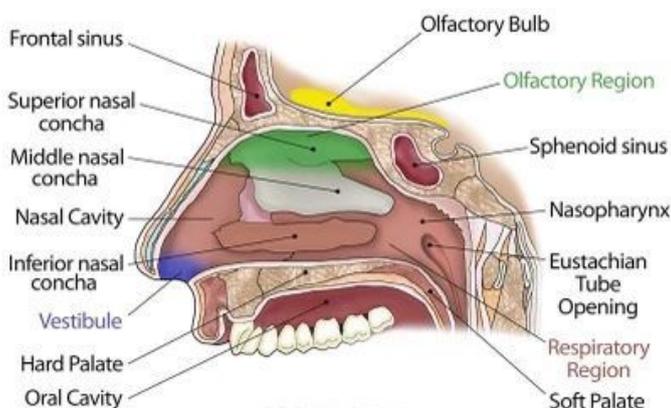
- Infratrochlear and external nasal branches of **ophthalmic nerve (CN V1)**.
- Infraorbital branch of **maxillary nerve (CN V2)**.

### 2. Nasal Cavity

- Extends from nostrils (front) to posterior nasal apertures (choanae) (back), opening into the *nasopharynx*.
- **Nasal vestibule**: Area just inside the nostril.
- Divided by the **nasal septum**, made up of:
  - Septal cartilage
  - Vertical plate of ethmoid
  - Vomer



## Nasal Cavity



## Walls of the Nasal Cavity

### Floor

- Palatine process of **maxilla**
- Horizontal plate of **palatine bone**

### Roof

- **Anterior:** Nasal and frontal bones
- **Middle:** Cribriform plate of ethmoid (beneath anterior cranial fossa)
- **Posterior:** Downward sloping body of sphenoid

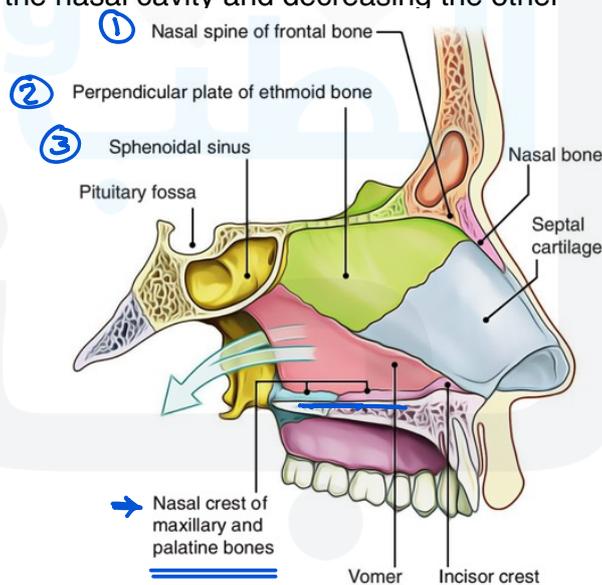
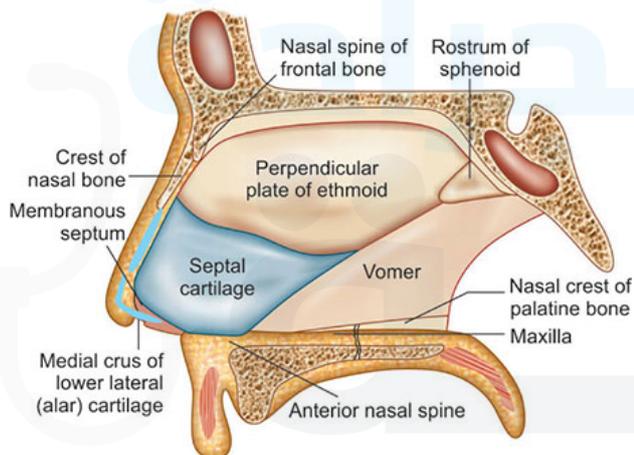
### Lateral Wall

- Conchae: Superior, middle, inferior
  - Meatuses: Spaces **below** each concha
  - **Sphenoethmoidal recess:** Above superior concha; receives **opening of sphenoid sinus**
  - **Superior meatus:** Below superior concha; receives **posterior ethmoid sinuses**
  - **Middle meatus:** Below middle concha
  - Contains **bullae ethmoidalis** (formed by **middle ethmoidal sinuses**)
  - Hiatus semilunaris: Curved opening below bulla
  - Infundibulum: Funnel-shaped channel continuous with frontal sinus
  - **Inferior meatus:** Below inferior concha; receives **opening of nasolacrimal duct**, guarded by mucous fold
- The maxillary sinus** opens into the **middle meatus** through the hiatus semilunaris.



### Medial Wall

- Formed by **nasal septum**:
- **Upper part:** Vertical plate of ethmoid and vomer
- **Anterior part:** Septal cartilage
- Note: Septum rarely lies in midline, enlarging one half of the nasal cavity and decreasing the other

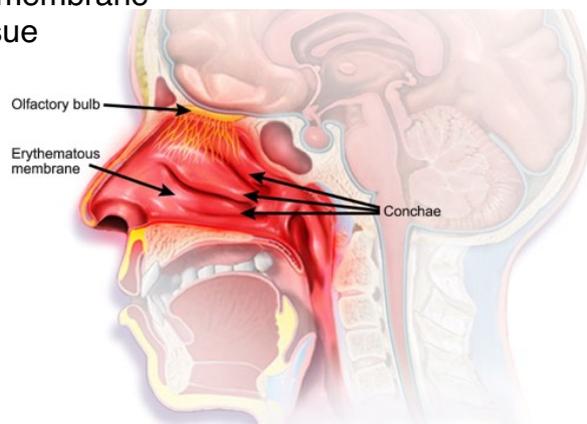


## Mucous Membrane of Nasal Cavity

- Vestibule: Lined with modified skin; coarse hairs present
- Olfactory area: Above superior concha; nerve endings for smell
- Respiratory area: Lower part; lined with respiratory mucous membrane
- **Venous plexus:** Large network in submucous connective tissue

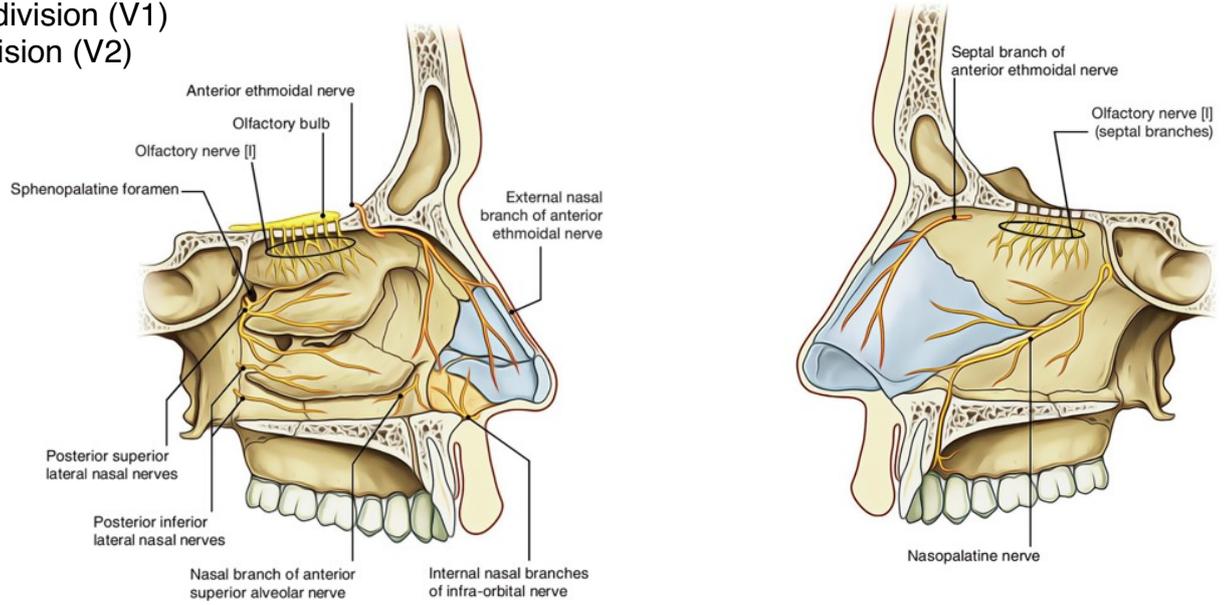
### Functions

- Warm blood in venous plexuses heats inspired air
- Mucus traps foreign particles, which are swallowed and destroyed by gastric acid



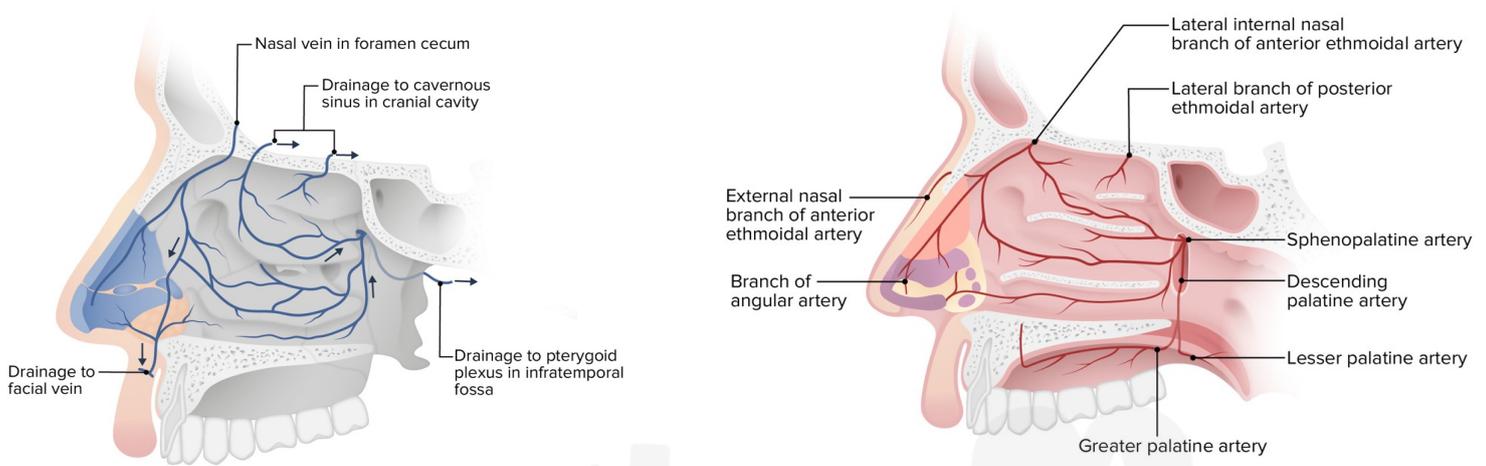
## Nerve Supply of Nasal Cavity

- Olfactory nerves: From olfactory mucous membrane, ascend through cribriform plate to olfactory bulbs
- Sensation (ordinary): Branches of trigeminal nerve:
- Ophthalmic division (V1)
- Maxillary division (V2)



## Blood Supply to Nasal Cavity

- Arteries: Branches of **maxillary artery** (terminal branch of external carotid)
- Key branch: Sphenopalatine artery, anastomoses with septal branch of superior labial branch of facial artery (vestibule region)
- Veins: Drain **submucous venous plexus**, accompanying arteries

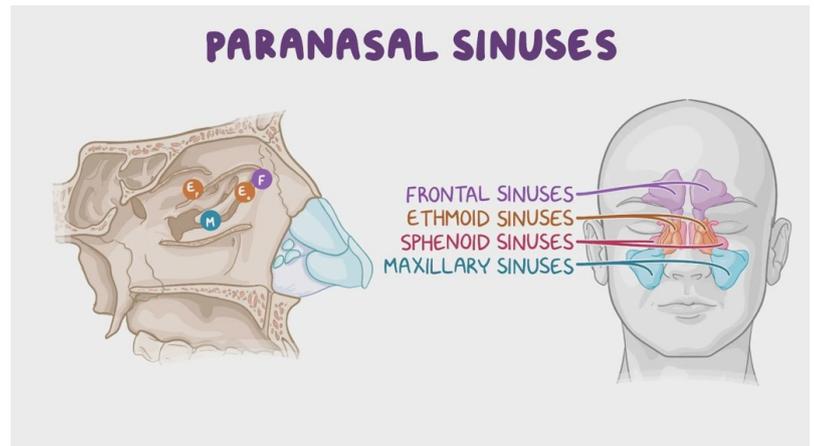


الطب والجراحة

لبنقة

## Paranasal Sinuses

- Cavities in maxilla, frontal, sphenoid, ethmoid bones
- Lined with mucoperiosteum, filled with air
- Communicate with nasal cavity through small apertures
- Development: Maxillary and sphenoidal sinuses rudimentary at birth; enlarge after 8 years; fully formed in adolescence



### Frontal Sinuses

- Within frontal bone, separated by bony septum
- Roughly triangular
- Opens into middle meatus via infundibulum

### Ethmoid Sinuses

- Anterior, middle, posterior
- Contained in ethmoid bone, between nose and orbit
- Openings:
  - Anterior: Infundibulum
  - Middle: Middle meatus (on or above bulla ethmoidalis)
  - Posterior: Superior meatus

### Sphenoidal Sinuses

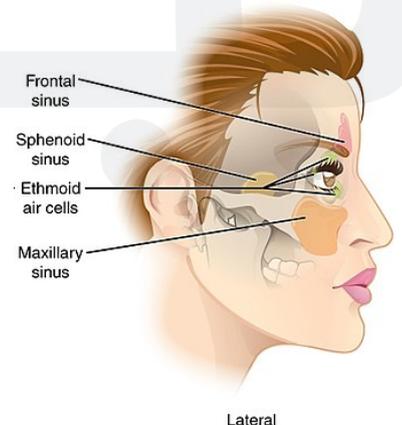
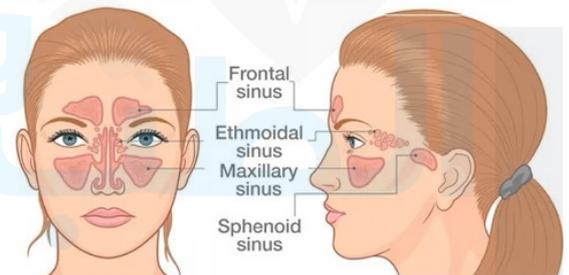
- Within sphenoid body
- Opens into sphenoidal recess above superior concha

### Maxillary Sinus

- Pyramidal, within maxilla, behind cheek skin
- Roof: Floor of orbit
- Floor: Related to roots of premolars and molars
- Opens into middle meatus via hiatus semilunaris

## Anatomy of the paranasal sinuses

The paranasal sinuses are air-filled extensions within our facial skeleton i.e. skull. There are four paired sinuses – named according to the bone in which they are located.



DR. AIMAN QAIS AFAR  
DONE BY : RAGHAD MRAYAT



This summary contains only anatomy infos. Information in gray background is **not** included. Please go back to the lecture and read it.