





paranasal sinuses

Definition - they are air filled spaces inside the skull bones related to the nose and opens in the lateral wall of the nasal cavity.

- Functions:**
- 1) Lighten the weight of the skull.
 - 2) Gives resonance to the voice.
 - 3) Warming and humidification of inspired air.

development

- Maxillary sinus - is the first to develop prenatal then, enlarge after birth, complete development at 6-12 years
- Sphenoid & ethmoid sinuses - enlarge after birth and may not be significant size until 3-7 years and complete in adolescence
- Frontal sinus - is the last one to develop (absent at birth) may not be significant size until adolescence and complete during puberty

sinuses

Frontal

- site - frontal bone
- Opening - hiatus semilunaries of middle meatus
- Nerve & blood vessels - supratrochlear and supraorbital (ophthalmic N&VS)
- Lymph nodes - submandibular

Sphenoidal

- site - body sphenoid
- opening - spheno-ethmoidal recess
- nerve & blood vessels - posterior ethmoidal
- lymph nodes - Retro-pharyngeal
- relations - 1-pituitary gland (above)
2-cavernous sinuse (on each side)

Ethmoidal

- site - ethmoid bone
- opening - - Posterior into superior meatus.
- Middle into bulla ethmoidalis
- Anterior into hiatus semilunaris
- nerve & blood vessels - a- posterior by posterior ethmoidal
b- Anterior and middle by anterior ethmoidal
- lymph nodes - a- posterior into retropharyngeal
b- Anterior & middle into submandibular

Maxillary

- site - maxilla
- opening - hiatus semilunaris of middle meatus
- nerve & blood vessels - Post, midd, ant. superior alveolar N&VS
- lymph nodes - submandibular
- shape - pyramidal in shape

- relations**
- (1) **Apex:** directed laterally and lies at the zygomatic process of maxilla.
 - (2) **Base:** directed medially and formed by the lateral wall of the nasal cavity and contains the opening of the sinus.
 - (3) **Roof:** formed by the floor of the orbit. The roof is traversed by the infra orbital canal containing infra-orbital nerve and vessel.
 - (4) **Floor:** formed by the alveolar process of maxilla (Roots of molar and premolar teeth).
 - (5) **Anterior Wall:** anterior surface of maxilla.
 - (6) **Posterior wall:** posterior surface of maxilla.

Clinical notes about maxillary sinus

- 1-Opening of the sinus in the upper part of the base so the higher position makes the drainage difficult leading to sinusitis.
- 2-Posterior superior alveolar nerve supplies both-sinus and upper molar so inflammation of the sinus can be confused with toothache(REFERRED PAIN).
- 3-The roots of the upper molars bulge into the floor of the sinus but not perforated. During Dental Extraction must be care to avoid fraction of the root because the fractured root may be driven into the maxillary sinus forming communication between the sinus and oral cavity.