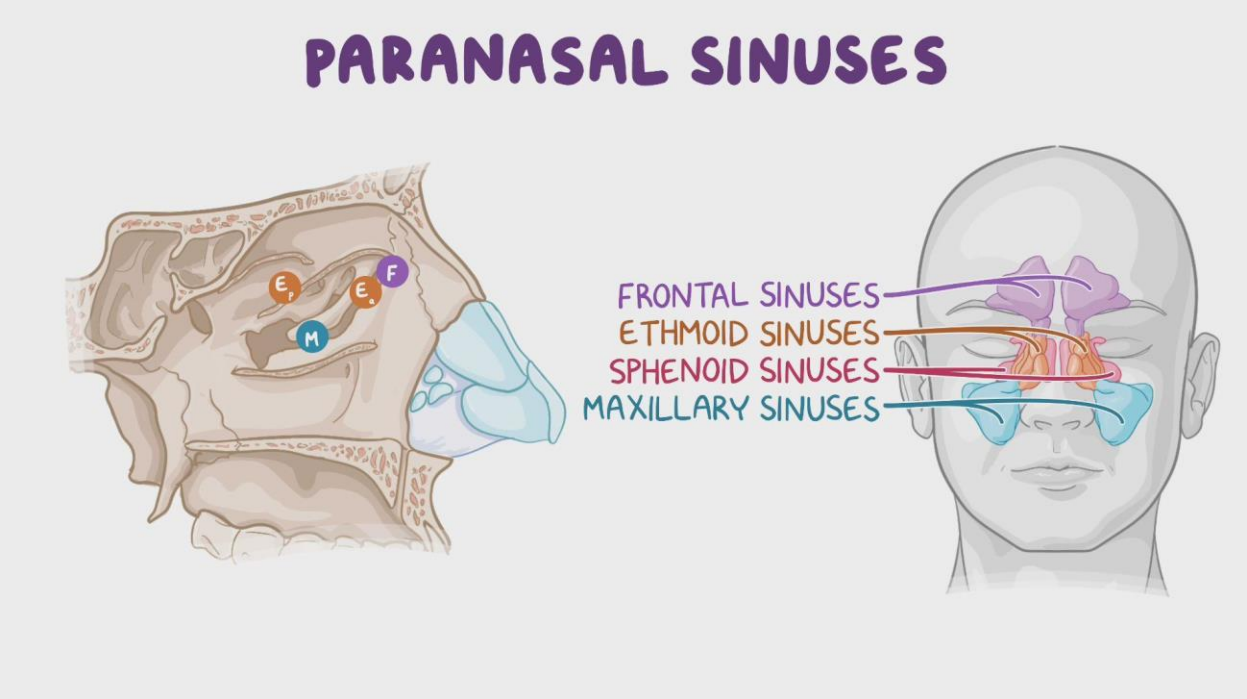
The nasal cavity and paranasal sinuses

By

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The nasal cavity is a passage from the external nose anteriorly to the nasopharynx posteriorly The frontal, ethmoid, sphenoid and maxillary sinuses form the paired paranasal sinuses and are situated around, and drain into, the nasal cavity.



The nasal cavity

This is divided in two by the nasal septum in the sagittal plane The nasal septum is part bony and part cartilaginous The floor of the nasal cavity is the roof of the oral cavity and is formed by the palatine process of the maxilla, with the palatine bone posteriorly The lateral walls of the cavity are formed by contributions from the

maxillary, palatine, lacrimal and ethmoid bones These walls bear three curved extensions known as turbinates or conchae , which divide the cavity into inferior, middle and superior meati, each lying beneath the turbinate of the corresponding name The space above the superior turbinate is the sphenoethmoidal recess

• The sphenoid air cells drain into the sphenoethmoidal recess .

• The posterior group of ethmoidal air cells drain into the superior meatus /

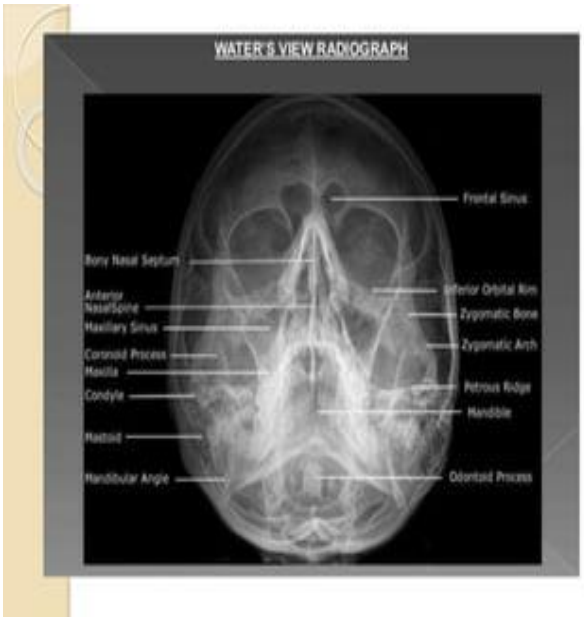
• The frontal sinus opens in the most anterior opening of the middle meatus The anterior ethmoidal air cells and maxillary sinus drain into the middle meatus at the hiatus semilunaris, below the ethmoid bulla • The nasolacrimal duct opens into the inferior meatus, draining the lacrimal secretions.

The paranasal sinuses

Purpose of PNS X-Ray

Your healthcare provider recommends X-ray PNS to rule out sinus problems.

1. **Sinus Infections**– To diagnose problems with the paranasal sinuses, such as sinus infections or inflammation.
2. **Foreign Objects**– To check for the presence of foreign objects in the sinuses, such as a piece of food or a small object that may have been inhaled.
3. **Structural abnormalities**– To assess the size and shape of the sinuses, which can help to determine if there are any structural abnormalities or blockages.
4. **Abnormal Growths**– To check for any abnormalities or abnormalities within the sinuses, such as tumors or cysts.
5. **Assess surrounding structures**– To assess the condition of the bones surrounding the sinuses, including the nasal bones, cheekbones, and eye sockets.
6. **Guide Procedures**– To help guide medical procedures, such as sinus surgery or the insertion of a breathing tube.
7. **Treatment Monitoring**– To monitor the progress of treatment for sinus-related problems, such as infections or inflammation.





- **<u>The frontal sinuses</u>**:(absent at birth developed after 2 year) These lie between the inner and outer tables of the frontal bone above the nose and medial part of the orbits; they vary greatly in size and are often asymmetrical They may extend into the orbital plate of the frontal bone.
- **<u>The ethmoid sinuses</u>**:(begin 5months in fetal life) These consist of a labyrinth of bony cavities or cells situated between the medial walls of the orbit and the lateral walls of the upper nasal cavity Enlargements of anterior cells towards the frontal bone are called aggernasi cells, and enlargements of posterior cells below the apex of the orbit are known as Haller ' s cells.
- **<u>The sphenoid sinuses</u>** :(begin at4-5 months in fetal life) These paired cavities in the body of the sphenoid are often incompletely separated from each other, or may be subdivided further into smaller bony cells They are so closely related to the ethmoid air cell anteriorly that it may be difficult to distinguish a boundary The anatomical relationships of the sphenoid sinus are of considerable importance The sella turcica, bearing the pituitary gland

with the optic chiasm anteriorly, is superior The cavernous sinus and contents run along its lateral walls The floor of the sphenoid sinus forms the roof of the nasopharynx.

- **The maxillary sinuses**:(first to form 17 days of fetal life) The maxillary sinuses, or antra, are the largest of the paranasal sinuses They are sometimes described as having a body and four processes. The processes comprise:
  - **(i)** **the orbital process** , which extends superomedially to contribute to the medial rim of the orbit;
  - **(ii)** (**ii) the zygomatic process** , which is continuous with the zygomatic arch**;**
  - **(iii)** **(ii) the alveolar process** , which bears the teeth;
  - **(iv)** **(iv) the palatine process** , which forms the roof of the mouth and floor of the nasal cavity. The body of the maxilla is roughly pyramidal in shape, with its apex projecting superomedially between the orbit and nasal cavity It houses the maxillary sinus The medial wall of the sinus is continued superiorly as a bony projection known as the uncinated process