Maxillary sinus
Antrum of Highmore

- Ethmoidal sinuses
- Frontal sinus
- Superior turbinate bone
- Middle turbinate bone
- Inferior turbinate bone
- Orifice of maxillary sinus
- Maxillary sinus

A. Shamaa
- Definition
- Development
- Anatomy
- Enlargement of the maxillary sinus
- Histology of the sinus
  - Epithelium
  - Lamina propria
- Function of maxillary sinus:
  1. Warming and moistening the inhaled air.
  2. Important for vocalization and phonation.
  3. Lighten the weight of the skull.
- Clinical consideration
  1. Periapical infection
  2. Infection
  3. Roots

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**Definition** - It is the largest bilateral air sinus in the skull bones.
- It is situated in the body of maxilla.
- Teeth related to it:

**Development** At 3rd m.i.u.l

**Anatomy** - It is variable in size, shape and position.
- It is pyramidal in shape. :
- transversely 2.3 cm.
- Anteroom posterior 3.4 cm
- Vertically 3.35 cm.
- Capacity: 15 ml
- Opening into nose in Middle nasal meatus by opening called
- **Ostium maxillare**
Enlargment
Extension into the alveolar process

1-Bony plate

2-Extension between roots

3-roots covered with bone

4-Roots covered with Soft tissues
• Enlargement of the maxillary sinus

The pneumatization

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Relation between sinus floor and nasal cavity:

- 1-higher
- 2- same level
- 3-Lower
**Histology of the sinus**

**Epithelium:**
- is pseudo stratified ciliated columnar epith. With goblet cell
- is single layer of columnar cells resting on basement.
- The nucleus is basally located and appears in 2 levels.
- Cilia in the free surface and it is not under nervous control but it automatically function.

**By E/M:**
- The columnar cells have nucleus, electron lucent cytoplasm, increased mitochondria and the cell organelles contain enzymes.
- The cilia composed of 9+1 pairs of microtubules and attached to the cell by basal bodies.
- The movement of the cilia from interior of the sinus toward the nasal cavity.

**Lamina propria:**
- fused with the periostium of the underlying bone.
- formed of loose collagen fibers with few elastic fibers.
- It is moderately vascular.
- Minor salivary gland present an round the sinus opening.
- No sub mucosa.
Function

1-Warming, moistening of air

2-Vocalization and phonation

3-Lighten the weight of skull

4-bactericidal lysozyme secretion

5-Enhance resistance to mechanical shock
Clinical Aspects
• 1- Periapical infection of related teeth
• 2- Disease of the sinus m.m
• 3- Sinus damage during surgery
• 4- Perforation of the sinus during extraction
• 5- Escapement of a tooth or root to the sinus

**Sinus opening:**

• In the middle nasal meatus in a depression called Hiatus semilunaris by opening called Ostium maxillare