

SINUSITIS

***PREPARED BY
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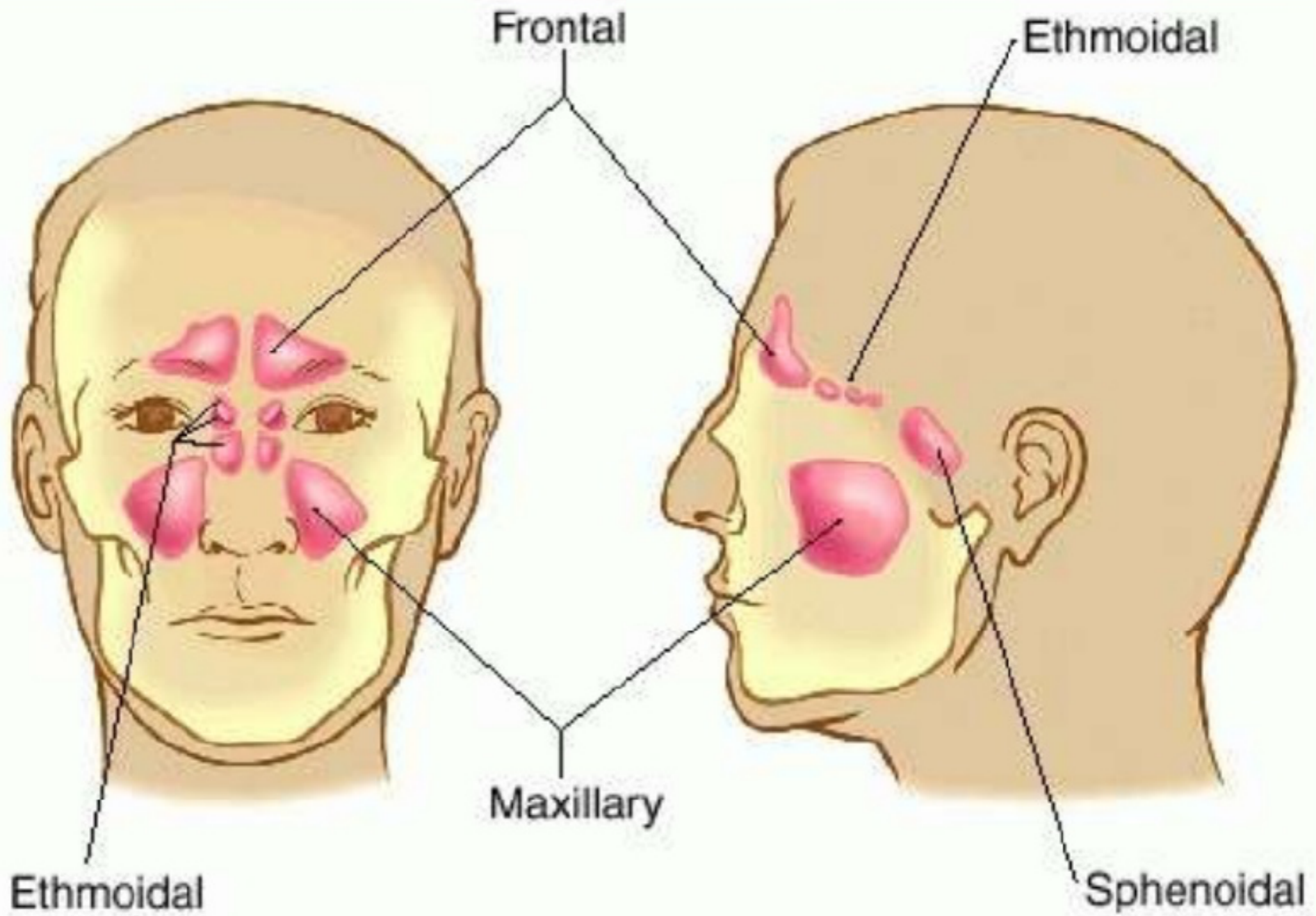
Frontal Sinus

Ethmoid Sinuses

Maxillary Sinus

Sphenoid Sinus





DEFINITION

- ▶ Sinusitis is an inflammation of the mucus membrane of the Paranasal sinuses.
- ▶ Pansinusitis is infection of more than one sinus.
- ▶ Rhinosinusitis is referred to as an inflammatory disease of the nose or sinuses.
- ▶ It is a common condition and a complication of 5%–10% of URIs in children.
- ▶ It affects 1 in 8 adults per year.

1. LOCATION:

- **Maxillary Sinusitis-**
involvement of Maxillary sinus.
- **Ethmoidal Sinusitis-**
involvement of the Ethmoid Sinus.
- **Frontal Sinusitis-**
involvement of Frontal sinus.
- **Sphenoidal Sinusitis-**
involvement of Sphenoid Sinus.



AETIOLOGY OF SINUSITIS:

BACTERIOLOGY:

Streptococcus pneumoniae, *Haemophilus influenzae*, *Moraxella catarrhalis*, *Streptococcus pyogenes*, *Staphylococcus aureus*, *Klebsiella pneumoniae*. Anaerobic infections are seen in sinusitis of dental origin.

A) EXCITING CAUSES :

- ⊙ Nasal infections: Viral rhinitis followed by bacterial invasion.
- ⊙ Swimming and diving: infected water enters sinuses through ostia.
- ⊙ Trauma: Compound fractures or penetrating injuries.
- ⊙ Dental infections.

⊙ **B) PREDISPOSING CAUSES :**

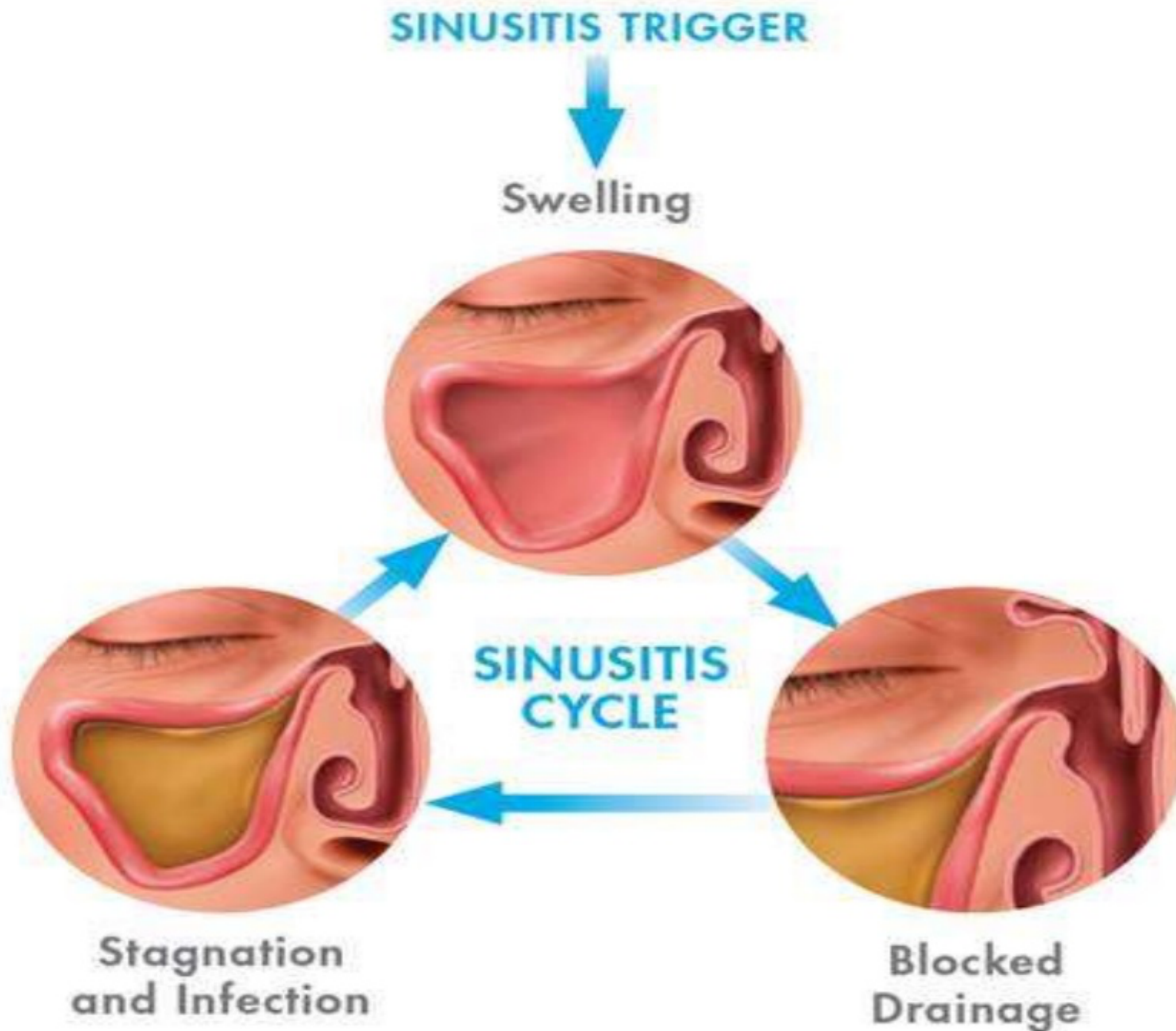
LOCAL:

- ⊙ Obstruction to sinus ventilation and drainage (DNS,hypertrophic turbinates, polyp,edema of ostia, neoplasms, edema of ostia).
- ⊙ Stasis of secretions in nasal cavity(Cystic fibrosis ,enlarged adenoids, choanal atresia)
- ⊙ Previous attacks of sinusitis.

GENERAL

- ⊙ Environment: Cold and wet climate.
- ⊙ Poor general health: Exanthematous fever (measles,chickenpox),nutritional deficiencies, systemic disorders.

PATHOLOGY OF SINUSITIS



PATHOPHYSIOLOGY

VIRAL URTI

EDEMA
AROUND
SINUS OSTIA

PARALYSIS OF
CILIA

STASIS OF MUCOUS SECRETION

SECONDARY BACTERIAL INFECTION



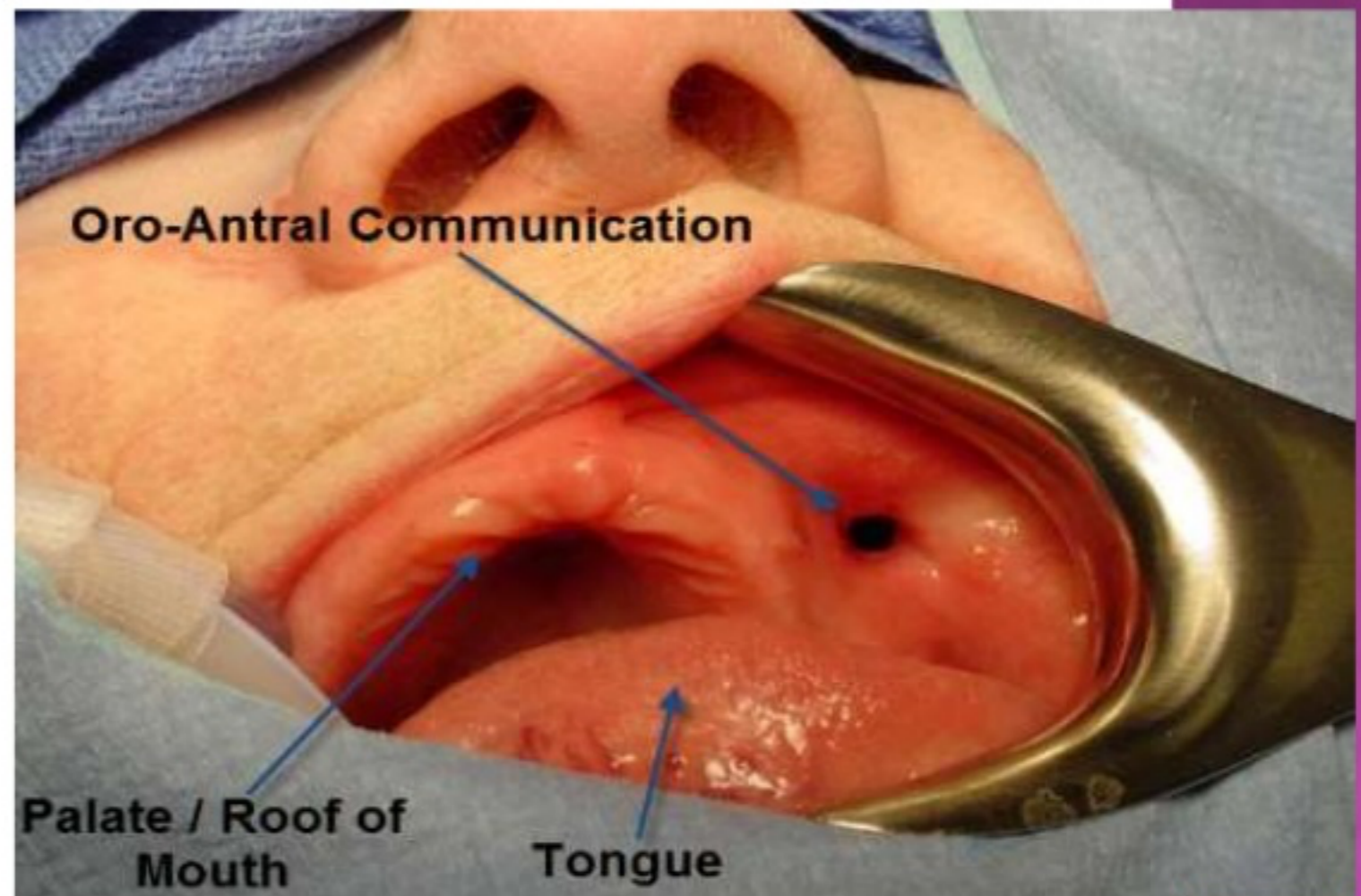
ACUTE MAXILLARY SINUSITIS

AETIOLOGY:

- ⊙ Dental infections (periapical dental abscess, oroantral fistula).
- ⊙ Viral rhinitis followed by bacterial invasion.
- ⊙ Diving and swimming.
- ⊙ Trauma (fractures and penetrating injuries).

Clinical features :

- ⊙ Constitutional symptoms.
- ⊙ Headache.
- ⊙ Pain.
- ⊙ Tenderness.
- ⊙ Redness and edema of cheek.
- ⊙ Nasal discharge.
- ⊙ Postnasal discharge.



TRANSILLUMINATION TEST:



TRANSILLUMINOSCOPE



TRANSILLUMINATION OF MAXILLARY SINUS

TREATMENT:

MEDICAL

- ⊙ Antimicrobial drugs(ampicillin/amoxicillin/erythromycin)
- ⊙ Nasal decongestant drops (0.1% oxy or xylometazoline).
- ⊙ Steam inhalation.
- ⊙ Analgesics.
- ⊙ Hot fomentation.

SURGICAL

- ⊙ Antral lavage



NASAL SPRAYS

ACUTE FRONTAL SINUSITIS

AETIOLOGY:

- ⊙ Viral rhinitis followed by bacterial invasion.
- ⊙ Diving and swimming.
- ⊙ Trauma (fractures and penetrating injuries).
- ⊙ Oedema of middle meatus 2^o to ipsilateral maxillary sinus infection.

CLINICAL FEATURES:

- ⊙ Frontal headache.(OFFICE HEADACHE)
- ⊙ Tenderness.
- ⊙ Oedema of upper eyelid.
- ⊙ Nasal discharge.

DIAGNOSIS:

- ⦿ Xray: WATER'S VIEW/LATERAL VIEW.
- ⦿ CT is preferred.

TREATMENT:

MEDICAL

- ⦿ Antimicrobial drugs.
- ⦿ Nasal decongestant drops.
- ⦿ Steam inhalation.
- ⦿ Analgesics.
- ⦿ Hot fomentation.



SURGICAL

Trephination of frontal sinus.



ACUTE ETHMOID SINUSITIS

AETIOLOGY:

- ⊙ *Associated with infection of other sinuses.*

CLINICAL FEATURES:

- ⊙ *Pain.*
- ⊙ *Oedema of lids.*
- ⊙ *Nasal discharge(middle or superior meatus).*
- ⊙ *Swelling of the middle turbinate.*

ACUTE SPHENOID SINUSITIS

AETIOLOGY:

- ⊙ As a part of pansinusitis.
- ⊙ Associated with infection of posterior ethmoid sinuses.

CLINICAL FEATURES:

- ⊙ Headache.
- ⊙ Postnasal discharge.

DIAGNOSIS:

- ⊙ Xray/CT.

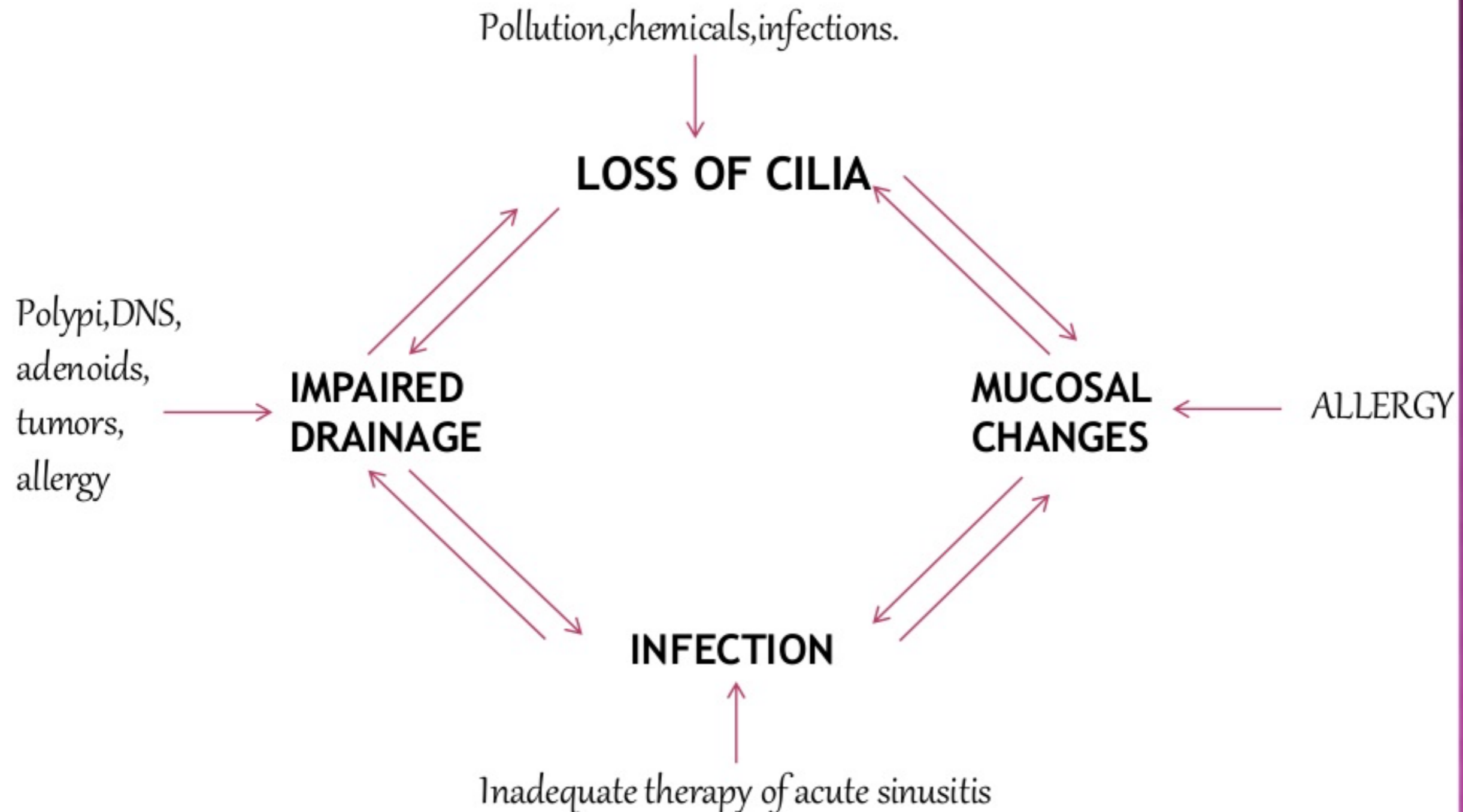
TREATMENT:

- ⊙ Medical treatment same as for acute maxillary sinusitis.



CHRONIC SINUSITIS

- It is the sinus infection lasting for months or years.
- Important cause is failure of acute infection to resolve.
- PATHOPHYSIOLOGY:**



PATHOLOGY:

- ⊙ Destruction and healing of sinus mucosa.
- ⊙ Hypertrophic sinusitis.
- ⊙ Atrophic sinusitis.
- ⊙ Submucosa infiltrated with lymphocytes and plasma cells.

CLINICAL FEATURES:

- ⊙ Similar to acute sinusitis but of lesser severity.
- ⊙ Purulent nasal discharge is the commonest complaint.
- ⊙ Foul smelling discharge(anerobic infections).
- ⊙ Local pain and tenderness are not marked.
- ⊙ Nasal stuffiness and anosmia(in some patients).

DIAGNOSIS:

- ⊙ Xray (mucosal thickening)
- ⊙ Xray with contrast.
- ⊙ CT
- ⊙ Aspiration(pus is confirmatory).



**NORMAL
SINUSES**



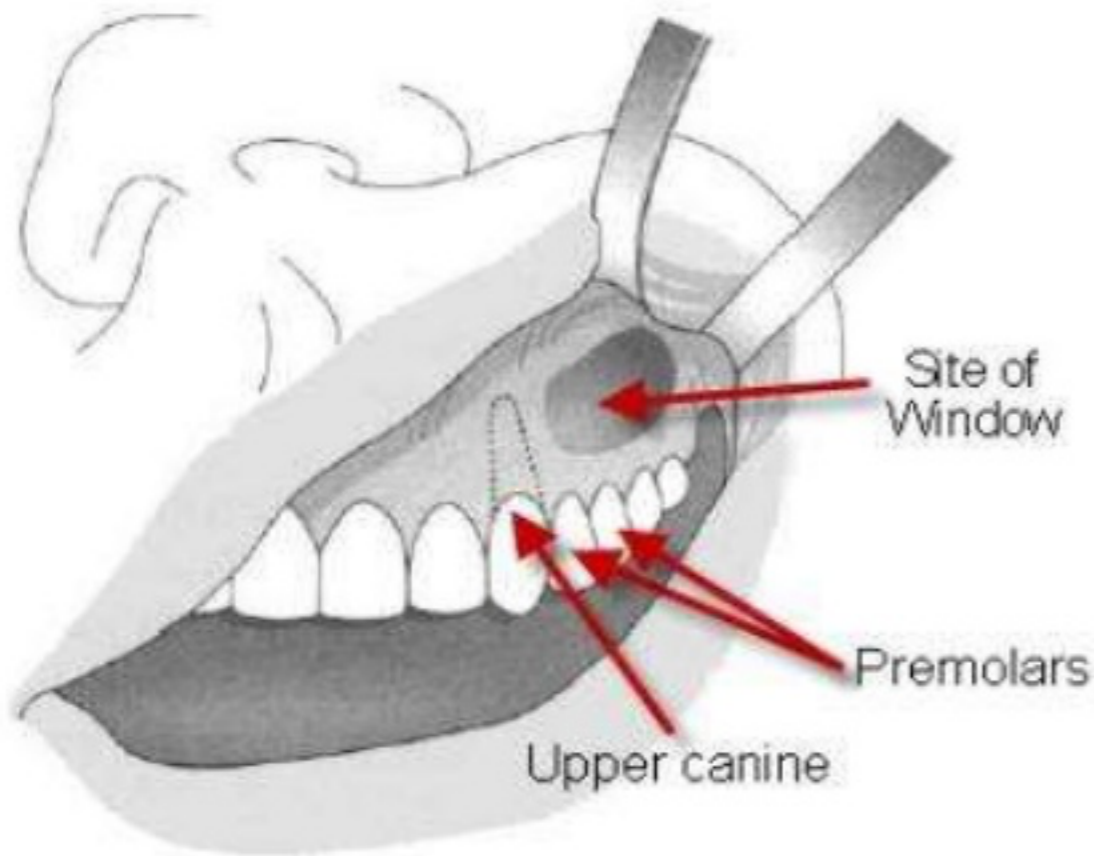
**SINUSITIS
(SEE THE
BLOCKED
AREAS?)**

TREATMENT

- ⊙ Cause for obstruction of sinus drainage and ventilation to be found out.
- ⊙ Work up on nasal allergy may be required..
- ⊙ Culture and sensitivity (selection of antibiotic).
- ⊙ Conservative management(antibiotics, decongestants, antihistaminics)

SURGICAL TREATMENT:

- CHRONIC MAXILLARY SINUSITIS
- Antral puncture and irrigation.
- Intranasal antrostomy.
- Caldwell-luc operation.



ANTRAL PUNCTURE

The *Caldwell-Luc* surgical procedure showing the site of the window into the anterior maxillary sinus

CHRONIC FRONTAL SINUSITIS

- ⦿ Intranasal drainage operations.
- ⦿ Trephination of frontal sinus.
- ⦿ External fronto-ethmoidectomy.
(Howarth or Lynch's operation)
- ⦿ Osteoplastic flap operation.



HOWARTH'S OR LYNCH OPERATION

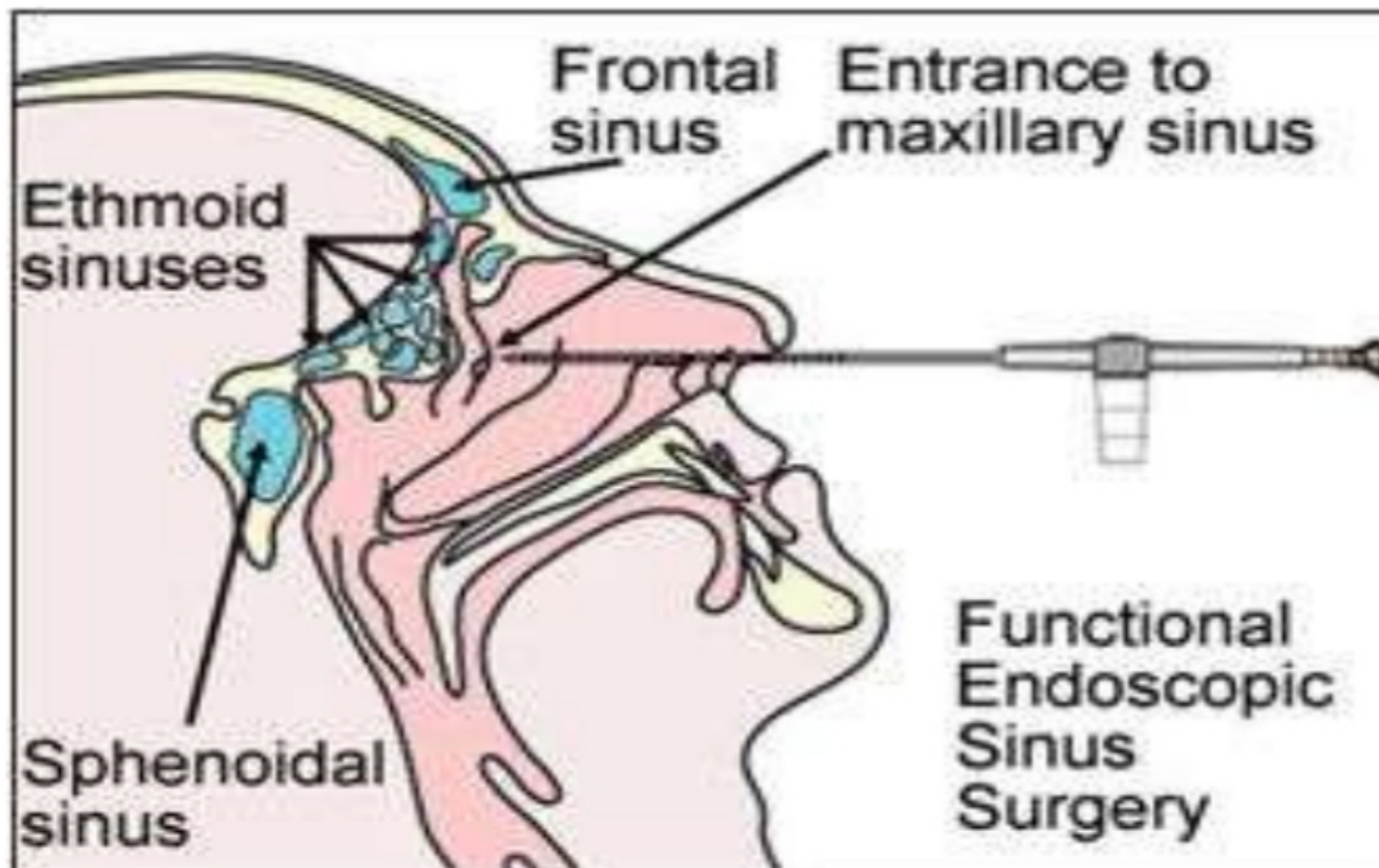
CHRONIC ETHMOID SINUSITIS

- ⦿ Intranasal ethmoidectomy.
- ⦿ External ethmoidectomy.

CHRONIC SPHENOID SINUSITIS

- ⦿ Sphenoidotomy.

FESS HAS NOW REPLACED CONVENTIONAL SURGERIES.



COMPLICATIONS

- **Pansinusitis**
- **Middle ear infection**
- **Pharyngitis, Laryngitis and tracheobronchitis**
- **Periorbital and orbital cellulitis**
- **Osteomyelitis of the axilla**
- **Aggravation of asthma**
- **Mucocele or pyocele**