

E.N.T.

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Lecture 8

Chronic Sinusitis

Symptoms persist more than 3 months or more.

Factors that cause persistence of infection (chronicity):

1-Anatomy: Septal deviation and concha bullosa.

2-Toxins: (viruses, *Streptococci*, *Haemophilus influenzae*, *Pseudomonas*) lead to paralysis of the cilia.

3-Abnormal mucociliary blanket.

4-Decreased oxygen (hypoxia): Bacteria consume oxygen leading to hypoxia which leads to decreased ciliary activity, decreased WBCs activity and good media for anaerobes.

5-Ostial obstruction (anatomical or ethmoiditis).

6-Allergy.

7-Immune deficiency (primary and secondary like AIDS and drugs).

Organisms:

•High incidence of *Staphylococcus aureus* in maxillary sinusitis.

•May be the same organisms of acute sinusitis.

•In dental chronic sinusitis: Anaerobes (usually mixed).

•In decreased immunity (e.g.: AIDS): Common or opportunistic infections like *Pseudomonas* or fungi.

•Fungal (e.g.: *Aspergillus* “common”): Seen in poorly controlled diabetes mellitus, trauma to face, debilitated patient (carcinoma) and patient with immune suppressive drug.

Pathology:

All stages (from atrophic to hypertrophic “even polyps”) may be seen in the same patient at the same time.

1-Oedema (from thick mucosa to polyps).

2-Chronic inflammatory cells infiltrate.

3-Fibrosis of submucous stroma leading to venous and lymphatic compression.

4-Multiple small abscesses in the thickened mucosa.

5-True cyst formation may occur (gland occlusion).

6-Ulceration of epithelium leading to formation of granular tissue.

Clinical features:

- Persistent mucopurulent discharge and postnasal space discharge.
- Cough.
- Pharyngeal irritation.
- Facial pain.
- Nasal obstruction.
- Hyposmia.
- Cacosmia (perception of bad odor due to intrinsic cause) (may be anaerobic of dental infection).

Further investigations:

- Examination of mucociliary mechanism.
- Allergic status.
- Immune status.
- CT-scan (when underlying ethmoiditis is suspected)

Treatment of chronic sinusitis:

1-Antibiotics: Chronic suppurative sinusitis is associated with much higher frequency of anaerobic organisms, so a trial of metronidazole, clindamycin or augmentin should be considered in treatment of chronic sinusitis.

2-Mucolytics: Chronic sinusitis forms thick viscid secretion.

e.g.: guaiphenesin is the primary expectorant in many cough syrups.

3-Nasal toilet: e.g.: steam inhalation or saline irrigation.

4-Local corticosteroids (most effectively drops): At least 2 weeks (depending on the therapeutic response).

*When maximal treatment for 3-4 weeks fails, surgical treatment should be considered.

Surgical treatment of sinusitis:

•Antral washout (AWO):

- 1-Through inferior meatus.
- 2-Through canine fossa.

Indications:

- 1-Diagnostic (proof puncture).
- 2-Therapeutic:
 - Acute maxillary sinusitis (severe pain, incipient complications, failure of medical treatment).
 - Subacute maxillary sinusitis.
 - Pansinusitis failed to respond to conservative treatment.

Contraindications:

- Age of less than 3 years.
- Hypoplastic maxilla with thick wall.
- Acute febrile maxillary sinusitis without antibiotic treatment (leads to osteomyelitis and then septicemia).
- Trauma (e.g.: if we want to drain hematoma we can use antrostomy).

Complications:

- Mild hemorrhage.
- Incorrect position.
- Fatal air embolism.

•Inferior meatal antrostomy:

Indications:

- Acute maxillary sinusitis.
- Recurrent maxillary sinusitis.
- Chronic maxillary sinusitis.
- Cystic fibrosis.
- Primary ciliary dyskinesia.

Complications:

- Hemorrhage.
- Anterior superior alveolar nerve injury (alters dental sensation).
- Nasolacrimal orifice injury (rare).
- Closure (if less than 1 cm in diameter).

•Caldwellluc:**Indications:**

- Chronic maxillary sinusitis (when medical treatment, lavage and inferior meatal antrostomy fail).
- Foreign body removal (dental).
- Oroantral fistula.
- Access (ethmoidal labyrinth, sphenoid sinus, pituitary fossa, pterygomaxillary and pterygopalatine fossae).
- Recurrent antrochoanal polyp.
- Orbital floor (elevation and stabilization).

Contraindications: Children.

Complications:

- 1-Pain and soft tissue swelling.
- 2-Hemorrhage.
- 3-Infraorbital nerve injury (paraesthesia and long term neuralgia).
- 4-Teeth and their innervation damage.
- 5-Oroantral fistula.
- 6-Retention cyst in the mucosa that grows.

•Intranasal ethmoidectomy:

Indications: Chronic sinusitis associated with polyposis.

Complications: Injury to lamina papyracea (hematoma), orbital periosteum (fat prolapse) and dura (leads to C.S.F. leak).

•Transantral ethmoidectomy (Jansen Horgan procedure):

Indications:

- 1-Chronic antroethmoiditis.
- 2-Root for orbital decompression.

Complications: Complications of the next two procedures (external frontoethmoidectomy and transorbital ethmoidectomy).

•External frontoethmoidectomy (Lynch Howarth procedure):

Indications:

- 1-Chronic sinusitis not responding to treatment.
- 2-Complications of acute ethmoiditis e.g.: orbital cellulitis.
- 3-Recurrent polyposis.
- 4-Frontoethmoidal mucocoele.
- 5-Access to ethmoidal artery, transethmoidal hypophysectomy, dacryocystorhinostomy and C.S.F. leak repair.

Complications:

- From incision (edema, infection, paraesthesia).
- Hemorrhage.
- Dural exposure (surgical and pathological).
- Serious visual loss.
- Orbital infection.
- Diplopia and epiphora (transient).

•Transorbital ethmoidectomy (Patterson's procedure).

•Frontal sinus washout:

Indications: (acute frontal sinusitis) (after failure of medical treatment).

Contraindications: Absence (X-ray).

Complications:

- 1-Damage to trochlea, supraorbital and supratrochlear nerve.
- 2-Damage to the dura.
- 3-Spread of infection.

•**Osteoplastic frontal flap.**

Complications of sinusitis:

•**Acute:**

1-Local:

a-Orbital:

-Preseptal cellulitis.

-Orbital cellulitis without abscess.

-Orbital cellulitis with sub- or extraperiosteal abscess.

-Orbital cellulitis with intraperiosteal abscess.

-Cavernous sinus thrombosis.

b-Intracranial:

-Abscess (extradural, subdural or intracerebral).

-Meningitis.

-Encephalitis.

-Cavernous or sagittal sinus thrombosis.

c-Bony:

Osteitis/osteomyelitis (Potts puffy tumor).

d-Dental.

2-Distant (toxic shock syndrome).

•**Chronic:**

-Mucocoele/pyocoele.

-Associated diseases (osteomyelitis, adenotonsillitis and bronchiectasis).

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