

Diseases of the Ear, Nose and Throat



1st Lecture:

Nose3 Sinusitis

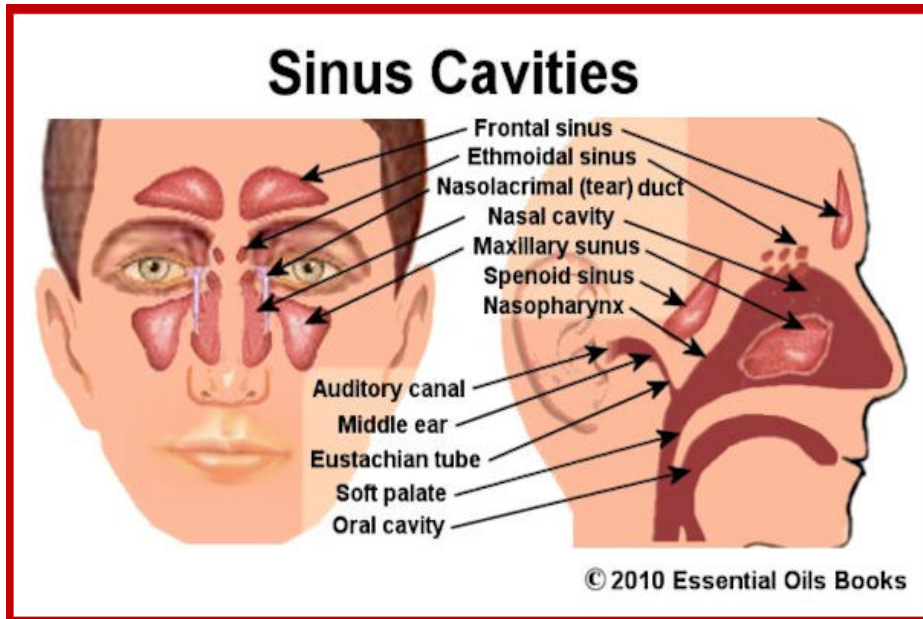
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If not provided mention your source (e.g. 429 slides / females)

Important Notes in **red**

Copied slides in **black**



Anatomy:

there are four sinuses: the frontal sinus, the ethmoidal sinus, the maxillary sinus, and the sphenoid sinus.

All sinuses drain into the Osteomeatal Complex except for the Posterior Ethmoid and Sphenoid.

OMC: It is a functional entity where the frontal and maxillary sinuses normally open into the nasal cavity, obstruction predisposes infection in the sinus cavities.

Maxillary, anterior ethmoid, frontal → Middle meatus underneath the middle turbinate

Posterior ethmoid, Sphenoid → Superior meatus underneath the superior turbinate

Lacrimal ducts → inferior meatus

Histology:

(Nasal Mucosa) Pseudostratified Columnar Epithelium

*Cilia specifically arranged (similar mucosa to remainder of tracheobronchial tree)

*Squamous Epithelium

Normal Function of PNS:

1) patent Ostia 2) Normal ciliary function 3) Normal quality of mucous
disturbance of these functions will lead to sinusitis

Pathophysiology of Rhinosinusitis:

The most important pathologic process in the disease is **obstruction of the natural ostia**

Obstruction will then lead to hypooxygenation causing ciliary dysfunction and poor mucous quality

Ciliary dysfunction leads to retention of secretions.

Acute and Chronic Rhinosinusitis:

Acute: is defined as a disease lasting less than three weeks

Subacute: sinusitis lasting from 1 to 3 months

Chronic: is defined as disease lasting more than 3 months

Etiology:

Inflammatory: URTI (95% Viral-5% bacterial), Allergic

Mechanical: Naso/septal deformity, OMC obstruction, turbinate hypertrophy, polyps, tumours, large adenoid, foreign body, cleft palate, choanal atresia

Systemic disease: Cystic fibrosis, immobile cilia syndrome, Kartagener's syndrome

Miscellaneous: Swimming, flying, diving.

Viral URI:**Clinical presentation:**

- *unable to differentiate within 10 days
- *serous rhinorrhea (maybe mucopurulent)
- *nasal congestion and cough prominent
- *low grade fevers, malaise, headaches
- *nighttime cough may linger

Acute Rhinosinusitis:

- *Persistent cold symptoms over 10 days *rhinorrhea *cough (dry or wet) worse at night
- *low grade fevers *fetid breath *painless periorbital swelling in the morning *facial pain/ dental pain
- *headaches (periodicity) *anosmia *nasal and postnasal discharge

Chronic Rhinosinusitis diagnosis: Major and Minor factors

Major: Facial pain/pressure, Facial congestion, Nasal Obstruction/blockage, Nasal discharge/purulence/discolored, PND Postnasal drainage, Hyposmia/anosmia, Purulence in nasal cavity on examination, fever

Minor: headache, fatigue, halitosis, dental pain, cough, ear pain/ pressure/ fullness.

Diagnosis:

- *Symptoms present longer than 12 weeks
- *two or more symptoms one of should be either nasal blockage/obstruction/congestion or nasal discharge (anterior/posterior nasal drip)
- *facial pain/pressure
- *reduction or loss of smell

Signs: ENT Examination, endoscopy *review primary health care physician's diagnosis and treatment *questionnaire for allergy and if positive. Allergy testing if it has not already been done.

(One of the following situations DX): two major factors, one major factor and two minor, pus in the nose on examination

Physical Examination:

Oropharynx, tenderness over the sinuses, periorbital edema and discoloration

Most specific finding: Mucopurulence, periorbital swelling, facial tenderness.

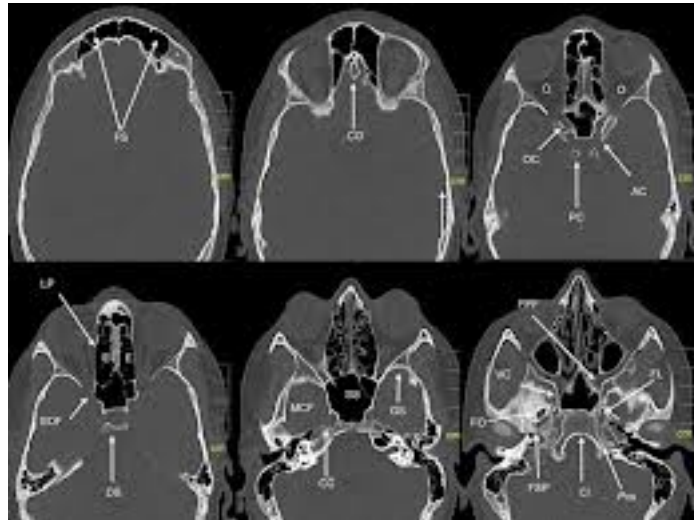
Nasal exam:

Nasal endoscopy: Flexible, Rigid

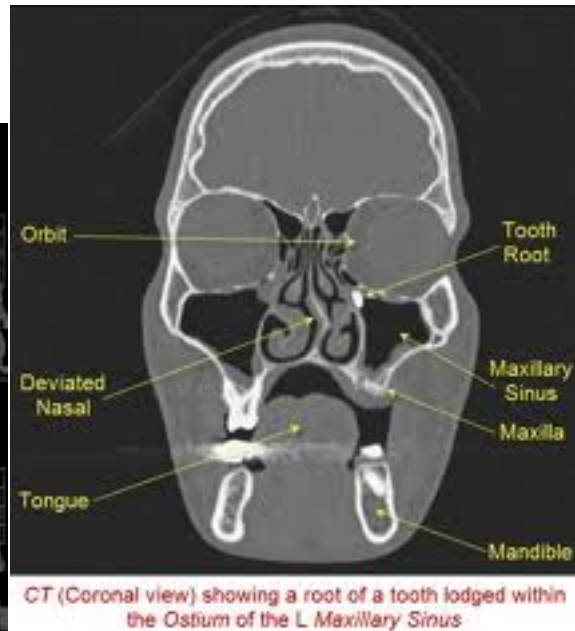
Plain Radiography lateral, submentovertex

Computed Tomography Coronal (perpendicular to the hard palate), Axial (Parallel to the Hard palate), reformatted sagittal, Multiplanar CT Scan.

AXIAL CT:



CORONAL CT:



***most polyps are from the middle meatus *CT is Gold standard**

Sinus Swab and aspirate:

- *Nasal, oral, nasopharyngeal cultures give poor results
- *needs co-operative patient (usually need middle meatal cultures)
- *staining *culture

Microbiology in Acute sinusitis:

- Streptococcus pneumonia 20-30%
- Moraxella catarrhalis 15-20%
- H.Influenza 16-20%
- Streptococcus Pyogens 2-5%
- Sterile 20-35%
- Anearobs 2-5%
- Rare viruses, anaerobes, staphylococcus
- Normal flora in the sinus (controversial)

Microbiology in Chronic sinusitis:

Gram negative: Bacteroid, Klebsiella

Anearobs

Usually Polymicrobial

Medical Management:

- *antibiotic for 10-14days (penicillin, Cephalosporin)
- *decongestant (topical, systemic)
- *steroid topical spray
- *symptomatic treatment
- *treat the underlying disease

Recalcitrant Rhinosinusitis

- *allergy *Immunodeficiency *Cystic fibrosis *ciliary dyskinesia disorders *GERD
- (Repeat treatment two to three times over 2-3months) + obtain a CT scan

If complication or severe illness: IV Cefotaxime, Ceftriaxone/Clindamycin

Surgery:

Rarely required, consider if orbital or CNS complications or failure of maximal medical RX.

(FESS) Functional Endoscopic Sinus Surgery

removal of uncinate process, ethmoid bulla, and variable number of anterior ethmoid cells. Maxillary sinus ostium is enlarged and frontal recess diseased tissue is removed if present

absolute indications of surgery;

Brain abscess or orbital cellulitis, subperiosteal orbital abscess, cavernous sinus thrombosis, another contagious infection, impending complication (Pott's tumor) Sinus mucocele or pyocele, Fungal sinusitis, nasal polyps (massive), Neoplasm or suspected neoplasm.

Allergic fungal sinusitis:

Fungal colonization results in allergic inflammation without invasion. IgE mediated response to fungal protein.

Symptoms: Nasal Obstruction, Rhinorrhea, Facial pressure/pain

Sneezing, watery itchy eyes, periorbital edema.

Diagnostic Criteria:

Eosinophilic mucin, Nasal polyposis, radiographic findings, Immunocompetence, Allergy to fungi.

