Nose III-IV

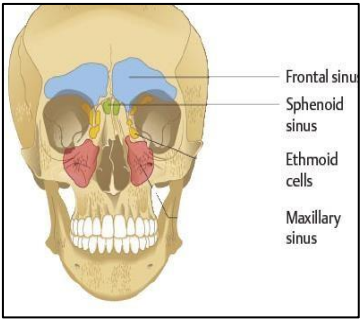
Objectives:

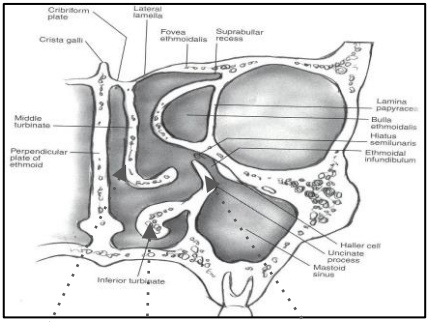
- Acute & chronic sinusitis (causes,clinical & management) ,
- Fungal sinusitis (in brief (
- Complication -sinusitis (classification, management & with special attention to
- orbital complications, investigation & general treatment (
- Radiology illustration

Resources: slides, doctor notes
Done by :Content : Turki Albinhar, Abdulhakim Bin Onaiq
Edited by:
Revised by: Abdulhakim Bin Onaiq

]Color index: Important | Notes | Extra[

Anatomy





middle turbinate

inferior turbinate

uncinate process

Rhinosinusitis

- **classification**:
  - acute (less than 3 weeks)
  - chronic (more than 3 months)
    - with nasal polyps
    - without nasal polyps
- **etiology**

-Four pairs of paranasal sinuses : sometimes it's 3 pairs because the frontal sinus is anaplastic or hypoplastic
- lateral nasal wall: ostiomeatal complex: The importance of the nasal wall that all sinuses drain through it except sphenoid.
- All sinuses drain in the middle meatus "ostiomeatal complex "except sphenoid (sphenoethmoid recess area) and posterior ethmoid (superior meatus)
-Nasolacrimal duct in the inferior sinuses
-Histology: pseudostratified columnar ciliated Epithelium

Inflammation	Miscellaneous
• Allergies • URTI (most common)	• Swimming/diving • Flying

Mechanical	Systemic
• Nasoseptal Deformity • OMC Obstruction • Turbinate Hypertrophy • Polyps • Tumors • Large Adenoid • Foreign Bodies • choanal atresia	• Cystic Fibrosis • Immotile cilia Syndrome (emordnyS s'renegatraK)

Pathophysiology

1. Most important pathologic process in disease is obstruction of natural ostia *
2. Obstruction leads to hypooxygenation
3. Hypooxygenation leads to ciliary dysfunction and poor mucous quality
1. Ciliary dysfunction leads to retention of % Bacterial " *ostiumgninepo llams A :"

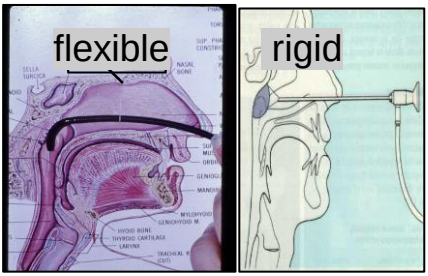
Signs/symptoms

They are classified as major or minor factors(symptoms)

major	minor
• facial pain/pressure • Facial congestion/fullness • Nasal obstruction/blockage • Nasal discharge/purulence/discolored Postnasal drainage • Hyposmia/anosmia • Purulence in nasal cavity on examination • Fever	• Headache • Fatigue • Halitosis • Dental pain • Cough • Ear -pain/pressure -fullness

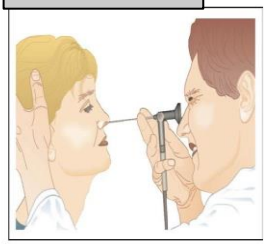
Examination

- Rhinoscopy
- Endoscopy (pic) → →
  -rigid (poorly tolerated)
  -flexible (best way)

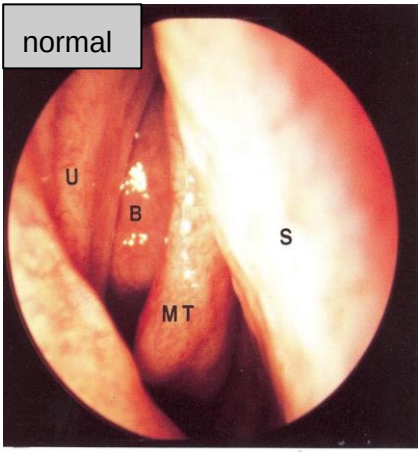


A.rhinoscopy

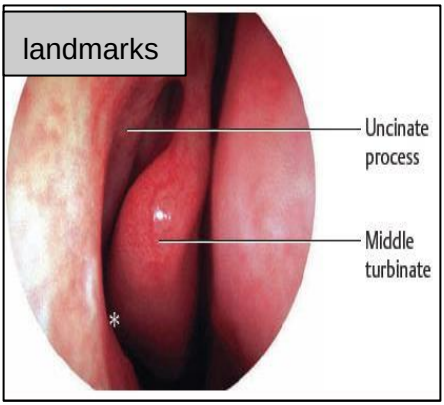
endoscopy



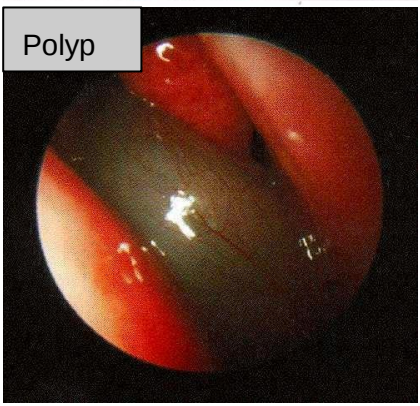
normal



landmarks



Polyp

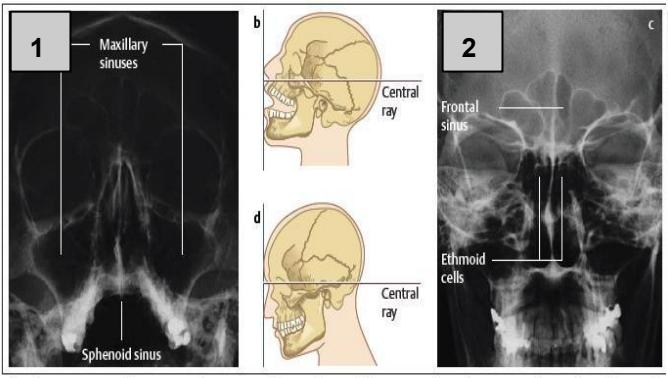


U:uncinate process
B:bullae ethmoidalis
MT: middle turbinate
S: septum

Radiology

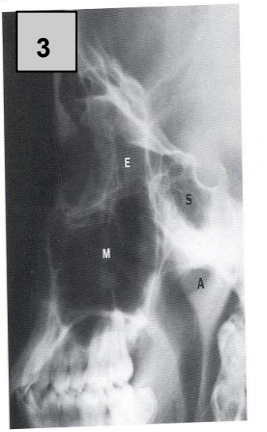
-Identify which sinus involved and extent of the disease
-Road map for surgery

- Plain X Rays(dohtem dlo)
  - Traditional views
    - Water's (see pic.1 below)
    - Caldwell "occipitofrontal(2.cip) "
    - Lateral (pic.(3
    - Submentovertex (hard to perform)
- CT Scan* (dradnats dlog)
  *indicated if patient did not respond to medical treatment
  - Coronal (Perpendicular to the Hard Palate)
  - Axial (Parallel to the Hard Palate)
  - Reformatted Sagittal
  - **Multi-planner CT scan** (yaw reisae wen)
    - axial
    - reformatted coronal and sagittal cuts
- MRI (snoitacilpmoc rof)



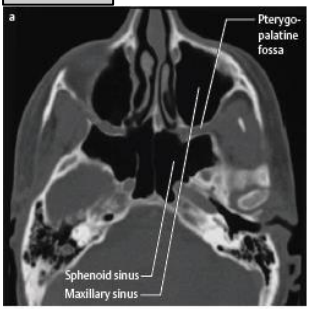
a,b The occipitomental projection demonstrates the maxillary sinus and gives a limited view of the sphenoid sinus.

c,d The occipitofrontal projection is better for evaluating the ethmoid cells and frontal sinus.

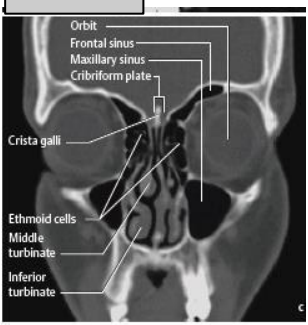


CT pictures:

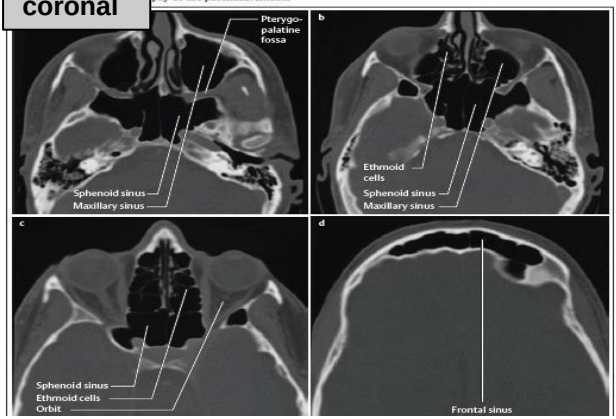
axial



coronal



coronal

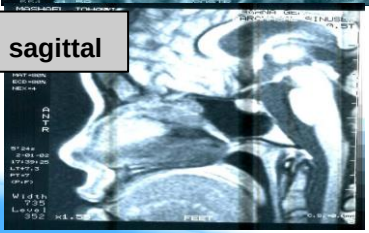


MRI pictures:

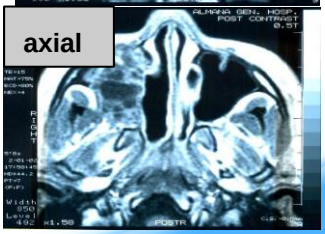
coronal

axial

sagittal

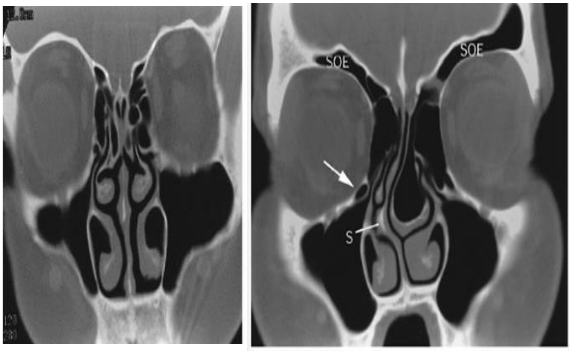


axial



❖ **Anatomic variation**

-choncha bullosa & paradoxical turbinate



Microbiology

Acute:

- Streptococcus pneumoniae %30-20
- Moraxella catarrhalis % 20-15
- Haemophilus influenzae % 20-16
- Streptococcus Pyogenes % 5-2
- Sterile %35-20
- Anaerobes %5-2
- Rare viruses, Staphylococcus
- Normal flora in the sinus-- controversy

chronic:

- Gram negative
  - bacteroides
  - klebsiella
- Anaerobes
- Staph. aureus (Most common cause in chronic Rhinosinusitis)

-but it's usually polymicrobial

Medical Management

- Antibiotic for 14 –10 days (Pen., Cephalo.*)
  - We prefer the 2nd generation
- Decongestant
  - Topical or Systematic
    - don't use topical for more than 5 days
- Steroid Topical spray
- Symptomatic Treatment (eg. analgesic)
- Nasal Wash (gold standard)

if treatment failed:

- Repeat treatment* 2x or 3x over 3-2Months
- PNS(paranasal sinus) CT Scan

*we try different antibiotics

- **recalcitrant* rhinosinusitis** (sesuac)
- Allergy
- Immunodeficiency
- Cystic fibrosis
- Ciliary dysmotility disorders
- Gastroesophageal Reflux Disease

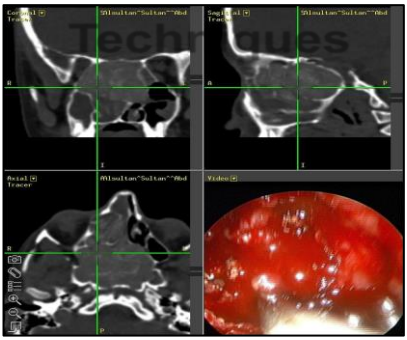
*recalcitranttnemtaert ot yrotcarfer :

Surgical Management

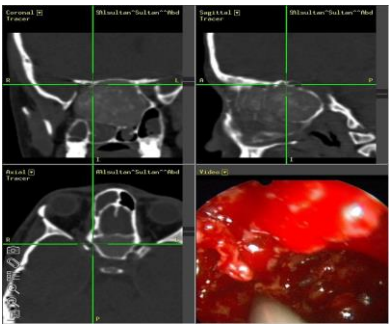
- Functional Endoscopic Sinus Surgery (FESS)
  - goals
    - Eradication of Disease
    - Aeration
    - Drainage
    - Post Op. Access
  - results
    - %71normal at one year
    - Meta analysis 89% success
      - with 0.6% complications

Surgical Management (cont.)

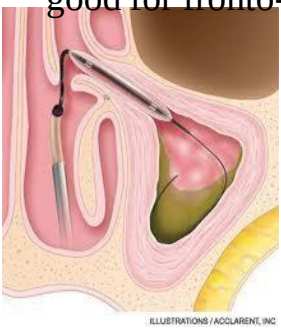
- FESS(cont.) : gold standard for chronic rhinosinusitis, acute when there is complication



- Computer Assisted Surgery

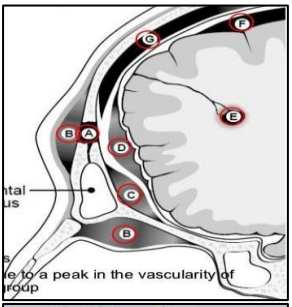


- Balloon Sino-plasty
- new procedure, expensive
- good for fronto-ethmoid recess

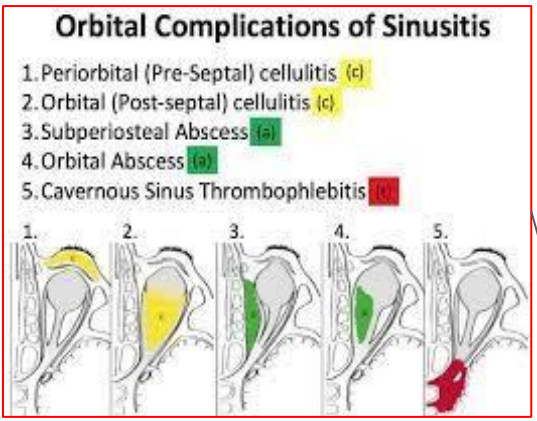


Sinusitis Complications

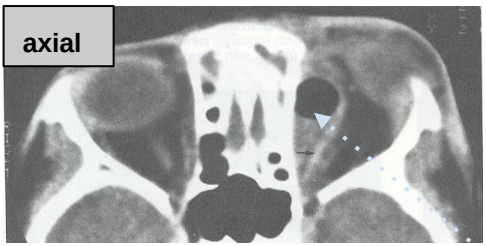
- Orbital
- Cranial
- Extracranial



❖ **chandler classification:**



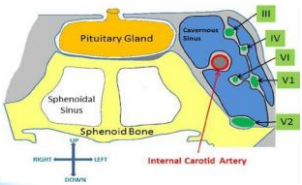
❖ CT scan PNS(sesunis lasanarap)



subperiosteal abscess

- Preseptal cellulitis:lid edema otherwise normal
- Orbital cellulitis: diffuse edema
- Subperiosteal abscess: usually seen near lamina papyracea
- Orbital abscess: collection within orbit
- Cavernous sinus thrombosis : bilateral

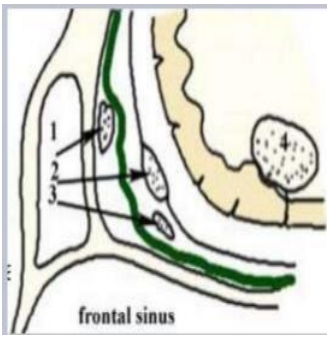
❖ cavernous sinus thrombosis



Sinusitis Complications (cont.)

❖ **Intracranial complications:**

- Meningitis Common in Children
- Subdural or Epidural Abscess
- Cerebral Abscess:
  -Neurosurgery, Ophthalmology, ID (sesaesid suoitcefni)
)they should be involved(



❖ **Treatment of acute complications**

- Admit the patient
- IV antibiotics:
  3-rd Generation of Cephalosporins) + Clindamycin
- Abscess incision & drainage and Surgery of the primary site
- Consultation of the Related Speciality

Sinusitis Complications (cont.)

❖ Mucoceles

- Mucoceles are chronic, cystic lesions of the sinuses lined by pseudostratified epithelium
- Expand slowly, often requiring many years
- Etiology Either due to obstruction of ostia or to simple obstruction of minor salivary gland
- %30are idiopathic

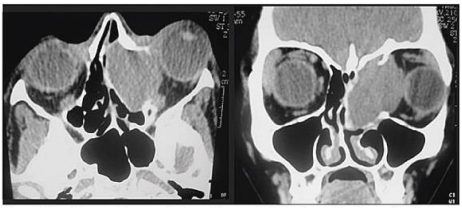
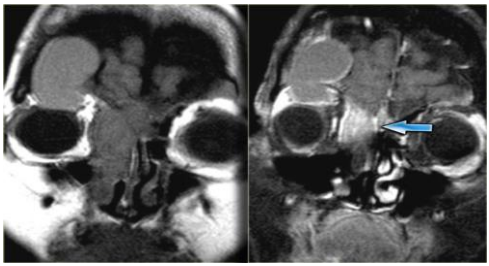


Figure 2. Nasal fossa and paranasal sinuses CT scan at axial and coronal sections evidencing image of left frontoethmoidal region with displacement of ocular globe on the left (proptosis).



❖ other complications:

- **Osteitis** nacs enob muitenhcet htiw yllaitini esongaid : ,(noitammalfni) nacs enob muillag dna (ytivitca citsalboetso) lacigrus ,scitoibitna laretnerap :xR ;snacs muillag htiw wollof yregrus sunis ,tnemedirbed
- **Pott's Puffy Tumor** yhguod tfos ,sitileymoetso enob latnorf : :xR ;noisnetxe lainarcartni fo ksir hgih ,daeherof fo gnillews lacigrus eriuqer yam ,noitanihpert ,scitoibitna laretnerap tnemedirbed
- **Superior Orbital Fissure Syndrome:** lipup detalid ,ebolg dexif :xR ;(1V NC) dileye reppu fo aisehtsepyh ,sisotp ,(IV ,VI ,III NC) noisserpmoced lacigrus tnegru
- **Orbital Apex Syndrome**erussiF latibrO roirepuS ot ralimis : Syndrome with added involvement of optic nerve (papilledema, vision changes)
- **Sinocutaneous Fistula:**sitileymoetso latnorf a sa snigeb yllausu

Fungal Sinusitis

- **Invasive fungal sinusitis:**

-Presence of fungal hyphae within the mucosa, submucosa, bone, or blood vessels of the paranasal sinuses

- Acute Invasive Fungal Sinusitis (cause: mucormycosis)
- Chronic Invasive Fungal Sinusitis
- Chronic Granulomatous Invasive Fungal Sinusitis

- **Non-invasive fungal sinusitis:**

-Absence of fungal hyphae within the mucosa and other structures of the paranasal sinuses.

- Allergic Fungal Sinusitis (will be detailed in the next slide)
- Fungus Ball (fungus Mycetoma)

❖**Invasive :**

-Presence of fungal hyphae within the mucosa, submucosa, bone, or blood vessels of the paranasal sinuses :

-Acute Invasive Fungal Sinusitis - Most common patients in general are immunocompromised, usually due to diabetes, cancer, HIV, organ transplantation or using systemic or intranasal glucocorticoids

-Chronic Invasive Fungal Sinusitis usually seen in patients who are less immunocompromised with a time course greater than 12 weeks

-Chronic Granulomatous Invasive Fungal Sinusitis

-Mucormycosis is encountered in dust and soil and enters through the respiratory tract

-Ketoacidosis predisposes to mucormycosis, as the fungus thrives in acidic environments

-Initially seen as engorgement of turbinates, followed by ischemia and necrosis of the turbinates and adjacent nose

-The fungus invades vascular channels and causes hemorrhagic ischemia and necrosis

-Frequently fatal. 90% mortality in immunocompromised

-Patients with acute invasive fungal sinusitis are usually hospitalized and are very sick with fever, cough, nasal discharge, headache, and mental status changes .

-Signs and symptoms include dark ulcers on the septum, turbinates, or palate. In the late stages, signs and symptoms of cavernous sinus thrombosis are present.

Treatment of acute invasive fungal sinusitis retfa tnemtaert lagnufitna cimetsys laitinI : 1--1.5) B niciretohpma fo sesod hgiH .tnemedirbed lacigrusmg/kg/d) are recommended followed by oral itraconazole, correction of underlying immunosuppression.

-Treatment of chronic invasive fungal sinusitis: .yrotadnam si tnemtaert lacigruS .desongaid si noisavni ecno slagnufitna cimetsys htiw tnemtaert lacidem etaitinI

Fungal Sinusitis (cont.)

❖ Allergic fungal Sinusitis:

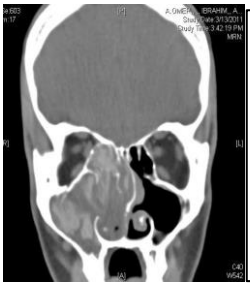
- Nasal obstruction
- Allergic rhinitis, or chronic sinusitis
  - Nasal congestion, Purulent rhinorrhea, Post-Nasal Drainage, or Headaches
- Patients are atopic
  - Unresponsive to antihistamines, Intranasal Corticosteroids, and prior immunotherapy
- Patients are always immunocompetent
- %10-5of chronic rhinosinusitis patients actually cases of AFS(allergic fungal sinusitis)
- Two thirds of patients report a history of allergic rhinitis
- %90of patients demonstrate elevated specific IgE to one or more fungal antigens.
- %50of patients in a series by Manning et al had asthma.
- No linkage to aspirin sensitivity has been established.

- Examination:

- **findings are typically broad**
  - intranasal inflammation and polyposis
- **facial polymorphism:**
  - ptosis
  - telecanthus
  - malar flattening
  - more often in children
- **orbital features**
  - proptosis occuring over a long period, no diplopia.
  - visual loss, from ophthalmic nerve compression or inflammatory process

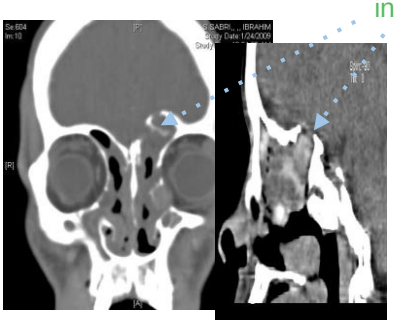
Fungal Sinusitis (cont.)

❖ CT scan

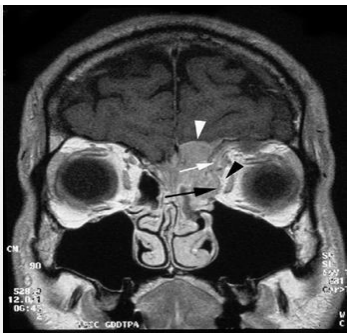


pathognomonic
-calcification
-heterogeneity
-expansion

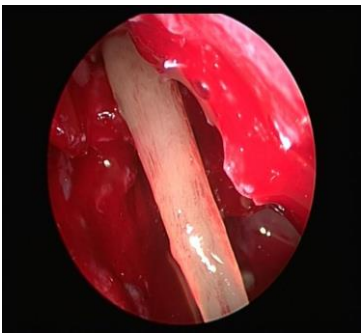
invasion

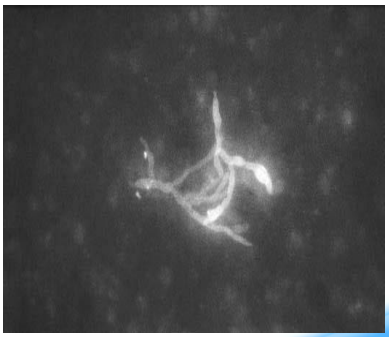


❖ Intracranial extension



❖ Mucin & fungal stain





Fungal Sinusitis (cont.)

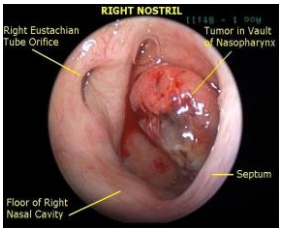
❖ Treatment of allergic fungal sinusitis

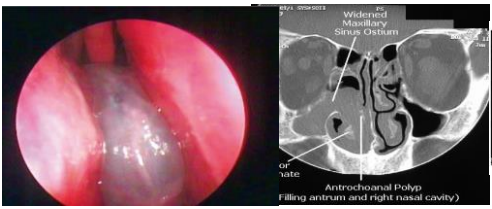
- The treatment of choice
  - Endoscopic debridement (FESS)
  - a perioperative short course of steroids.
- Postoperative mold containing immunotherapy is a promising therapeutic advance in limiting recurrence.
- The role of systemic antifungal therapy is inadequately studied(noissucsid etelpmoc a evah ot denoitnem tsuj).
  - Itraconazole orally is well tolerated and effective in vitro against common causes of AFS

Unilateral Nasal Mass denoitnem)

(sitisunis lagnuf cigrella fo noitatneserp a sti esuaceb ereh

- Allergic Fungal Sinusitis (most common)
- Antrochoanal Polyp
- Inverted Papilloma
- Carcinoma





Fungal Sinusitis (cont.)

❖ Invasive fungal sinusitis

- Mucormycosis is encountered in dust and soil and enters through the respiratory tract
- Ketoacidosis predisposes to mucormycosis, as the fungus thrives in acidic environments
- Initially seen as engorgement of turbinates, followed by ischemia and necrosis of the turbinates and adjacent nose
- The fungus invades vascular channels and causes hemorrhagic ischemia and necrosis
- Frequently fatal. 90% mortality in immunocompromised

Treatment

- Treated with radical surgical debridement
- Amphotericin B
- Correction of underlying immunosuppression

Doctor notes (rhinosinusitis)

- **Anatomy**
  - Frontal sinus is absent(aplastic) in most patients
  - All the sinuses drain into the lateral wall, except?
    -sphenoid (drain into the spheno-ethmoidal recess)
  - middle meatus is also called “osteomeatal complex”
  - medial orbital wall is called lamina papyracea
- **Management**
  - Rhinosinusitis is caused mostly by gram+ →use penicillin
    - or 2nd generation cephalosporin
  - FESS surgery is minimally invasive
  - if both medical and surgical treatment failed, what's the next step?
    - use biological treatment
- **Complications**
  - head and neck venous system is valveless
    - infections can easily spread
  - infections of membranous bones which have no bone marrow is called osteitis (not osteomyelitis)
- **Fungal sinusitis**
  - how to differentiate invasive and non-invasive?
    - by histopathology
)if the basement membrane is intact-> non-invasive(
  - acute invasive vs chronic invasive fungal sinusitis
    - chronic: no blood invasion, no necrosis
  - treatment of invasive fungal sinusitis is radical surgical (debridement until we find a fresh blood)
    - +amphotericin B

Epistaxis

At glance:

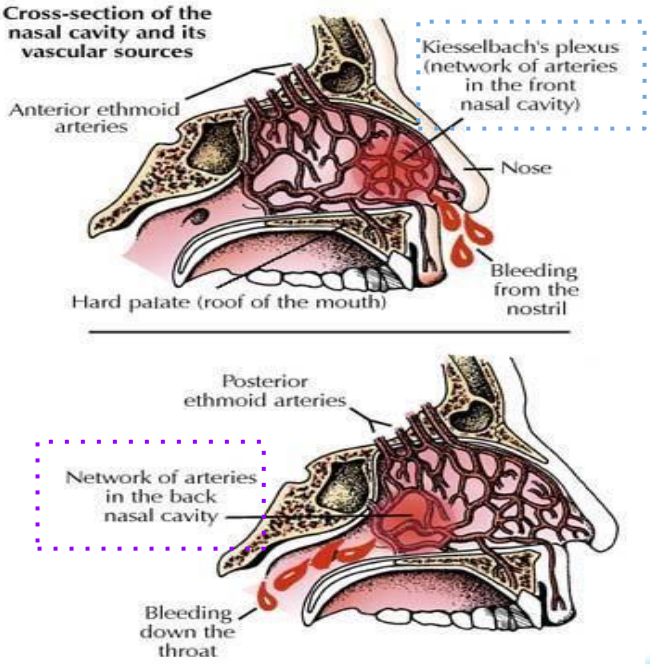
- Nose Blood Supply
- Causes of Epistaxis
- History, Examination, Investigation
- Management
- Blood loss management
- Avoidance

★Kiesselbach's plexus/Little's area:
.(htpO)diomhtE roiretnA .1
.2Superior Labial A(Facial) .
.3Sphenopalatine A(IMAX) .
.4Greater Palatine(IMAX)
★Woodruff's Plexus :
●Sphenopalatine A(IMAX) .
●IMAX= Internal Maxillary Art.

❖ **Nasal blood supply**

- internal and external carotid arteries
- many arterial and venous anastomoses
- Kiesselbach's plexus (Little's area) in anterior septum (Causes anterior nose bleeding)
- woodruff's plexus in posterior septum

❖ **vascular anatomy of the medial and lateral walls**



Epistaxis (cont.)

❖ **Local causes of epistaxis**

Nasal trauma (nose picking, foreign bodies, forceful nose blowing)	bleeding polyp of the septum or lateral nasal wall (inverted papilloma)
Allergic, chronic or infectious rhinitis	neoplasms of the nose or sinuses
Chemical irritants	tumors of the nasopharynx especially nasopharyngeal angiofibroma
medications (topical)	vascual malfromation
drying of the nasal mucosa from low humidity	Deviation of nasal septum or septal perforation

❖ **Systemic causes of epistaxis**

Usually cause general bleeding not only to the nose

systemic arterial hypertension	anticoagulants (aspirin)
endocrine causes: pregnancy, pheochromocytoma	Blood diseases and coagulopathies such as: Thrombocytopenia, ITP, Leukemia, Hemophilia
hereditary hemorrhagic telangiectasia	hepatic diseases

Epistaxis (cont.)

❖ Most common causes of epistaxis

- Disruption of the nasal mucosa - local trauma, dry environment, forceful blowing, etc.
- Facial trauma
- Scars and damage from previous nosebleeds that reopen and bleed
- Intranasal medications
- Hypertension and/or arteriosclerosis
- Anticoagulant medications

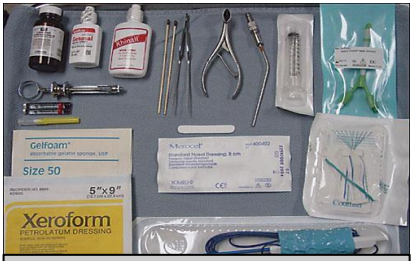
❖ Patient history

- Previous bleeding episodes
- Nasal trauma
- Family history of bleeding like hereditary telangiectasia
- Hypertension - current medications and how tightly controlled
- Hepatic diseases
- Use of anticoagulants
- Other medical conditions - DM, CAD, etc.

Epistaxis (cont.)

❖ Equipment

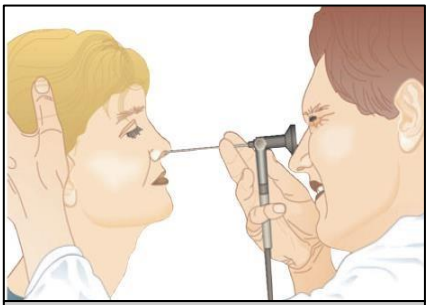
- Protective equipment - gloves, safety goggles
- Headlight if available
- Nasal Speculum
- Suction
- forceps
- Tongue depressor
- Vasoconstricting agent
- Topical anesthetic



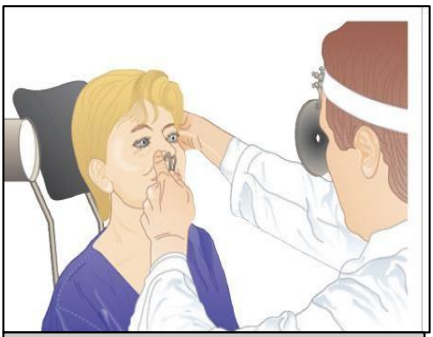
General Epistaxis Supplies

❖ physical exam

- Measure blood pressure and vital signs
- Apply direct pressure to external nose to decrease bleeding
- Use vasoconstricting spray mixed with tetracaine in a 1:1 ratio for topical anesthesia
- Identify the bleeding source



endoscopy



anterior rhinoscopy

Epistaxis (cont.)

❖ **Types of nosebleeds**

- **Anterior:** 90% of cases resolve spontaneously
- Most common in younger population
- Usually due to nasal mucosal dryness
- Usually controlled with conservative measures

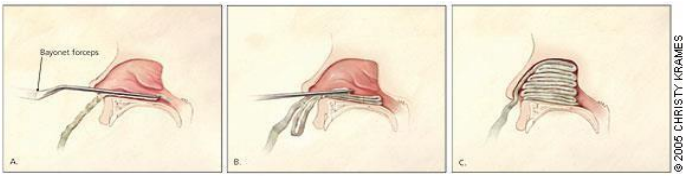
- **Posterior:**
- Usually occurs in older population
- HTN and systemic diseases are common contributing factors
- Significant bleeding in posterior pharynx
- More challenging to control

❖ **Treatment of Anterior Epistaxis**

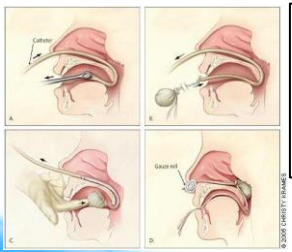
- Localized digital pressure for minimum of 10-5minutes,
- Silver nitrate cautery (Chemical cauterization)
- Collagen Absorbable Hemostat or other topical coagulant
- Anterior nasal packing for refractory epistaxis

- **Anterior Nasal Packs**

- Formed expandable sponges are very effective
- Available in many shapes, sizes and some are impregnated with antibacterial agents



- **Posterior Nasal Packs**



-if anterior packing did not control the bleeding.
-can be done using a foley catheter.

Epistaxis (cont.)

- **Duration of Packing Placement**

- Actual duration will vary according to the patient's particular needs.
- Typically, anterior pack at least 48-24hours (after we control the bleeding), sometimes longer.
- Posterior pack may need to remain for 72-48hours.
- If a balloon pack is used, advised tapered deflation of balloons.

- **Patients with Nasal Packing**

- Best to place patient on a p.o. antibiotic to decrease risk of sinusitis and Toxic Shock Syndrome (due to staph aureus)
- Advise pt to avoid straining, bending forward or removing packing early
- Most patients may be treated as outpatients but hospital admission and observation should be strongly considered when a posterior pack is used. SaO2 should be monitored as well.
- Admission may also be prudent for those with CAD, severe HTN or significant anemia. Give supplemental oxygen via humidified face tent.

- **Other Treatments for Refractory Epistaxis**

- Greater palatine foramen block
- Septoplasty
- Endoscopic cauterization
- Selective embolization by interventional radiologist
- Internal maxillary artery ligation (sometimes bilateral)
- Transantral sphenopalatine artery ligation
- Intraoral ligation of the maxillary artery
- Anterior and posterior ethmoid artery ligation
- External carotid artery ligation

Epistaxis (cont.)

- **Preventive Measures**

- Keep allergic rhinitis under control. Use saline nasal spray frequently to cleanse and moisturize the nose.
- Avoid forceful nose blowing
- Avoid digital manipulation of the nose with fingers or other objects
- Use saline-based gel intranasally for mucosal dryness
- Consider using a humidifier in the bedroom
- Keep vasoconstricting spray at home to use only prn epistaxis

- **Blood Loss Management**

- Blood loss Estimate
  - Vital signs*
  - Blood work up**
- Blood volume Expansion
- Blood Transportation
  - Blood Component

*hypotension start after 10% loss of blood volumes

**hematocrit is a good indicator of blood loss

Diseases of nasal septum

-The nasal septum is made up of bone and cartilage.
-It can be deviated, perforated, or collapsed.

❖**The Nasal Septum Development**

-1Cartilaginous Septum
-Septal (quadrilateral) cartilage
- The vomeronasal cartilages - Medial crura of the alar (lower lateral) cartilages
-2The Membranous Septum (Mobile Septum)
-Anterior to the end of the septal cartilage - It is formed by skin and subcutaneous tissue of the nasal columella.

-The nose is lined by pseudostratified columnar epithelium except the anterior 1cm which is the membranous septum is lined by squamous epithelium
- This membranous septum is lined by skin and hair so it will have skin disease rather than mucosal disease such as :hair follicles inflammation

-3Bony septum:

-Composed of two major elements:
-1The Vomer:
-Develops from connective tissue membrane on each side of the septal cartilage.
-The intervening cartilage absorbed completed by mid adulthood.
-2The Perpendicular plate of the Ethmoid (Mesoethmoid):
-Ossification completed by 17th year of age.
-Replacement of cartilaginous septum with thin bone.
-At the nasal roof it articulates with the cribriform plate and extends as the crista galli.

Diseases of nasal septum (cont.)

Inequality of Growth:

- Creating septal spur →Elevations and ridge like protuberances

Deviated nasal septum

-Approximately SND evah snamuh fo %80

-Any or all parts of the septum except for the posterior free border at the choanae .

-A common area of deflection is along the articulation between the vomer and the perpendicular plate of the ethmoid

-DNS to one side or S shape to both side

-The nasal septum is rarely exactly in the midline. Minor deviations are normal and cause no symptoms.

-Marked deviation will cause nasal airway obstruction and may contribute to sinonasal pathology by obstructing the normal sinus drainage pathways .

-Septal deviation can be corrected by surgery, with excellent results.

-Most cases of deviated nasal septum (DNS) result from trauma, either recent or long forgotten, perhaps during birth or childhood. 'Buckling 'in children may become more pronounced as the septum grows.

-Maldevelopment →Congenital (considered in etiology in addition to trauma) .

-Nasal surgery, including cosmetic surgery, can cause septal deviation .

-spurs ,4egalitrac latpes ralugnardauq fo noitacolsid ,3stserc ,2 .gnilkcub

Diseases of nasal septum (cont.)

Effects :

Signs & Symptoms: ○Nasal obstruction ○may be unilateral or bilateral ○External deformity. ○Crusting, epistaxis (due to dryness) (a sharp spur can be a focus for epistaxis ○Recurrent sinus infection due to impairment of sinus ventilation by the displaced septum.

●The middle turbinate on the concave side of the septum may hypertrophy and interfere with sinus ventilation .

●Severe deviation is apparent on looking at the nose and septal surgery is an important component of aesthetic.

●Can cause facial pain but this is rare.

●Otitis media. DNS may impair the ability to equalize middle-ear pressure .

●Nosebleeds –a sharp spur can be a focus for epistaxis

Diagnosis :

●Anterior can cause facial pain but this is rare. ●Otitis media. DNS may impair the ability to equalize middle-ear pressure. ●Nosebleeds – a sharp spur can be a focus for epistaxis

● The diagnosis is mostly clinical in deviated septum.

-Elevations and ridge like protuberances

-Maxillary crest is groove for septum to set sometimes we find this groove projecting little pit

-As result of fault growth

Treatment:

● If symptoms are minimal (asymptomatic) and there is only a minor degree of deviation, no treatment is needed.

●Septal deviations are often found in patients with allergic rhinitis. -Treat the rhinitis rather than the septal deviation.

-Where symptoms are more severe correction of the septal deformity is justified (though never essential).

Diseases of nasal septum (cont.)

Surgical management:

Submucous resection: obstructing cartilaginous and bony portion. Removal of deviated PART.

-Septoplasty:

- Surgery involves elevating mucosal flaps from the septal cartilage and resecting part of the deviated cartilage straighten it and put it back in place (septoplasty, check the figure).
- Septal surgery should be undertaken with caution if at all in children as it may interfere with the growth of the mid-face.
- Nowadays we go in with certain techniques “we crush the deviated part with a specific tool for that ”to repair the cartilage and put it back in place and also put splint inside “removable after 5 days.(”

Indications of septoplasty :

1. Nasal obstruction (deviated nasal septum)
2. Epistaxis, chronic sinusitis (when septum is obstructing)
3. Access for transseptal sphenoidotomy
4. Headache from impacted spur
5. Septal neoplasia(rare)

Complications of Septoplasty :

- Septal hematoma and abscess →due to infection
- Septal perforation
- Saddle nose deformity (over resecting cartilage anteriorly)
- Synechia → (snoisehdA)7 will lead to obstruction .
- Cribriform plate fracture
- Anosmia
- Bleeding

Emergencies in nasal obstruction

Diagnosis	Emergency	Complications
Septum Hematoma	Elevation of mucosal Septal cartilage necrosis, development perichondrium with cartilage devascularization	Septal cartilage necrosis, development of a saddle-nose deformity
Septum Abscess	Intracranial extension of infection	Septal cartilage necrosis, development of a saddle-nose deformity, cavernous sinus thrombosis, intracranial infection
Mucormycosis	Tissue destruction	Extension to brain or orbit

Hematoma of the septum :

➔Etiology:

❖Perforation of the septum

➔Etiology:

●Direct trauma. ●Operative trauma. “Septoplasty ● ”Blood dyscrasias. “bleeding disorders”

➔Clinical features :

●Obstruction. ●Bleeding. ●Lacerations. ●Septal swelling

➔Complications :

●Cartilage necrosis, causing saddle nose deformity. ●Septal abscess.

●Cavernous sinus thrombosis

●Permanent thickening of the septum.

➔Treatment :

●Immediate Incision and drainage. Emergency ●Systemic Antibiotics. As a prophylactic

Perforation of the septum

➔Etiology:

●Perforation of the nasal septum may result from the following conditions:

○Nasal surgery. ○Trauma including repeated nose-picking.

○Chronic inflammation, e.g. nasal granulomatosis, syphilis.

○Inhalation of fumes, e.g. chrome salts.

○Cocaine .

○Carcinoma.

➔Effects :

●Many septal perforations cause no trouble.

They may give rise to epistaxis and crusting or rarely whistling on inspiration or expiration.

● A perforation is readily seen and often has unhealthy edges covered with large crusts.

➔Clinical features :

"clinical features depend on the size and the site of the perforation"

●Asymptomatic.

●Crusting. Due to turbulence of air.

●Epistaxis.

●Whistling. "the smaller the size of the perforation the more the whistling " "And the bigger the perforation →the more obstruction →due to air instead of going back to the nasopharynx there's going to be turbulence"

➔Treatment :

●No treatment. "in asymptomatic patients"

●Nasal wash .

●Surgical closure by silastic button or Consider sliding or rotating mucoperichondrial flaps with or without a fascial graft; contraindicated for large perforations (approximately >2 cm of vertical height(

➔Diagnosis:

●Anterior rhinoscopy

●Biopsy of granulation tissue or abnormal mucosa

Functional Endoscopic Sinus Surgery (FESS)

The steps of FESS :

.1Medialized middle turbinate
.2Excise uncinate process
.3Anterior then posterior ethmoidectomies
.4Sphenoidotomy
.5Frontal recess sinusectomy
.6Create maxillary antrostomy

FESS Land Marks (CLOSE):

-1**C**ribriform plate
-2**L**amina papyracea
-3**O**rbit
-4**S**phenoid
-5**Et**hmoid

FESS goals:

-Eradication of disease
-Aeration
-Drainage
-Post op access

- Complete extirpation of all the disease
- Permanent drainage and ventilation of the affected sinuses
- Postoperative access to the previously diseased areas.

Indications for FESS :

- Chronic sinusitis
- complicated sinusitis
- recurrent acute sinusitis
- Failed medical management of acute sinusitis
- fungal sinusitis
- Obstructive nasal polyposis
- Sinus mucoceles
- Remove foreign bodies
- Tumor excision
- Transsphenoidal hypophysectomy
- Orbital decompression,
- Dacryocystorhinostomy,
- Orbital nerve decompression
- Grave's ophthalmopathy
- Choanal atresia repair
- CSF leak repair
- Control epistaxis
- Septoplasty,
- Turbinectomy

•**Postoperative Care :**

- ●Sinus Packing
- ●Oral Antibiotics for a minimum of 2 week
- ●Aggressive nasal hygiene to prevent adhesions (saline irrigations)
- ●Nasal steroids
- ●Nasal debridement at 6 dna ,3 ,1weeks

Turbinate Hypertrophy

➔**causes:**

- ●infection
- ● compensation10
- ● dysfunctional
- ●allergies

➔manifestations

- ● Nasal obstruction
- ● mouth breathing

➔Treatment

- ●Treat underlying cause
- ● surgical treatment: SMR, Turbinoplasty, SMD ,FR ytsalponmos ,11 noitcuder cinosartlu ,ymotcenibrut

Surgical reduction of the Inferior Turbinates:

- ●Turbinate is another name for concha .
- ●Turbinate resection ,

-Total “not done anymore because it’ll cause the loss of all the important functions of the nose like ex: protection and conditioning”
-partial.

- ● Out fracturing of the inferior turbinate.
- ● Destructive procedures, including electrocautery, cryosurgery, laser surgery, and submucous resection.

TURBINATE REDUCTION GOALS :

- ●Mucosal preservation
- ●Controlled reduction
- ●Submucous scarring to reduce the erectile nature of the mucosa
- ●Bony reduction when necessary
- ●Minimal complications

Questions (436 ot sknaht)

-1A child presented with foul smell from the nose with discharge and obstruction what is the most common condition?

A. Foreign body
B. Polyp
C. Allergic rhinitis
D. Nasopharyngeal carcinoma

-2Young Patient came with unilateral nasal obstruction. In endoscope we found a pedunculated friable mass that bleeds with touch. What's the diagnosis?

A. Nasopharyngeal cancer
B. Inverted papilloma
C. Allergic fungal sinusitis
D. Chronic rhinitis

20 -3 year-old lady had aggressive inferior turbinectomies few years ago. Since then she is complaining of nasal obstruction , with foul nasal smell. What is the possible complication?

A. Allergic rhinitis.
B. Atrophic rhinitis.
C. Chronic sinusitis.
D. Nasal polyp

30 -4year-old women complaining of headache increase on leaning forward during praying and mucopurulent post-nasal discharge . On examination, there was nasal discharge in both nasal fossae. What is the investigation required to reach the diagnosis?

A. Skin allergy test.
B. CT sinuses.
C. Plain x-ray to the nasal bone.
D. Full blood count.

-5A 20 years old patient was on antibiotics for acute frontal sinusitis. He developed diplopia, decreased vision in the left eye and pain behind the left eye. What is the diagnosis?

A. Brain abscess
B. Cavernous sinus thrombosis
C. Preseptal cellulitis

answers:A/B/B/B/B

Questions (.tnoc)

78 -6year-old patient noticed right sided nasal obstruction associated with a bloody discharge that had developed over the last month. What is the most likely diagnosis?
A. Adenoidal hypertrophy.
B. Allergic rhinitis.
C. Carcinoma paranasal sinuses.
D. Nasal polyposis.

-7A New born child had cyanosis and difficulty breathing immediately after delivery. The cyanosis improves with crying. Which of the following is the most likely diagnosis?
A. Enlarged Adenoid
B. Laryngomalacia
C. Laryngeal web
D. Bilateral choanal atresia

-8A 45 years old patient presented with progressive bilateral nasal obstruction. He was diagnosed as a case of bilateral nasal polyp. He underwent polypectomy and histological examination was required. What is the expected finding that confirms the clinical diagnosis?
A. Benign neoplasm
B. Granuloma
C. Malignant neoplasm
D. Oedematous mucosa

-9A lasan laretalinu tfel fo gninialpmoc si lrig dlo-raey-12 5 rof noitaripxe no esrow noitcurtsbomonths. Examination of the nose showed a single pale grayish glistening pedicle mass in the posterior part of the left nasal cavity. A CT showed pacification of the left nasal cavity, maxillary sinus and the nasopharynx. What is the most likely diagnosis?
A. Antrochoanal polyp
B. Inferior turbinate enlargement
C. Mucocele
D. Juvenile angiofibroma

answers:C/D/A/A