

# Common ENT Presentations

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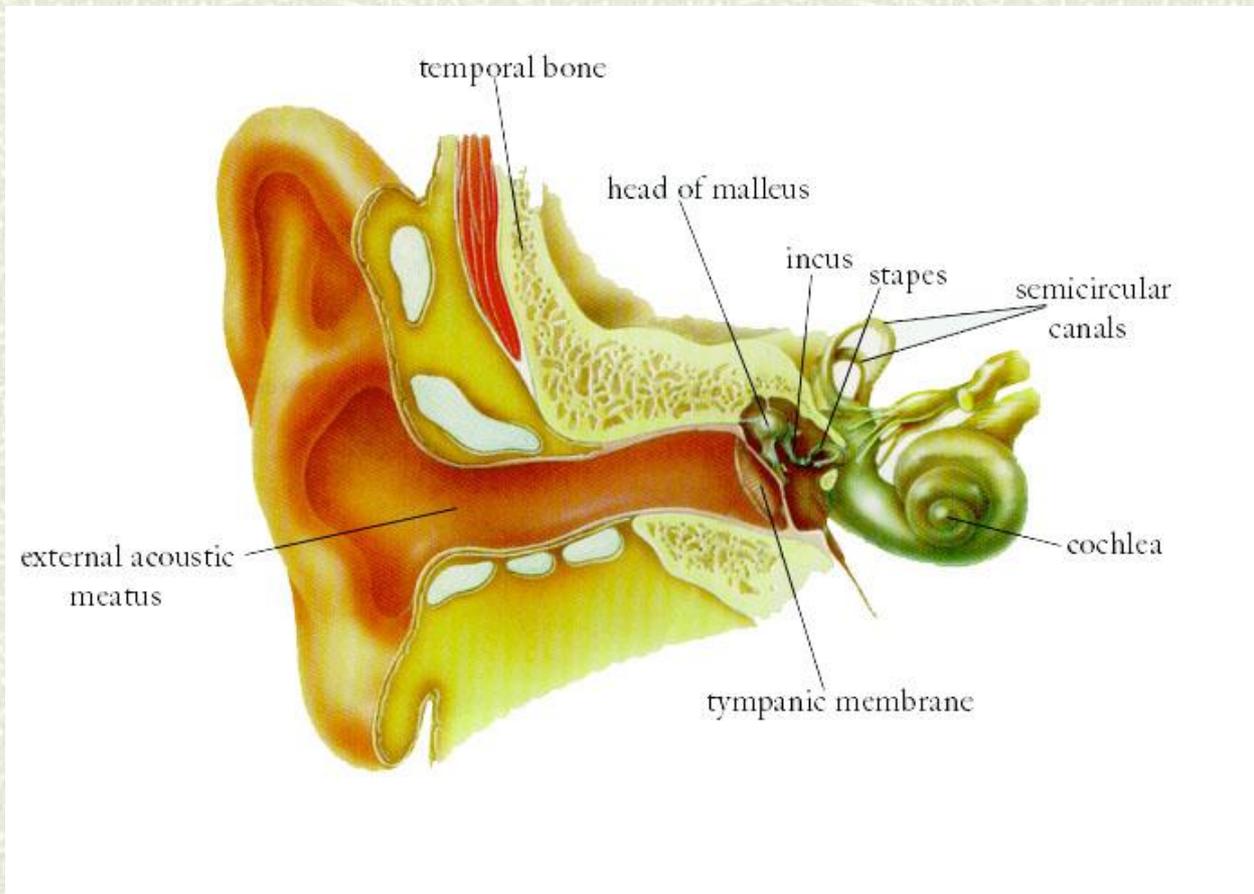
# Common ENT Presentations

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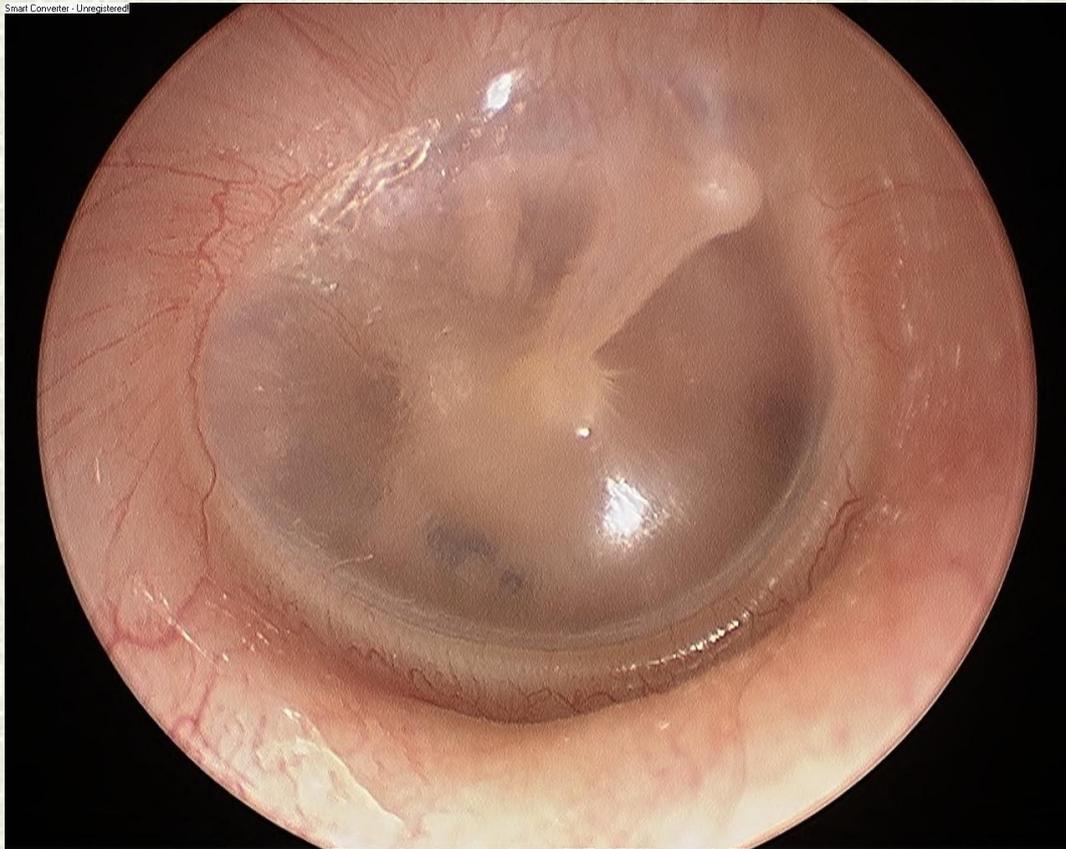
- # Acute otitis media (AOM)
- # Sinusitis
- # Tonsillitis
- # Nasal fractures



# Ear Anatomy



# Normal TM



# AOM

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- # Inflammation/infection of the middle ear of less than 3 weeks duration
- # Usually triggered by viral URTI
- # Pathogenic bacteria in 50% middle ear effusions
  - *S. pneumoniae*
  - *H. influenzae*
  - *M. catarrhalis*



# AOM Pathogens in Neonatal Period

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- # *S. pneumoniae*
- # *H. influenzae*
- # *E. coli*, Enterococcus, Group B Strep
- # Do tympanocentesis in infant with AOM and/or generalized sepsis with middle ear effusion for diagnosis and therapy



# AOM: Diagnosis

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- # Infants: irritability, feeding difficulties
- # Children: fever, otalgia, ear tugging
- # Older children/adults: same as above plus aural fullness and hearing loss



# AOM: Diagnosis

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- # Clinical diagnosis
- # Pneumatic otoscopy and tympanometry may be helpful
- # CT or MRI if intracranial complication suspected



# Acute Otitis Media (AOM)



# Acute Otitis Media (AOM)



# AOM: Treatment

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- # Watchful waiting approach?
- # Antibiotics?
  - Decreased incidence of suppurative complications
  - Cannot predict which patients will develop complications
  - Improved early and late patient outcomes



# AOM Treatment: CDC and AAP

## Principles of Appropriate Antibiotic Use

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- # Differentiate between AOM and OME
- # Treat if meets AOM criteria
  - History of acute onset signs/symptoms
  - Presence of middle ear effusion
  - Signs/symptoms of middle ear inflammation
- # Non-severe illness: mild-moderate otalgia and fever  $<39^{\circ}\text{C}$
- # Severe illness: moderate-severe otalgia and fever  $>39^{\circ}\text{C}$



# AOM Treatment: CDC and AAP Principles of Appropriate Antibiotic Use

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- # Children <6 months old with certain or uncertain diagnosis of AOM = antibiotics



# AOM Treatment: CDC and AAP

## Principles of Appropriate Antibiotic Use

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- # Children 6 months to 2 years old with certain diagnosis of AOM = antibiotics
- # Children 6 months to 2 years old with uncertain diagnosis of AOM and non-severe illness = consider analgesics/antipyretics and watchful waiting
- # Children 6 months to 2 years old with uncertain diagnosis of AOM and severe illness = antibiotics



# AOM Treatment: CDC and AAP

## Principles of Appropriate Antibiotic Use

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- # Children > 2 years old with uncertain diagnosis of AOM and non-severe illness = consider analgesics/antipyretics and watchful waiting
- # Children > 2 years old with uncertain diagnosis of AOM and severe illness = antibiotics
- # Children > 2 years old with certain diagnosis of AOM and non-severe illness = consider analgesics/antipyretics and watchful waiting
- # Children > 2 years old with certain diagnosis of AOM and severe illness = antibiotics



# AOM: Antibiotics

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# 7 to 14 day course

# Amoxicillin

- Pediatrics: 90 mg/kg/day po q8-12h
- Adults: 500 - 1000 mg po q8h

# Amoxicillin/clavulanate (62.5 mg clavulanate per 250 mg amoxicillin)

- Pediatrics: 90 mg/kg/day po q8-12h
- Adults: 500 mg po q8h or 875 mg po q12h



# AOM: Antibiotics

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## # Erythromycin

- Pediatrics: 50 mg/kg/day po q 8-12h
- Adults: generally not used

## # Trimethoprim/sulfamethoxazole

- Pediatrics: 8 mg/kg TMP with 40 mg/kg SMZ po q12h
- Adults: 160 mg TMP with 800 mg SMX po q12h

## # Also: cefixime, cefuroxime, cefprozil



# AOM: Treatment

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- # Analgesics and antipyretics important for symptom management
- # No proven efficacy for decongestants and antihistamines, although they may relieve co-existent nasal symptoms
- # No role for systemic steroids



# AOM: Tympanocentesis

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- # Neonates <6 weeks old
- # Immunocompromised patients
- # In patients who have failed adequate antimicrobial therapy
- # In patients with a complication that requires culture for adequate therapy



# OM: References

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- # <http://www.aappolicy.aappublications.org/cgi/content/full/pediatrics;13/5/1451#SEC11>
- # <http://www.cdc.gov/getsmart/campaign-materials/info-sheets/child-approp-treatmt.html>



# OME: Serous



# OME: Mucooid



# OM: Tympanostomy tubes



copyright Michael Hawke MD



# OM: Extruded Ttube



copyright Michael Hawke MD



# OM: When to Refer to ENT

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- # Acute OM (AOM) with complications
  - Mastoiditis, CN VII palsy, meningitis
- # Recurrent AOM
- # Chronic suppurative OM (CSOM)



# Adhesive OM

- # There is significant retraction of the flaccid TM into the middle ear due to longstanding Eustachian tube dysfunction and negative middle ear pressure
- # The incudostapedial joint is well visualized



# OM: Mastoiditis

- # Bezold's abscess is an abscess in the sternocleidomastoid muscle secondary to an acute coalescent mastoiditis



# Chronic OM: Cholesteatoma

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- # Collection of keratinizing squamous epithelium within the middle ear and temporal bone
- # Causes bone destruction
- # Can invade middle ear or intra-cranial structures



# Cholesteatoma



# Cholesteatoma

- # There is an aural polyp of granulation tissue and white keratinous debris in the posterosuperior quadrant of the left TM



# Cholesteatoma

- # There is a dark crust in the posterosuperior quadrant of the left TM
- # There is a perforation or retraction pocket underneath the crust, possibly hiding a cholesteatoma



# Sinusitis

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- # Most common predisposing factors:
  - Viral URTI (80%)
  - Allergic inflammation (20%)
- # Children can have 6 to 8 viral URTIs per year
  - 0.5-2% develop into bacterial sinusitis



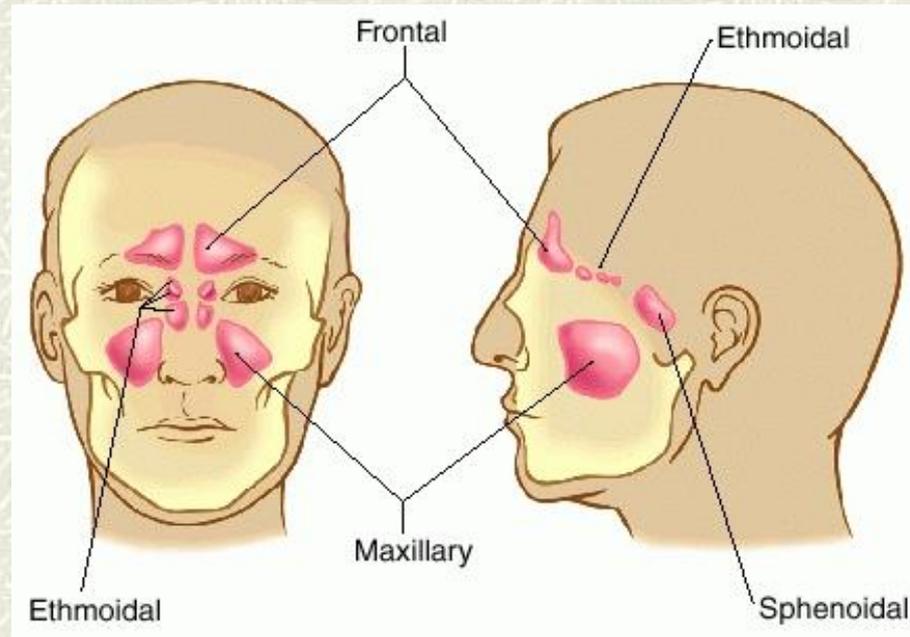
# Sinus Embryology

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- # Ethmoid and maxillary sinuses present at birth
- # Frontal sinuses appear by 7-8 yrs age; fully developed by age 18 yrs
- # Sphenoid sinuses appear by 5- 7 yrs age; develop another 7 to 8 yrs



# Sinus Anatomy



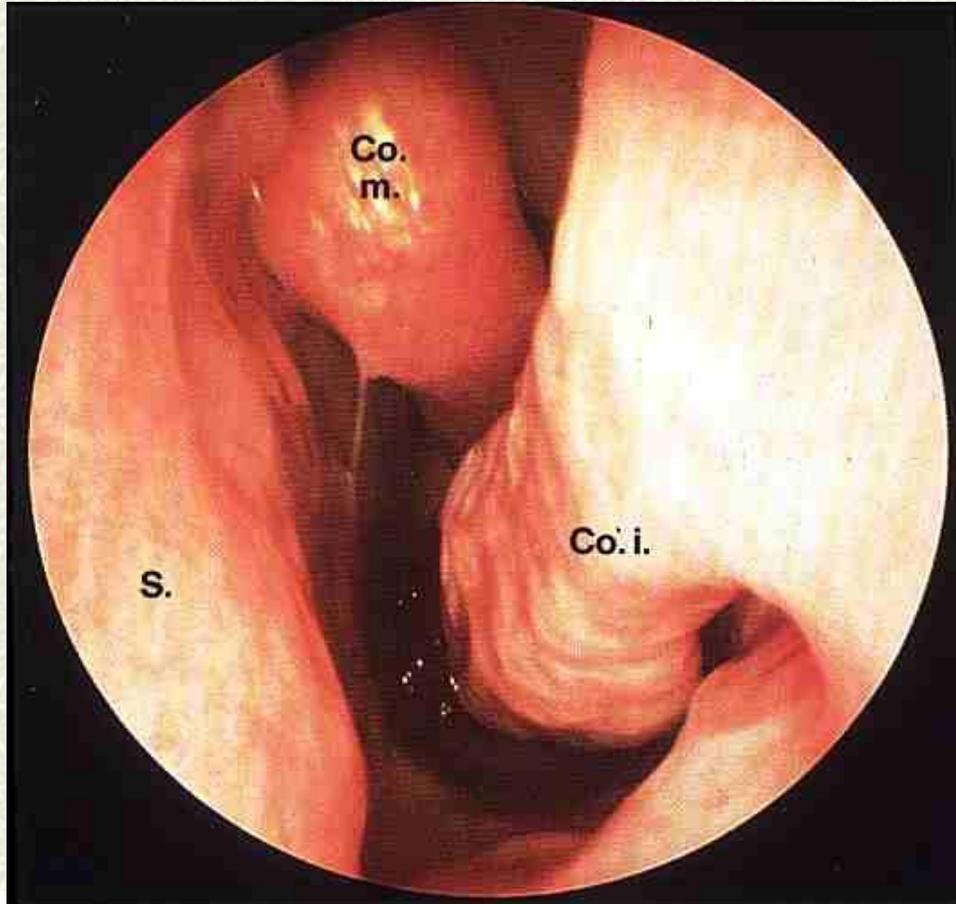
# Sinusitis: Differential Diagnosis

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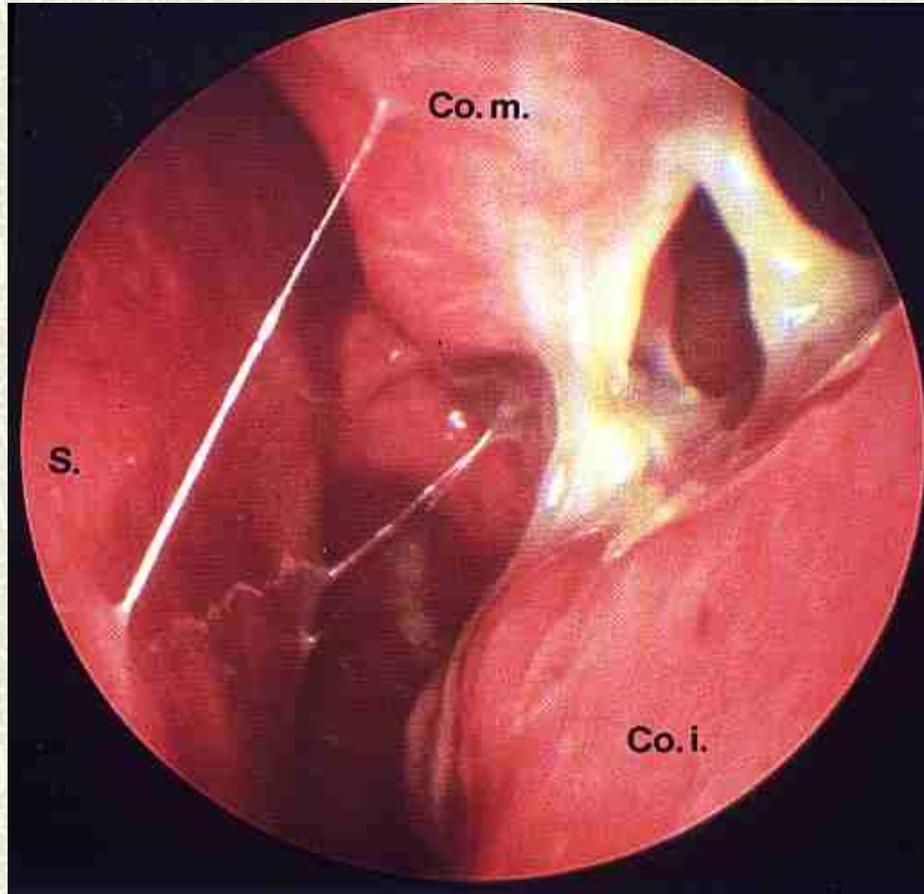
- # Prolonged viral URTI
- # Adenoiditis
- # Allergic rhinitis
- # Foreign body



# Normal Endoscopic View Left Nasal Cavity



# Sinusitis: Note Pus in Left Middle Meatus



# Signs/symptoms of acute maxillary sinusitis (BMJ 1995; 311:233)

	Present (n=92)	Absent (n=82)	Odds Ratio
Fever	89%	79%	2.1
Unilateral maxillary pain	51%	38%	1.9
Maxillary toothache	66%	51%	1.9
Unilateral maxillary sinus tenderness	49%	32%	2.5



# Sinusitis: Investigations

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- # Plain X-rays not recommended for acute uncomplicated sinusitis
  - Mucosal abnormalities common in viral infections
  - Opacification and air-fluid level have 73% sensitivity and 80% specificity



# Sinusitis: Investigations

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- # Transillumination not usually helpful
- # Look in nose with otoscope helpful
- # Endoscopy helpful
- # CT sinuses if complication suspected or to rule out another diagnosis (i.e. tumour)



# Sinusitis: Treatment

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- # Analgesics, antipyretics, topical or oral decongestants, mucolytics, nasal saline rinses
- # No antihistamines
  - May dry out mucous membranes and thicken secretions



# Sinusitis: Treatment

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- # Intra-nasal steroids
  - Adjuvant therapy
  - Monotherapy
- # Mometasone furoate (Nasonex) has been studied; likely all INS would have same effect



# Sinusitis: Antibiotics?

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- # 2007 Cochrane review meta-analysis of 57 studies
  - Antibiotics yield a small treatment effect in patients with acute, uncomplicated sinusitis with symptoms lasting >7 days
- # 2008 meta-analysis in Lancet
  - No treatment effect in patients with symptoms lasting >14 days



# Sinusitis: Antibiotics?

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- # High spontaneous resolution rate (40-66%)
- # 81% antibiotic-treated patients and 66% untreated patients are better between Days 10 to 14
- # Absolute benefit 15%



# Sinusitis: First-line Antibiotics

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- # Amoxicillin
  - 500-1000 mg po q8h for 10-14 days
- # Erythromycin
  - 250 mg po q6h for 10-14 days
- # Penicillin V
  - 250 mg po q6h for 10-14 days
- # Trimethoprim/sulfamethoxazole
  - 160 mg TMP/800 mg SMZ po q12h for 10-14 days



# Sinusitis: When to use Second-line Antibiotics

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- # Use if allergic to penicillin
- # Use if sinusitis with complications
- # Use if patient has been on antibiotics within previous 4 to 12 weeks (do not use same antibiotic)
- # Switch to second-line antibiotic if no improvement or worsening after 72 hours
- # Frontal or sphenoid sinusitis



# Sinusitis: Second-line Antibiotics

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- # Amoxicillin-clavulanate
- # Cefuroxime
- # Cefprozil
- # Clarithromycin
- # Levofloxacin
- # Doxycycline



# Pocket Guide E<sup>3</sup>POS

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European Position Paper on Rhinosinusitis  
and Nasal Polyps 2007

# OBJECTIVES & AIMS

Rhinosinusitis is a significant and increasing health problem which results in a large financial burden on society. This pocket guide offers evidence-based recommendations on its diagnosis and treatment.

The full document<sup>1</sup> on which this is based is intended to be a state-of-the-art review for the specialist as well as for the general practitioner:

- to update their knowledge of rhinosinusitis and nasal polyposis
- to provide an evidence-based documented review of the diagnostic methods
- to provide an evidence-based review of the available treatments
- to propose a stepwise approach to the management of the disease
- to propose guidance for definitions and outcome measurements in research in different settings

# CATEGORY OF EVIDENCE

- Ia evidence from meta-analysis of randomised controlled trials
- Ib evidence from at least one randomised controlled trial
- IIa evidence from at least one controlled study without randomisation
- IIb evidence from at least one other type of quasi-experimental study
- III evidence from non-experimental descriptive studies, such as comparative studies, correlation studies, and case-control studies
- IV evidence from expert committee reports or opinions or clinical experience of respected authorities, or both

# STRENGTH OF RECOMMENDATION

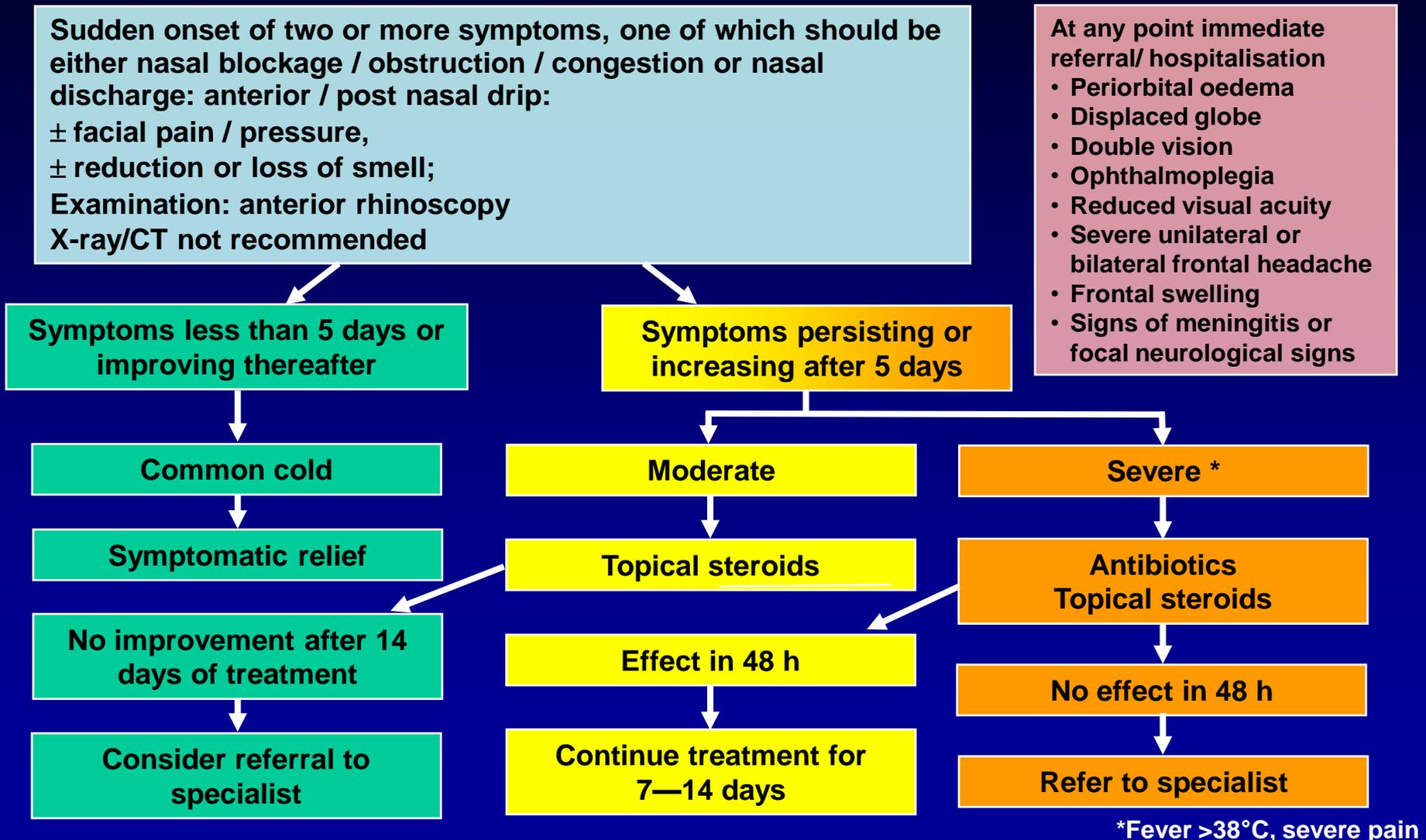
- A directly based on category I evidence
- B directly based on category II evidence or extrapolated recommendation from category I evidence
- C directly based on category III evidence or extrapolated recommendation from category I or II evidence
- D directly based on category IV evidence or extrapolated recommendation from category I, II or III evidence

# EVIDENCE-BASED MANAGEMENT SCHEME FOR ADULTS WITH ACUTE RHINOSINUSITIS

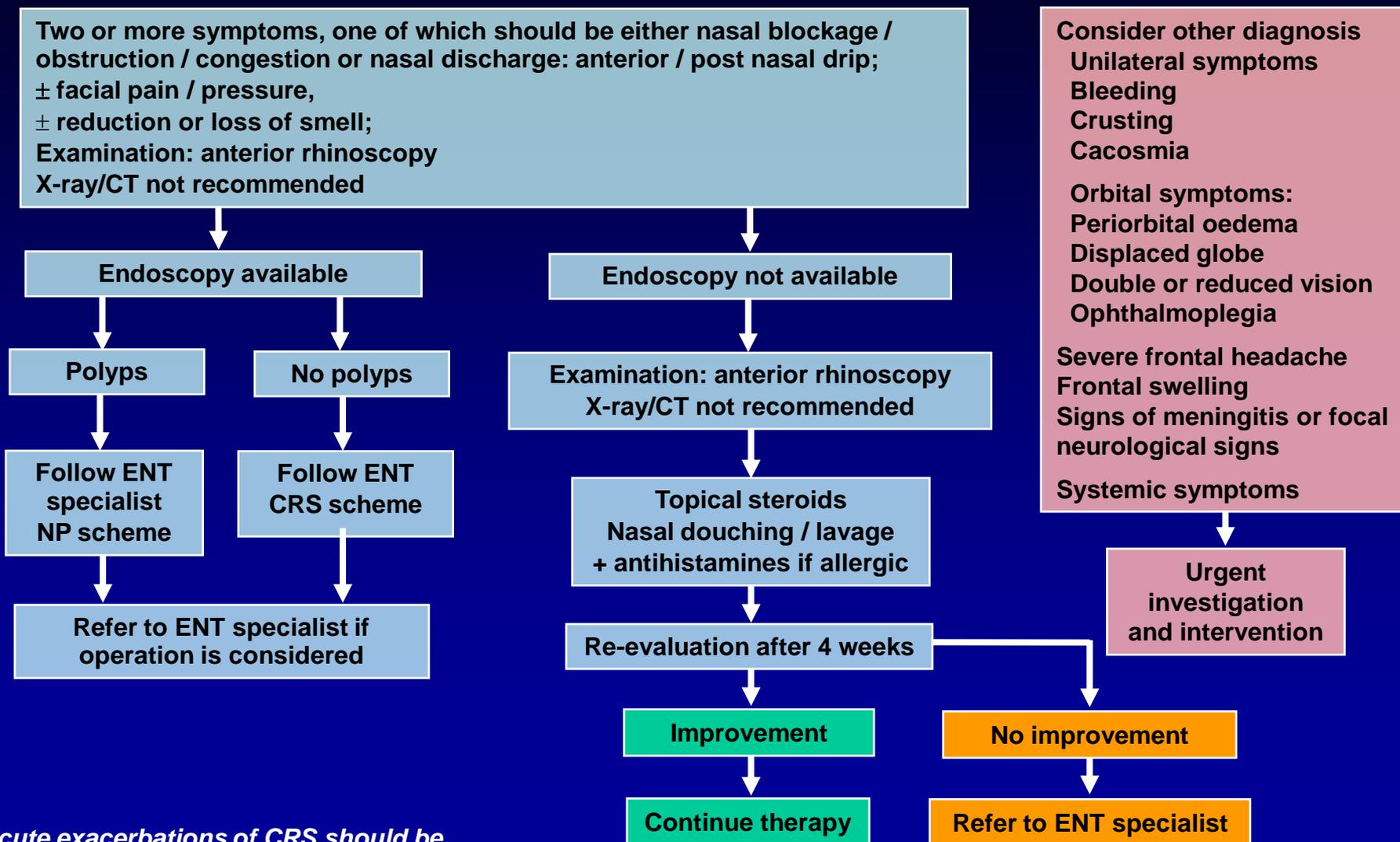
## *Treatment evidence and recommendations for adults with acute rhinosinusitis*

Therapy	Level	Grade of Recommendation	Relevance
oral antibiotic	Ia	A	yes, after 5 days, or in severe cases
topical corticosteroid	Ib	A	yes
topical steroid and oral antibiotic combined	Ib	A	yes
oral corticosteroid	Ib	A	yes, reduces pain in severe disease
oral antihistamine	Ib	B	yes, only in allergic patients
nasal douche	Ib (-)	D	no
decongestant	Ib (-)	D	yes, as symptomatic relief
mucolytics	none	no	no
phytotherapy	Ib	D	no

# Figure 1. Management scheme for primary care for adults with acute rhinosinusitis



# Figure 3. Chronic rhinosinusitis with or without nasal polyps management scheme for primary care and non-ENT specialists (CRS/NP)



*Acute exacerbations of CRS should be treated like acute rhinosinusitis*

# Sinusitis: Complications

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## # Osteomyelitis

- Frontal (Pott's puffy tumour), maxillary, sphenoid

## # Orbital

- Peri-orbital cellulitis, subperiosteal orbital abscess, orbital cellulitis, orbital abscess, cavernous sinus thrombosis

## # Intra-cranial

- Subdural empyema or abscess, epidural abscess, meningitis, brain abscess



# Sinusitis: Complications

- # Young girl with a left peri-orbital cellulitis secondary to sinusitis
- # The eyelids must be opened initially and at regular intervals to assess the eye for signs of post-septal infection (proptosis, chemosis, vision loss, ophthalmoplegia)



# Sinusitis: References

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- # <http://www.cdc.gov/GetSmart/campaign-materials/info-sheets/adult-acute-bact-rhino.pdf>
- # Thomas M et al (2008). EPOS Primary Care Guidelines. Primary Care Respiratory Journal 17(2):79-89



# Tonsillitis

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- # Inflammation of pharyngeal tonsils
- # Often extends to adenoids and pharynx, hence “pharyngotonsillitis”
- # Common illness of children and young adults
- # 2.5-15.9 % children asymptomatic Group A Beta Hemolytic Strep (GABHS) carriers



# Tonsillitis: Symptoms

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- # Sore throat, fever, foul breath, dysphagia, odynophagia, cervical lymphadenopathy



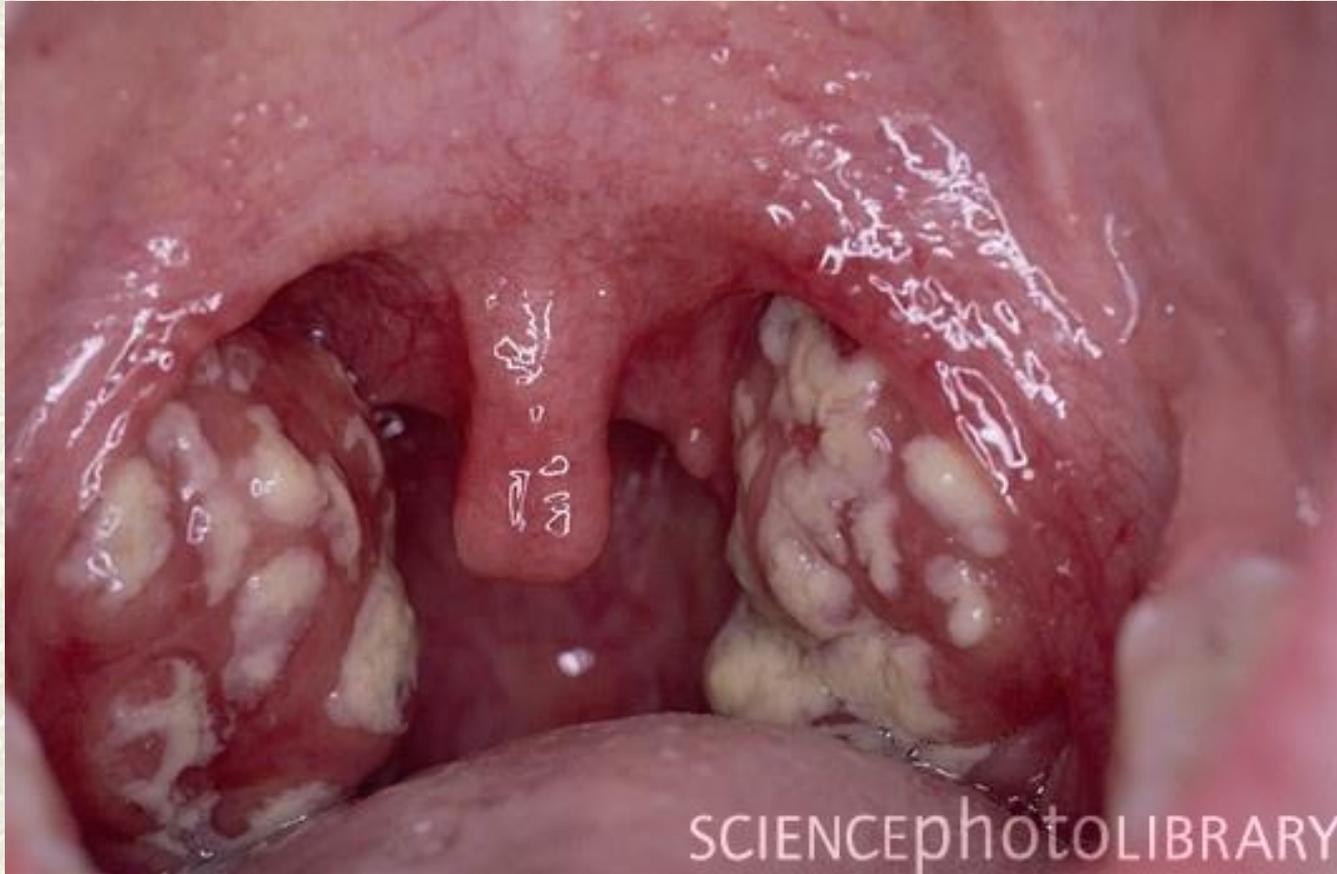
# Tonsillitis

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- # Viral: EBV, HSV, CMV, adenovirus
- # Bacteria cause 15-30% of tonsillitis
  - GABHS most common
  - *S. pneumo*, *S. pyogenes*, Staph aureus, H.flu less common



# Tonsillitis



# Tonsillitis: Diagnosis

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- # Clinical diagnosis
- # Throat swab and culture to diagnose GABHS
  - 90-95% sensitivity
  - 95-99% specificity
  - Results available in 24-48 hours
- # Rapid antigen detection test (RADT)
  - Less sensitive than culture
  - 95% specific
  - Results available in 1 hour



# Tonsillitis: Diagnosis

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- # No imaging needed unless suspected spread of infection to deeper neck spaces
  - CT with contrast



# Tonsillitis: Treatment

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## # Supportive

- Hydration, analgesia, antipyretics

## # Steroids helpful if viral (e.g. EBV)

### ■ Dexamethasone

- Adults: usual dose 2-10 mg iv q8h
- Children: 0.5-1mg/kg iv q8h, not to exceed 10 mg



# Tonsillitis: Treatment

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## # Antibiotics?

- If suspected bacterial etiology based on history and physical examination
- If positive GABHS RADT or culture

## # Balance benefits of antibiotic treatment (reduce symptoms, transmissibility, risk of suppurative and non-suppurative complications) versus risks (over-treatment, side-effects, resistance, cost)



# Tonsillitis: Antibiotic Treatment

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- # 10 day course of Penicillin V
- # Penicillin G, 1.2 million units intramuscular, can be used in patients who may be non-compliant with a 10 day course of oral penicillin
- # Alternative choices: cephalosporin, macrolide, clindamycin



# When to Consider Tonsillectomy for Recurrent Tonsillitis

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- # GABHS positive, significant time missed from work or school AND
  - >5 or 6 infections in 1 year
  - >4 infections per year for 2 years
  - >3 infections per year for 3 years



# Peritonsillar Abscess (PTA)

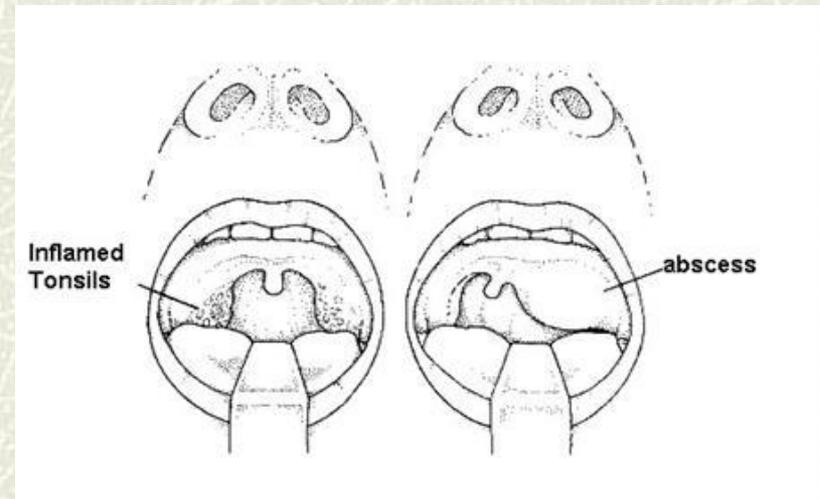
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- # Abscess in the peritonsillar space secondary to tonsillitis
- # Severe throat pain, dysphagia, odynophagia, trismus, fever, drooling, “hot-potato voice”



# Peritonsillar Abscess

- ✦ In a PTA, the soft palate bulges above and lateral to one of the tonsils, pushing it medially
- ✦ The uvula points away from the abscess side
- ✦ Trismus (difficulty opening the mouth due to pain) is usually present



# Peritonsillar Abscess

- # Left peritonsillar abscess



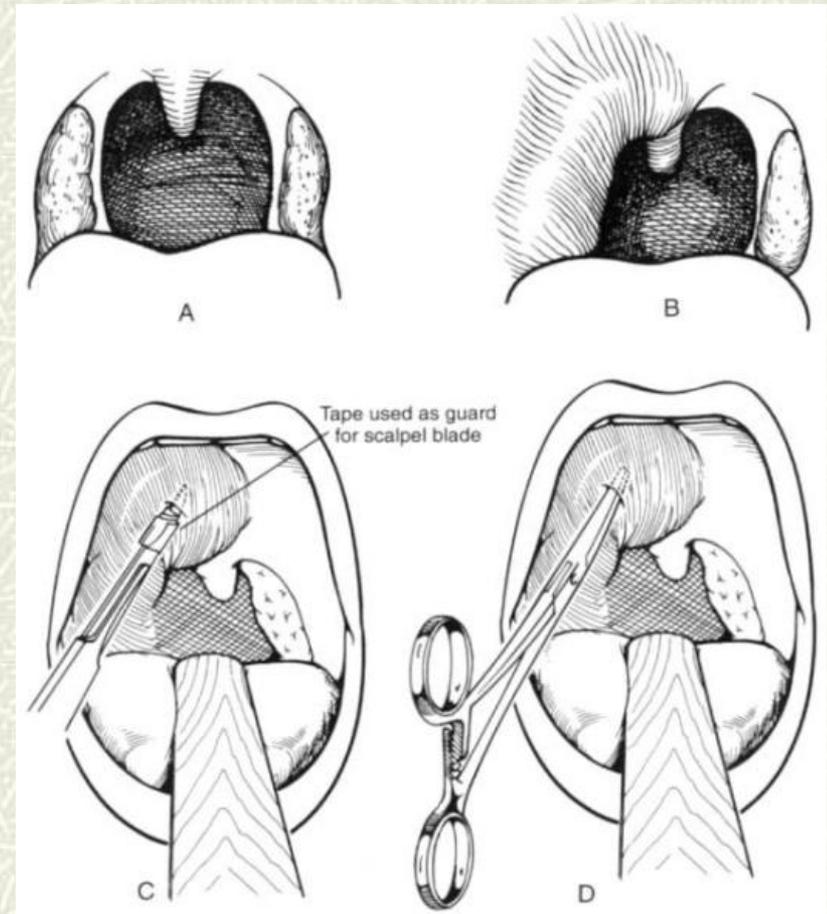
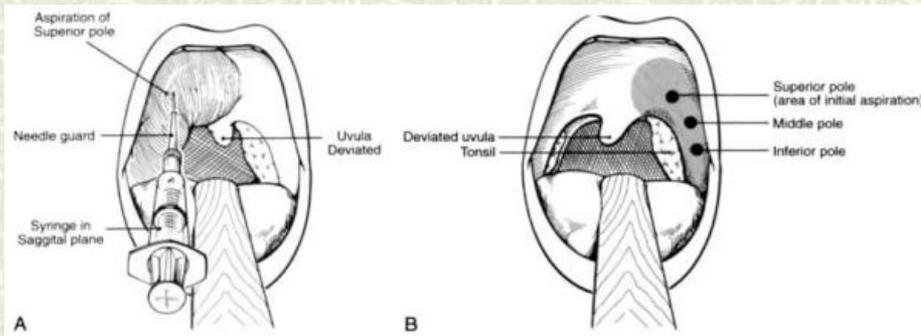
# PTA: Treatment

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- # Aspiration
- # Incision and drainage (I&D)
- # Quinsy tonsillectomy
- # Antibiotics same as for tonsillitis; consider adding metronidazole to penicillin or use clindamycin
- # Supportive treatment same as for tonsillitis



# PTA: Aspiration and I&D techniques



# Nasal Fractures

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- # Most common facial fracture
- # Bony or cartilaginous



# Nasal Fractures: Presentation

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- # History of nasal trauma
- # Visible nasal deformity
- # ST swelling, nasal and peri-orbital ecchymosis
- # Nasal obstruction



# Nasal Fractures: Evaluation

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- # A-airway
- # B-breathing
- # C-circulation
- # Assess for other facial fractures



# Nasal Fractures: Evaluation

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- # If nose looks crooked = no X-ray
- # If nose looks straight = no X-ray
- # Check for septal hematoma



# Nasal Fractures: Treatment

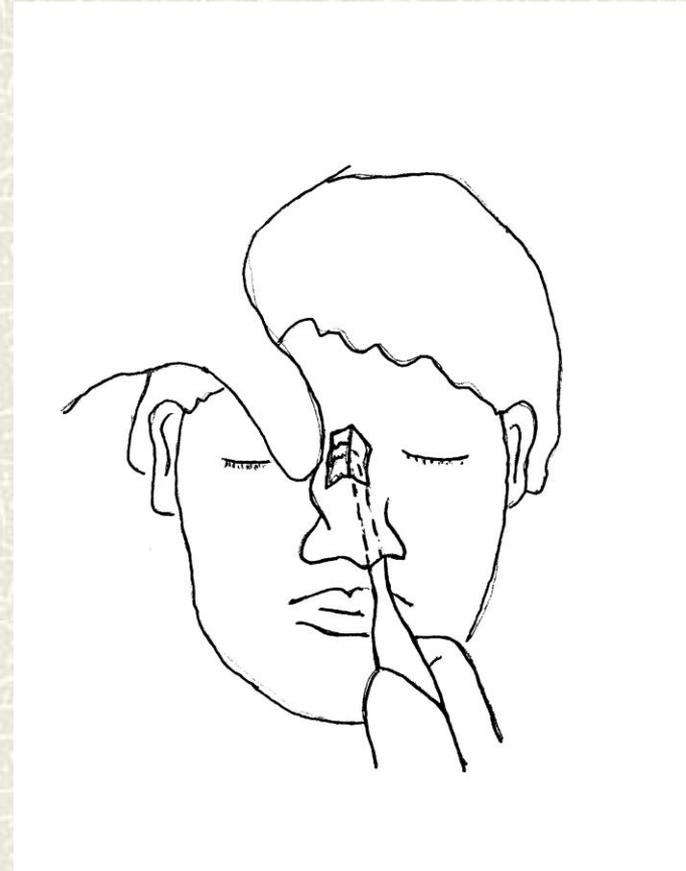
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- # Closed or open reduction
- # Local anesthesia
- # General anesthesia
- # May need to wait 2-5 days to let edema subside



# Nasal Fractures: Closed nasal reduction

- # A flat blunt instrument lifts the depressed nasal bone
- # The opposite nasal bone is simultaneously pushed back into position
- # You will hear a ‘snap’ as the bones reduce



# Nasal Fractures: Treatment

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- # Internal packing
- # External splint
- # Antibiotics if prolonged packing, gross ST disruption or open fracture



# Nasal Fractures: When to Refer to ENT

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- # Septal hematoma or abscess
- # Multiple facial fractures
- # Open fracture
- # Nasoethmoid fracture



# Cam on ban!

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