



# Western Regional Urgent Care Conference

# HEAD BANGERS: Dentofacial Injuries and ENT Infections

Western Regional Urgent Care Conference 2023

Monterey, CA

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# Newcomer Self-Introduction



- UCLA Bruin x2
- Former UCLA cancer biologist
- Dental school @ Western University
- Residency @ UCSF-Highland
- Faculty/Attending Surgeon
  - Western University
  - Univ of the Pacific
- On Staff @ Stanford, Regional Medical Center, Alameda Hospital
- Reviewer @ The Permanente Journal, World Journal of Surgical Oncology



# What is an OMFS?

## 4 - 6 years of ACGME medical residency

- 5 - 12 months as a general surgery intern
- 5 - 6 months as an anesthesiology intern
- 2+ months as an internal medicine intern
- 1+ month as a surgical ICU intern
- Rotations in plastic surgery, ENT, pathology

## 1 – 2 years of fellowship (optional)

- Microvascular surgery
- Craniofacial surgery
- Cosmetic surgery



# Old-timer Self-Introduction

- Joe Toscano, MD
- Duke University School of Medicine
- Internal medicine – US Navy
- 30 years community emergency medicine and urgent care experience
- UCA/CUCM Clinical Content Coordinator
- Editor/Contributor/Reviewer – *JUCM*, *EM Practice*, *West JEM*



# Adult Dental Displacements

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Concussion

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Subluxation

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Intrusion (3mm, 3-7mm, >7mm)

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Extrusion (2-week splinting)

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Avulsion (2-week splinting)

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Lateral luxation



## Flexible Splinting



Teeth naturally have microscopic movement

Rigid splinting can lead to root resorption

Most easily done using 24g wires

Splint loose tooth to at least two stable teeth both to the right and the left

Broken alveolar bone: 4 weeks

No broken bone: 2 weeks

# Pediatric Tooth Displacements

Pediatric teeth are meant to be lost.

Tooth-only displacements not typically splinted.

Lateral luxations (with alveolar bone fracture) splinted for 4 weeks.

Observe:

concussion, subluxation, intrusion away from underlying tooth germ

Re-seat:

extrusion < 3mm, lateral luxation with minimal or no bone fracture

Remove:

extrusion > 3mm, intrusion into underlying adult tooth germ, avulsion





# ENT Infections – Sinusitis diagnosis

	Sensitivity	Specificity
Purulent nasal discharge	35%	78%
Pain on bending forward	75%	77%
Maxillary toothache	66%	49%
Symptoms after URI	89%	79%
Nasal obstruction	60%	22%

Piccirillo JF. *N Engl J Med* 2004;351:902



# ENT Infections – Sinusitis diagnosis

**Table 2. Conventional Criteria for the Diagnosis of Sinusitis Based on the Presence of at Least 2 Major or 1 Major and  $\geq 2$  Minor Symptoms**

Major Symptoms	Minor Symptoms
● Purulent anterior nasal discharge	● Headache
● Purulent or discolored posterior nasal discharge	● Ear pain, pressure, or fullness
● Nasal congestion or obstruction	● Halitosis
● Facial congestion or fullness	● Dental pain
● Facial pain or pressure	● Cough
● Hyposmia or anosmia	● Fever (for subacute or chronic sinusitis)
● Fever (for acute sinusitis only)	● Fatigue

Modified from Meltzer et al [7].

Chow AW et al. *Clin Infect Dis* 2012;54(8):e78



# ENT Infections – Sinusitis diagnosis

## Correct diagnosis for antibiotic treatment

- For **severe symptoms**  $\geq$  3-4 days
- For **persistent symptoms**  $\geq$  10 days
- For **worsening symptoms** after typical URI for 5-6 days that were initially improving – “double sickening”
- **Chronic sinusitis – ENT consultation**



# ENT Infections – Sinusitis treatment

## Adults

Indication	First-line (Daily Dose)	Second-line (Daily Dose)
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β-lactam allergy		<ul style="list-style-type: none"> <li>● Doxycycline (100 mg PO bid or 200 mg PO qd)</li> </ul>
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Chow AW et al. *Clin Infect Dis* 2012;54(8):e78



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# ENT Infections – Sinusitis treatment

## Risk factors for resistance

- Age < 2y, > 65y
- Penicillin non-susceptible rate  $\geq 10\%$
- antibiotics within 30 days
- hospitalization within 5 days
- comorbidities





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β-lactam allergy		
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# ENT Infections – Sinusitis treatment

- Duration (IDSA) – adult 5-7 days; children 10-14 days
- No macrolides (erythro, azithro, clarithromycin)
- No TMP/SMX
- No second or third generation cephalosporins (except combination third-generation plus clindamycin in PCN-allergic patients)
- No PO or topical decongestants or antihistamines
- Intranasal saline irrigation and intranasal steroids may help
- NO systemic steroids (IM, PO)



# ENT Infections – Sinusitis treatment

## **ICSI/AAO/AAP/CDC - adults**

- Watch and wait/shared decision-making
- Amoxicillin without or with clavulanate – first line
- Doxycycline, except in children < 8 years old
- Second generation cephalosporin (eg, cefuroxime, cefaclor) monotherapy OK as second line
- Use IDSA regimen for those who are more ill or “at risk”

Risk factors for resistance - < 2y, > 65y, PNS  $\geq$  10%, antibiotics within 30 days, hospitalization within 5 days, comorbidities



# Odontogenic Infections



- Abscess at the level of the root of the tooth
- Can enlarge to show up as facial swelling
- Important to assess submandibular swelling
- Airway compromise
- Sepsis a possibility

# Incision and Drainage





# Differentiating Acute Causes of Swelling

## Odontogenic Infection

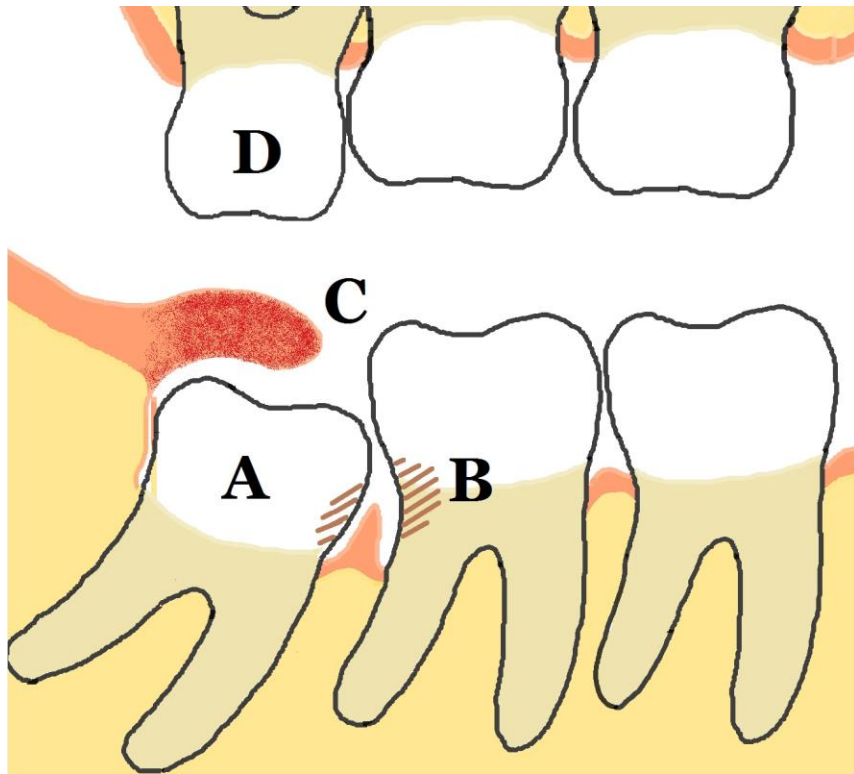
- Cellulitis/abscess
- Propensity to spread
- Can lead to airway compromise
- Typically requires incision & drainage

## Pericoronitis

- Foreign body-like inflammation
- Usually localized
- Typically does not lead to airway compromise or sepsis
- Requires simple extraction



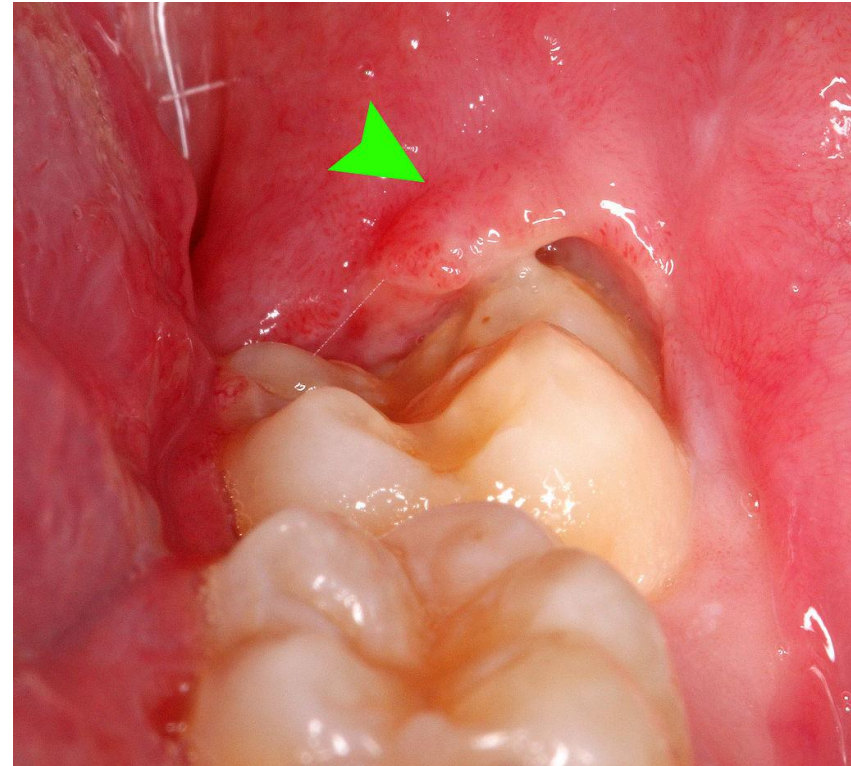
## Pericoronitis (ICD-10 K05.2)



- Overgrowth of mucosa over a partially erupted wisdom tooth.
- Accumulation of debris and bacteria under this flap.
- Often no appreciable dental caries.
- Most frequently a localized inflammatory response.
- Definitive treatment is removal of the offending tooth/crown.

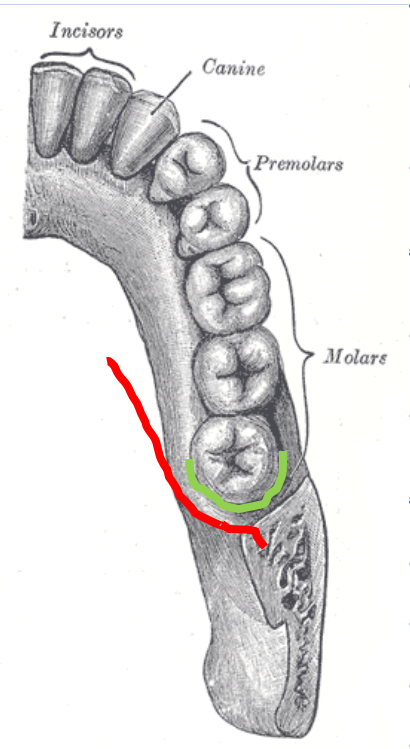
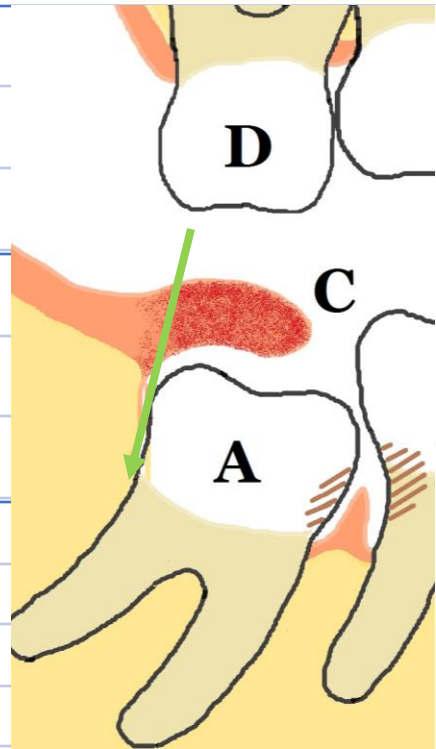
## Stabilizing Treatments

- Direct irrigation with saline or chlorhexidine under the operculum/loose mucosal flap (D4921)
- Instrument debridement of bacteria and food impaction around the third molar crown and under the operculum (D4342)
- CPT code 41899 for unspecified dental treatment



# Gingivectomy/Operculectomy (D7971 or 41821)

Eliminate areas of impaction around a partially visible crown	Excess gingiva
	Operculum
	Loose papillae
Excise in a semi circular pattern	Avoid going posterior
	Uncover just the crown, not bone
	Consider using electrocautery
Expect bleeding from inflamed mucosae	Ice pack
	Epinephrine-containing injections
	Local Pressure
	Chemical cautery (silver nitrate)



# ENT Infections – Acute OM diagnosis

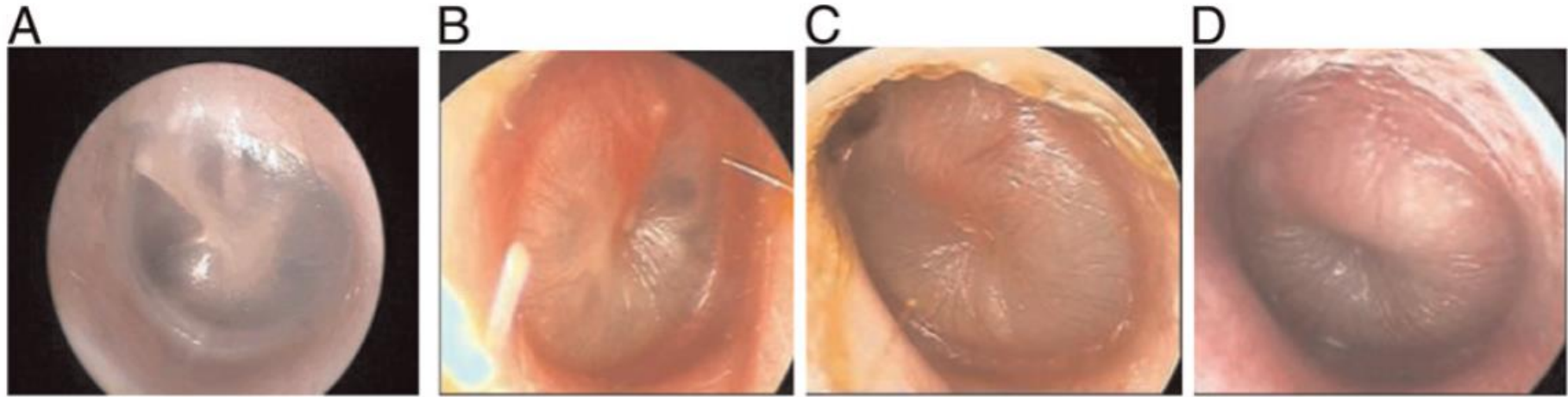
## AAP/AAFP 2013

### Correct diagnosis for Rx

- Should diagnose AOM: in children with moderate or severe bulging of the TM *or* new onset of otorrhea not due to acute OE
- May diagnose AOM: mild bulging of the TM *and* recent (< 48 hours) onset of ear pain (or holding, tugging, rubbing of ear) *or* intense erythema of the TM
- Should not diagnose AOM: who do not have middle ear effusion (on pneumatic otoscopy and/or tympanometry)



# ENT Infections – Acute OM diagnosis



**FIGURE 2**

A, Normal TM. B, TM with mild bulging. C, TM with moderate bulging. D, TM with severe bulging. Courtesy of Alejandro Hoberman, MD.

AAP Subcom Dx and Mgt AOM. *Pediatrics* 2013 131:e972

# ENT Infections – Acute OM treatment

## **Antibiotic treatment for:**

- 6 mos or older with severe AOM: severe signs or symptoms (moderate or severe ear pain *or* pain for  $\geq 48$  hours *or* temp  $\geq 102.2^{\circ}\text{F}$ )
- 6 to 23 mos with nonsevere but bilateral AOM

## **Antibiotic or observation for:**

- 6 to 23 mos with nonsevere unilateral AOM
- 24 mos or older with nonsevere AOM



# ENT Infections – Acute OM treatment

## First Line

- Attention to pain for all patients
- Ten-day antibiotic course for those under 2 years old; 7 days for those 2-5 years old; 5-7 days for  $\geq 6$  years old
- **Amoxicillin** is fine for most
  - **80-90** mg/kg/day divided BID
- **Amoxicillin/clavulanate** also 1<sup>st</sup> line if amox w/i 30 days, purulent conjunctivitis, prior failure with amox
  - **80-90** mg/kg/day divided BID





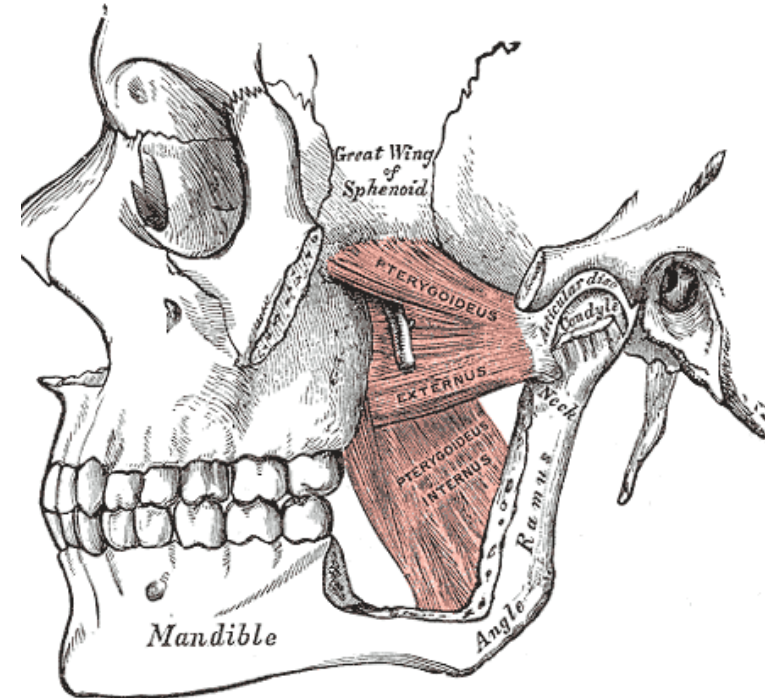
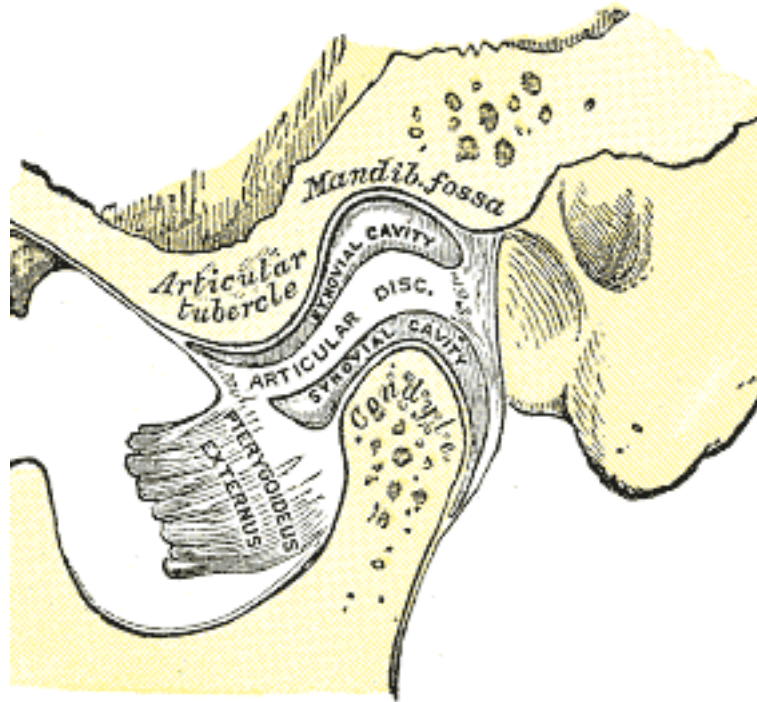
# ENT Infections – Acute OM treatment

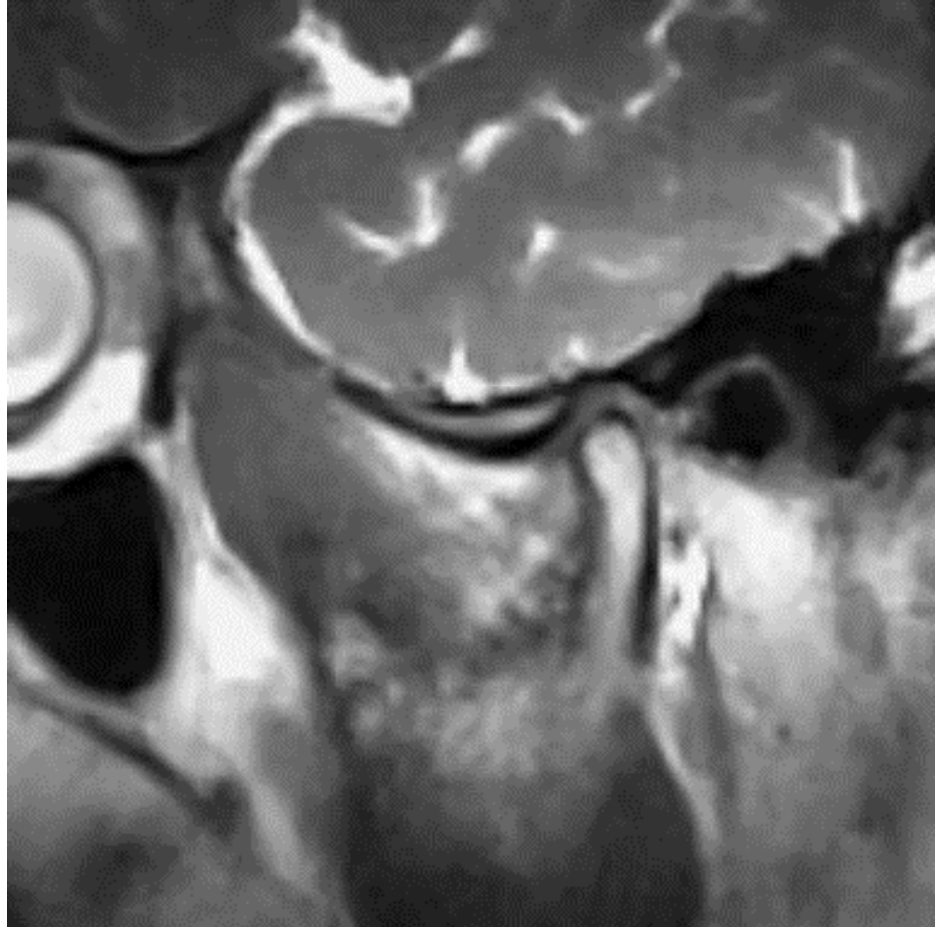
## Second Line

- **Cefdinir, Cefpodoxime, Cefuroxime**
- **Ceftriaxone IM – 1 or 3 days**
- **Clindamycin for PCN allergy**
- **Less favored – due to drug-resistant *S. pneumo***
  - **Cefixime, Cefaclor, Loracarbef, Cefibuten, TMP/Sulfa, Erythromycin/sulfisoxazole**
- **NO macrolides**



# TMJ Pathology – “Locked Jaw”

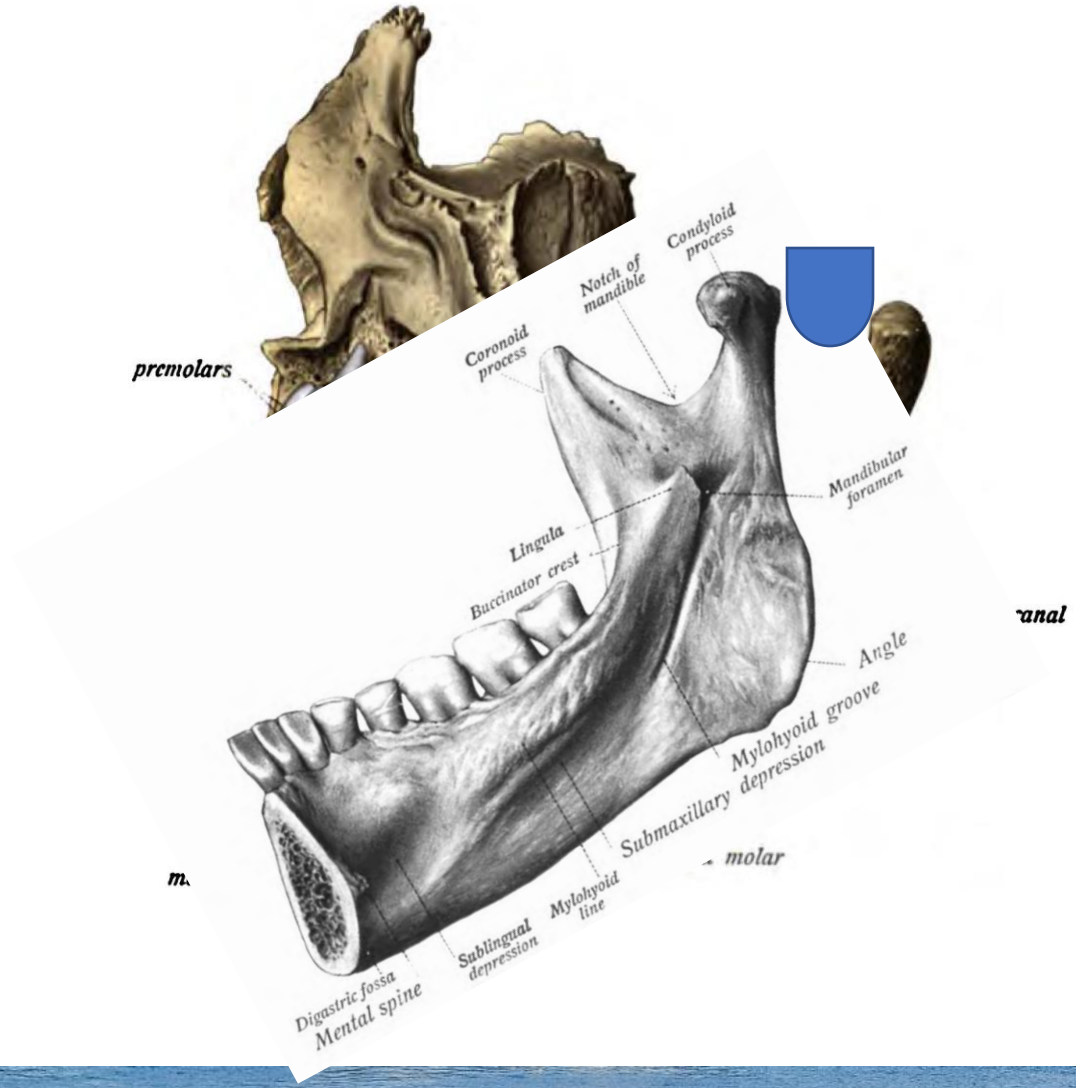




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# TMJ Dislocations

- Jaw locked open
- Perform inferior alveolar nerve block
- Perform local anesthesia along the preauricular region
- Place thumb over lower molars
- Place remaining fingers under mandible
- Press down with thumbs
- Press posteriorly with remaining fingers



# ENT Infections – Pharyngitis

## IDSA 2012/ACP 2016

- Attention to pain for all patients
- Consider the differential diagnosis
- Viruses 40-60% of the time or more
- Use a systematic approach, *eg*, Centor score or other **clinical assessment of pretest probability** of Strep AND **objective testing**, *ie*, rapid strep
- No need to test or treat if pretest probability is low
- No follow-up culture for negative rapid strep test in children requiring testing (IS recommended by others)
- No testing or treatment of asymptomatic contacts



# ENT Infections – Pharyngitis diagnosis

## Centor Score for Acute Pharyngitis

- Patient Age (3-14yo, 15-44yo, >45yo)
- Exudate or swelling on tonsils
- Tender/swollen anterior cervical lymph nodes
- Temp > 38F (100.4F)
- Absence of cough

If all five are present, Centor score is 5 and there is a 51-53% likelihood of strep



# ENT Infections – Pharyngitis diagnosis

## Correct diagnosis for Rx\*

- Positive rapid strep antigen test
- Positive throat culture
- GC, *Mycoplasma*, diphtheria
- Peritonsillar abscess



\*prophylaxis for rheumatic fever, decrease contagion, decrease in symptom duration

# ENT Infections – Pharyngitis treatment

- Symptomatic care for all patients – analgesics, antipyretics, +/- *corticosteroids*
- **Penicillin – 250 mg QID or 500 mg BID for 10 days**
- 1.2 million U IM or 500 mg PO BID or 250 mg PO TID
- Peds: 0.6 million U IM (< 27 kg) or 10mg/kg/dose PO BID-TID
- Alternatives – 10 days
  - **Amoxicillin (1 g qD), Cephalexin (500 mg BID), Clindamycin (300 mg TID)**
  - **Clarithromycin (250 mg BID), Azithromycin (500 mg qD x 5d)**
- **Avoid the big guns: quinolones, amox/clavulanate**





# ENT Infections – Pharyngitis treatment

**Table 2. Antibiotic Regimens Recommended for Group A Streptococcal Pharyngitis**

Drug, Route	Dose or Dosage	Duration or Quantity
For individuals without penicillin allergy		
Penicillin V, oral	Children: 250 mg twice daily or 3 times daily; adolescents and adults: 250 mg 4 times daily or 500 mg twice daily	10 d
Amoxicillin, oral	50 mg/kg once daily (max = 1000 mg); alternate: 25 mg/kg (max = 500 mg) twice daily	10 d
Benzathine penicillin G, intramuscular	<27 kg: 600 000 U; ≥27 kg: 1 200 000 U	1 dose
For individuals with penicillin allergy		
Cephalexin, <sup>b</sup> oral	20 mg/kg/dose twice daily (max = 500 mg/dose)	10 d
Cefadroxil, <sup>b</sup> oral	30 mg/kg once daily (max = 1 g)	10 d
Clindamycin, oral	7 mg/kg/dose 3 times daily (max = 300 mg/dose)	10 d
Azithromycin, <sup>c</sup> oral	12 mg/kg once daily (max = 500 mg)	5 d
Clarithromycin, <sup>c</sup> oral	7.5 mg/kg/dose twice daily (max = 250 mg/dose)	10 d



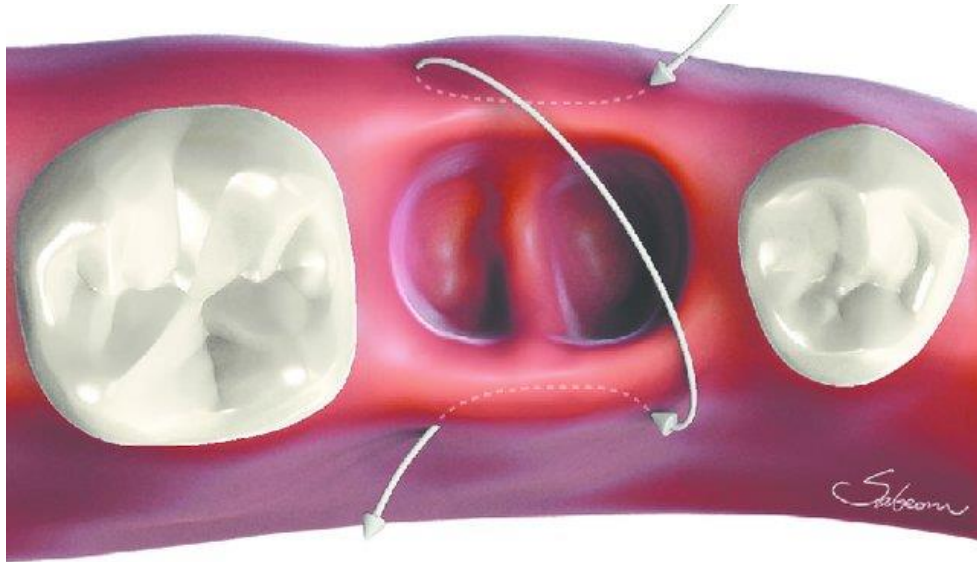
# ENT Infections – Pharyngitis treatment

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# Dental Socket Bleeding



Criss-cross suture

- Post-operative bleeding after dental procedures relatively common
- Irrigate bleeding areas well and inject all around the bleed with epinephrine-containing local anesthetic
- Apply firm, well-directed pressure – do not remove pressure for 10 minutes
- Pack empty tooth sockets/bony defects with “stamp sized” **compressed gelatin (Gelfoam®)**, oxidized cellulose (Surgicel®), or **microfibrillar collagen (Avitene™)**
- Figure-8 suture over any packed dental sockets
- Bring together alveolar fractures by splinting and mandibular fractures with bridle wires
- Cauterize areas with heat, laser, or silver nitrate

# Mucosal Bleeding

Gently swish for two minutes then expectorate

- 500mg TXA tablet in 10ml of fluid
- 650mg TXA tablet in 13ml of fluid
- Premade 4-5% TXA solution

Thrombin Spray

Inject with epinephrine

- 1mg adrenaline in 100ml saline
- 1% lidocaine with 1:100k epi



# Orofacial Urgencies Take Home Points

Splint teeth semi-rigidly to help them re-attach

- With likely alveolar bone fractures require 4 weeks splinting
- Without alveolar bone fractures require 2 weeks

Swelling below the inferior border of the mandible indicates a more serious infection

Push mandibular molars down and posteriorly to reduce TMJ displacement

Close over dental sockets in a figure-8 (“criss-cross”) pattern for bleeding

Mix TXA tablets with 1 syringe full of saline (a little over 10ml) to create an anti-bleeding rinse

**Know a good oral-maxillofacial surgeon vs general dentist to refer to in your area**



# ENT Infections Take Home points

- Make specific diagnoses
- Clinical exam is key
- Use diagnostic tests judiciously
- Narrow spectrum antibiotics are first-line for most ENT infections
- Lower durations of antibiotic treatment may be fine

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# ENT Infections – References

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