



EM CASES SUMMARY

Episode 185 Atraumatic Dental Emergencies

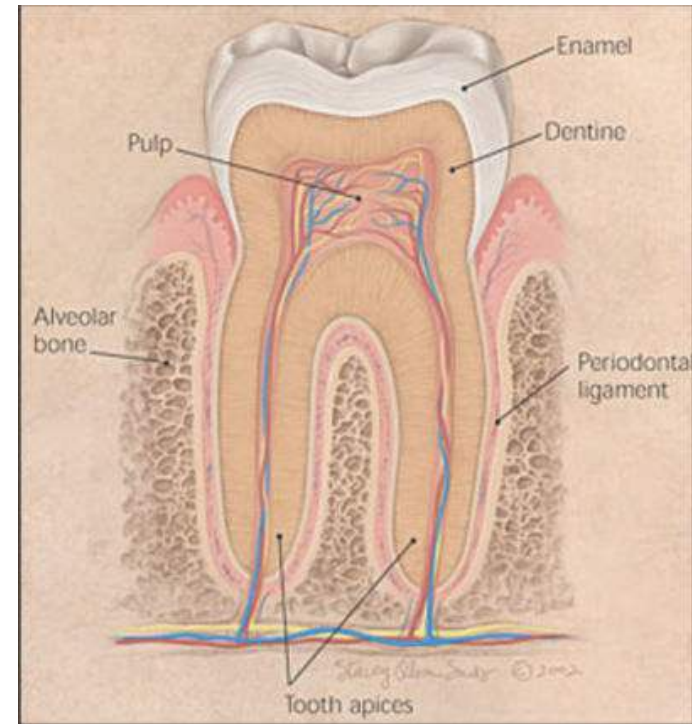
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Dental infections

Progression of dental infections in dental emergencies

It is important to understand the usual progression of dental infections as the management changes as the infection progresses. Simple dental anatomy helps to understand this progression.



Dental anatomy

Dental caries: a bacterial disease of teeth that demineralizes tooth enamel and dentine by acid produced during the fermentation of dietary carbohydrates by oral bacteria. It is characterized by loss of enamel and discoloration of the tooth.



Simple dental caries characterized by loss of enamel and discoloration

Pulpitis: inflammation of the tooth pulp caused by a caries encroaching the pulp.

Gingivitis: inflammation of the gingiva (gum adjacent to the tooth) caused by plaque on tooth surface

Dental condition	Clinical characteristics	Management
Simple dental caries	<ul style="list-style-type: none"> • Toothache, spontaneous pain or pain that occurs without any apparent cause • Tooth sensitivity on biting and tenderness to palpation • Mild to sharp pain when eating or drinking something sweet, hot or cold. • Visible holes or pits in your teeth • Brown, black or white staining on any surface of a tooth 	<p>Dental hygiene (brushing with fluoride, flossing etc)</p> <p><i>*no antibiotics required</i></p>
Pulpitis	<ul style="list-style-type: none"> • Pain triggered by hot, cold and sweet stimuli, lasts for a few seconds, and resolves spontaneously • Physical exam unremarkable aside from tap tenderness to tooth 	<p>Analgesics, if severe, urgent referral to dentist removal of the caries, dental restoration or filling</p> <p><i>*no antibiotics required</i></p>
Gingivitis	<ul style="list-style-type: none"> • Red, swollen, tender gingiva • Bleeding after brushing • halitosis 	<p>Dental hygiene</p> <p><i>*no antibiotics required except for Acute Necrotizing Gingivitis (see below)</i></p>
Dental abscess/cellulitis	<ul style="list-style-type: none"> • Abscess: fluctuant buccal or palatal swelling +/- draining fistula, +/- regional adenopathy • Tooth elevation 	<p>I&D if buccal or vestibular location; referral to dentist/oral surgeon for I&D if other location; antibiotics are generally recommended (some experts recommend antibiotics only if abscess is associated with cellulitis)</p>
Deep space infection (including Ludwig's Angina & septic cerebral venous thrombosis)	<p>2 physical findings that suggest deep space infection and the need to obtain a CT:</p> <ol style="list-style-type: none"> 1. Blunting of the inferior border of the mandible at the body 2. Trismus <2.5cm of maximum mouth opening <ul style="list-style-type: none"> • Swelling extending into neck/chest • Systemic symptoms • Redness/swelling under the chin and floor of the mouth for elevation suggests Ludwig's angina • Swelling/pain that extends to the periorbital area + headache, ptosis, chemosis or restricted EOMs suggests septic cerebral venous thrombosis 	<p>Ludwig's angina – Quick Hits 5</p> <p><u>Cerebral venous thrombosis – Episode 181</u></p>

Pearl: Pulpitis can be differentiated from a periapical abscess by considering the duration of the pain and secondary signs such as tooth elevation, swelling, adjacent cellulitis and lymphadenopathy.

Pitfall: avoid the mental nerve when incising when I&D of anterior mandibular abscess



Mental nerve surface anatomy to be avoided in I&D of anterior mandibular dental abscess.

Pearl: 2 physical findings that strongly suggest deep space infection and the need to obtain a CT scan: Blunting of the inferior border of the mandible at the body and trismus <2.5cm of maximum mouth opening

Pearl: abscesses outside of the vestibular area (space between the front teeth and the lips forms the anterior part of the oral vestibule) or buccal space are best left to specialists.

Antibiotics are overused in the ED for dental pain in dental emergencies

Observational data suggest that antibiotics are over-prescribed for dental pain. It is important to understand that simple dental caries, pulpitis and gingivitis generally do not require antibiotics. While antibiotics are generally prescribed for dental abscess, there is little evidence that this practice is beneficial unless there is an associated cellulitis or deep space infection.

Antibiotic suggestions for dental infections (cellulitis, abscess, deep space infections)

- First line: Clindamycin 300mg po q8h or Penicillin VK 250-500mg po q6h
- If severe infection then consider Amoxicillin/Clavulanic acid 875/125 q12h or add metronidazole 500mg po q8h to first line
- Complicated/systemic infection– Piperacillin/tazobactam or Clindamycin + Ceftriaxone

Pitfall: The most common pitfall in the ED management of atraumatic dental emergencies is the overuse of antibiotics and over-coverage when using antibiotics. Dental caries, pulpitis and gingivitis do not require antibiotic treatment unless they are complicated by cellulitis, abscess or deep space infection. Penicillin,

Amoxicillin or Clindamycin are recommended first line agents for simple dental infections. If the infection is severe, consider adding metronidazole or else Amoxicillin-Clavulinic acid, and for systemically ill patients with complicated infection consider Piperacillin-tazobactam or Clindamycin plus Ceftriaxone.

Acute necrotizing gingivitis – a special type of gingivitis in dental emergencies

Another of the important dental emergencies is Acute necrotizing gingivitis, otherwise known as “trench mouth” – as World War 1 soldiers in the trenches suffered this disease as a result of prolonged poor dental hygiene. It is characterized by painful, swollen, **bleeding gums** and **ulceration of inter-dental papillae** (ulcers between the teeth) and should be suspected in patients with a known immunocompromising state with painful bleeding gums. If this dental emergencies diagnosis is made in the ED, HIV testing should be considered.



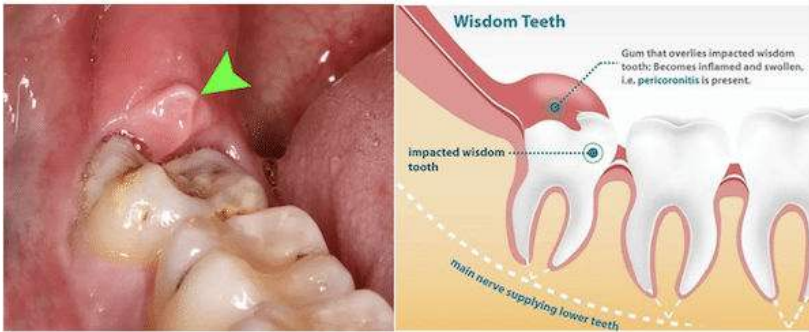
Acute necrotizing gingivitis with swollen gingiva and ulcers in between the teeth

Management of acute necrotizing gingivitis

- NSAIDs, antibiotics
 - Amoxicillin 500 mg PO q8h + metronidazole 500 mg PO q8h x 10 d or Clindamycin 300 mg PO q8h x 10 d
- Referral to dentist or oral surgeon to debride gingiva
- Chlorhexidine 15 mL oral rinse and expectorate q12h for 7-10 d
- Ensure good oral hygiene with warm water rinses
- Provide IV hydration/enteral nutrition as indicated

Pericoronitis – another special type of gingivitis dental emergency

Pericoronitis is inflammation of the gum surrounding the crown of a partially erupted tooth, most commonly a wisdom tooth. Food gets caught under the flap of gum covering the tooth. Pus may ooze from the flap. Pericoronitis may be complicated by cellulitis, abscess and trismus, and may rarely progress to airway compromise if left untreated.



Pericoronitis (care of academic Life in EM)
<https://www.aliem.com/smiler-104/>

Management includes irrigation under the gum flap with saline which resolves pain within minutes, and saltwater mouthwashes. Antibiotics are reserved for pericoronitis that is complicated by cellulitis or abscess. Urgent referral to a dentist for consideration of tooth extraction is prudent.

***Pearl:** saline irrigation of suspected pericoronitis resulting in resolution of pain within minutes confirms the diagnosis*

Dry socket – the most common post-tooth extraction complication

Dry socket typically occurs **3-5 days after tooth extraction** when the clot dislodges and exposes the bone and nerve causing pain. There is **little to see on exam**. Dry socket should be **irrigated with saline**, gently suctioned taking care not to dislodge any blood clot that might be developing, and then **placement of a medicated dry socket dressing** – usually **iodoform gauze**. Curetting should be

avoided so as not to dislodge any clot that may be forming in the socket. Patients with dry socket should be followed up by a dentist or oral surgeon in 2 days.

***Pitfall:** Curetting a dry socket is a common pitfall. Curetting should be avoided as it may dislodge a developing clot that protects the socket and diminishes pain.*

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