

# Odontogenic Infections

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# Introduction

- Dental caries
- periodontal disease (gingivitis and periodontitis)
- Are common
- Have local (eg, tooth loss) & Systemic implications
- 25% of adults >60 have edentulism
- 50% from periodontal disease
- 50% from dental caries

# Introduction

## Complications:

- Infections of the deep fascial spaces of the head and neck
- Fever of unknown origin
- Bacteremic seeding of heart valves and prosthetic devices
- Preterm birth of low birth weight children
- An increased risk for coronary heart disease and cerebrovascular events

# Complications

- Odontogenic infections may spread contiguously to cause osteomyelitis of the jaw or hematogenously to produce systemic illness
- Superficial orofacial space infections can involve the buccal, submental, masticator, and infratemporal spaces
- If unrecognized and untreated, these infections are potentially serious since they can spread contiguously

# Hematogenous Dissemination

- Can disseminate hematogenously to seed native or prosthetic heart valves, joints, or other devices
- Bacteremia can occur following almost all types of dental manipulations, including flossing, even tooth brushing and chewing hard candy
- The bacteremia in patients with dental caries and periodontal disease tends to be more frequent and sustained
- Is a potentially important cause of infective endocarditis in elderly patients

# Hematogenous Dissemination

- Dental sources of bacteremia in elderly adults are of increasing concern for those undergoing prosthetic heart valve implantation or prosthetic joint replacement
- It has been recommended that routine dental assessment be performed in all patients undergoing valve surgery and that appropriate therapeutic interventions be initiated whenever possible before valve implantation

# Association with cardiovascular disease

- An association between poor oral health and chronic periodontitis with coronary and cerebrovascular disease has been well established epidemiologically

# Diagnosis

- Obtaining appropriate material for culture and processing it properly are important in the diagnosis of odontogenic infections
- Imaging techniques to assess the extent of involvement are essential
- Specimen collection?
- Patients with chronic osteomyelitis often have soft tissue swelling and draining fistulae
- Bone biopsies for histopathology and culture are often required for definitive diagnosis



# Therapeutic Considerations

- Meticulous attention to oral hygiene is the most important strategy for effective control of supragingival and subgingival plaque
- Caries prevention & the treatment of periodontitis
- Individuals with physical or mental limitations who cannot adequately perform oral hygiene by themselves should receive daily oral hygiene by care providers
- Electric toothbrushes should also be considered in these patients
- The need for dental extractions has been reduced considerably

# Therapeutic Interventions

- Dental Caries: Caries management with restorative therapy (eg, fillings) is the preferred therapeutic approach
- Pulpitis: inflammation of the dental pulp, occurs when progression of dental caries exposes the dental pulp, leading to infection
- The early & dominant symptom of acute pulpitis is a severe toothache that can be elicited by thermal changes, especially cold drinks

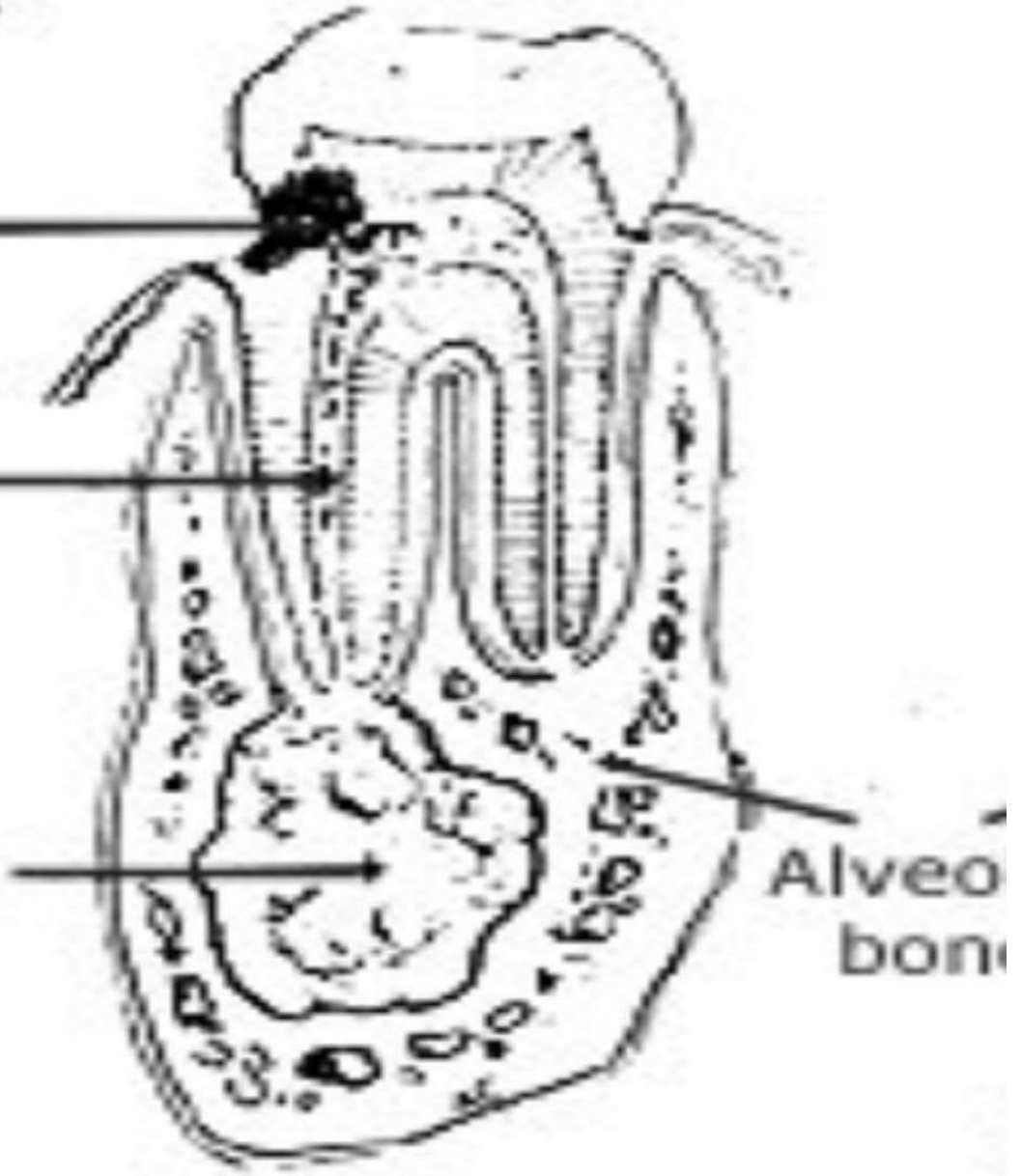
**A**

Caries

Pulpal infection

Periapical abscess

Alveolar bone



# Pulpitis

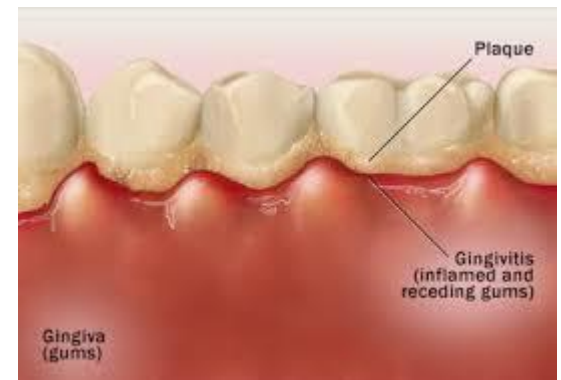
- Irreversible pulpitis is characterized by acute and intense pain and is one of the most frequent reasons that patients seek emergency dental care
- A minority of dentists begins with a trial of antibiotics and analgesics, although there is no proof of benefit from this approach.

# Acute Gingivitis

- Acute simple gingivitis rarely requires systemic antimicrobial therapy. Chlorhexidine 0.12% oral rinse can be used in most cases.
- Systemic antibiotics are usually indicated for patients with rapidly advancing disease, severe pain, or immunocompromising condition.
- Acute necrotizing ulcerative gingivitis, also known as Vincent's angina or trench mouth, should be treated with systemic antimicrobials

# Gingivitis

- Patients with intense gingivostomatitis may warrant intravenous antibiotics if they cannot tolerate oral intake.
- Mechanical debridement by a dental professional and augmented oral hygiene are also warranted



# Periodontitis



- Due to microbial specificity in various forms of periodontitis, certain types of severe periodontitis are amenable to topical or systemic antimicrobials in conjunction with mechanical debridement (scaling and root planing)

# Periodontitis Treatment

- For severe adult periodontitis as indicated by the 2017 World Workshop Classification of Periodontal and Peri-implant Diseases and Conditions
- We use amoxicillin plus metronidazole or amoxicillin + clavulanate
- Which Dose?



# Postoperative Infections

- The routine use of systemic antimicrobials to prevent postoperative infections following oral and/or periodontal surgery in a healthy host remains controversial
- Antimicrobial agents are generally indicated if fever and regional lymphadenopathy are present, or when infection has perforated the bony cortex and spread into surrounding soft tissue.

# Initial Empiric Therapy

- For patients with pyogenic odontogenic infections, we favor parenteral therapy initially
- However, for adult patients with mild infections and without comorbidities or signs of sepsis, it is reasonable to give an oral regimen while arranging for the patient to see a dentist or oral surgeon.

# Oral Antibiotics

- Amoxicillin-clavulanate (875 mg orally twice daily)
- Clindamycin 300 mg to 450 mg orally three times daily
- If clindamycin resistance is suspected (eg, based on local epidemiology) or documented, options include levofloxacin plus metronidazole or, if the penicillin allergy is not severe and the patient can tolerate a cephalosporin, cefuroxime plus metronidazole.