An introduction to bacterial infections of the oral cavity and surrounding structures

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Background

**Predisposing factors:** extreme age, pregnancy, trauma, malignancy, malnutrition, immunosuppression, chronic infection, antibiotics, poor dental hygiene

**Microorganisms:** polymicrobial, biofilm, affected by nutrients, pH, Oxygen availability, other species, host defences

**Pathogenesis:** change in local conditions including trauma, bacterial overgrowth, direct pressure, inactivation of PMLs, local spread, dissemination via blood stream
Caries

Bacteria: *Streptococcus mutans, Lactobacillus* sp.

Location: enamel

Pathogenesis: supra/subgingival plaque, bacterial biofilm, acidic pH, fissures, cavities, vulnerable sites, complications

Management: personal dental hygiene, restoration of defects, prophylaxis in selected cases
Dental abscess

**Bacteria:** oral streptococci, anaerobic bacteria, *Actinomyces sp.*, others

**Location:** periapical, periodontal

**Pathogenesis:** localised collection of bacteria, PMLs & tissue breakdown, direct pressure, leading to cellulitis, tracking via line of least resistance & bone destruction, loss of tooth, distant infection

**Clinical:** toothache, pain on chewing, sensitivity, bitter taste, halitosis, increased mobility, tenderness, swelling, erythema, lymphadenopathy

**Management:** eliminate infection, root canal surgery, preserve tooth if possible, selective use of antibiotics
Vincent’s angina

**Synonyms:** acute necrotising ulcerative gingivitis, trench mouth
**Bacteria:** fusiform & spirochaete bacteria
**Location:** gingivae
**Pathogenesis:** not fully understood
**Clinical:** rapid onset, pain, altered taste, punched-out ulcers, grey exudate, fever, malaise
**Management:** debridement, antibiotics, mouthwash with oxidising agents
Ludwig’s angina

**Bacteria:** anaerobic bacteria & oral streptococci

**Location:** submandibular & sublingual spaces

**Pathogenesis:** rapidly spreading cellulitis without abscess formation, starting in floor of mouth

**Clinical:** bilateral, brawny, board-like swelling in submandibular spaces, rapid progression to involve neck & glottis, difficulty swallowing and possibly with breathing

**Management:** monitor airway, intubate early, intravenous antibiotics, surgical decompression in extreme cases
Osteomyelitis

**Bacteria:** variety including oral streptococci, anaerobic bacteria, staphylococci, actinomycetes

**Location:** mandible

**Pathogenesis:** periodontal disease, dental abscess, other factors e.g. trauma

**Management:** monitor bony changes, prolonged course of antibiotic therapy, condition of remaining teeth
Bacteraemia

**Bacteria**: oral bacteria

**Location**: systemic circulation

**Pathogenesis**: immediately after dental procedures e.g. scaling, probing, root canal work

**Management**: selective use of antibiotic prophylaxis in high risk patients/procedures
Other notable infections

**Streptococcal pharyngitis:** *S. pyogenes* (gp A), painful red throat, common; unusual complications including RF, RHD, ASGN, SC

**Tonsillitis:** bacterial

**Exudative pharyngitis:** EBV (glandular fever), gonococcal infection

**Syphilis:** chancre, tertiary infection

**Diphtheria:** painful, exudative, pseudomembranous tonsillar exudate
Summary

- Background
- Caries
- Dental abscess
- Vincent’s angina
- Ludwig’s angina
- Osteomyelitis
- Bacteraemia
- Other notable infections