

Oral Bacterial Infection

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- Odontogenic infection
tooth, periodontal tissues



- Non-Odontogenic infection
mucous membrane, oropharynx



Odontogenic infection

- mostly endogenous infection
- facultative anaerobes
- strictly anaerobes



- Normal flora



Ecological balance

oxidation-reduction potential (Eh) ↑

immune

pre-infection by aerobes/facultative O₂ ↓

antibiotics usage

- Mixed infection (4-5 species)
anaerobes + anaerobes
anaerobes + facultative



impair host defense
facilitate colonization
produce essential growth factors
increase virulence

Odontogenic infection

1. **Dental caries** *S. mutans*, lactobacilli, actinomyces

2. **Endodontic infections (pulp + periapical)**

Strep viridans, enterococci, anaerobic strep, porphyromonas, prevotella, fusobacteria

3. **Periodontal diseases**

Actinomyces

F. nucleatum, *P. intermedia*, spirochetes

A. actinomycetemcomitans, *E. corrodens*

P. gingivalis, *P. intermedia*

gingivitis

necrotizing periodontal disease

aggressive periodontitis

destructive periodontitis



4. Dental abscess (endogenous, exogenous infection)

Facultative

S. aureus, gram-ve rods

Anaerobes

porphyromonas, anaerobic strep, prevotella

entry

-gingival crevice

-gingival tissue

-pulp



5. Miscellaneous

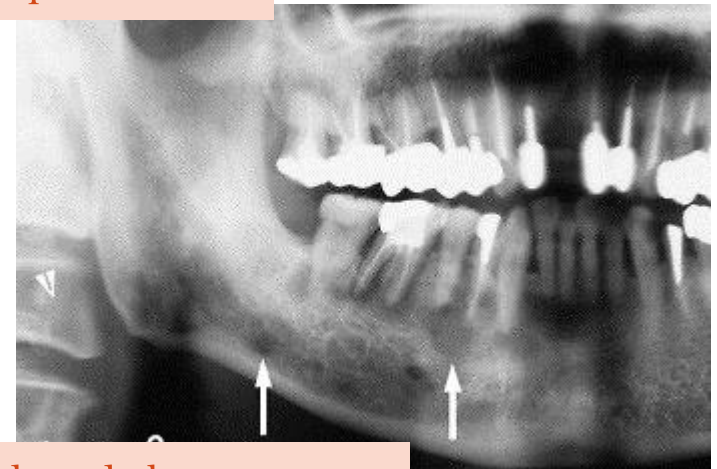
Space infection (sinusitis, cellulitis, Ludwig's angina)

S. pyogenes, porphyromonas, prevotella, fusobacteria

infected pulp → facial spaces

Osteomyelitis

porphyromonas, actinomyces, fusobacteria



dry socket, infected pulp, periodontal disease, dental abscess

↓
mandible

Non-odontogenic infection

- oropharynx, oral mucous membrane
- endogenous/exogenous infections
- single species/mixed species

Normal condition

- mucous membrane (lips, cheeks, tongue, palate)



shedding surfaces

- low virulence





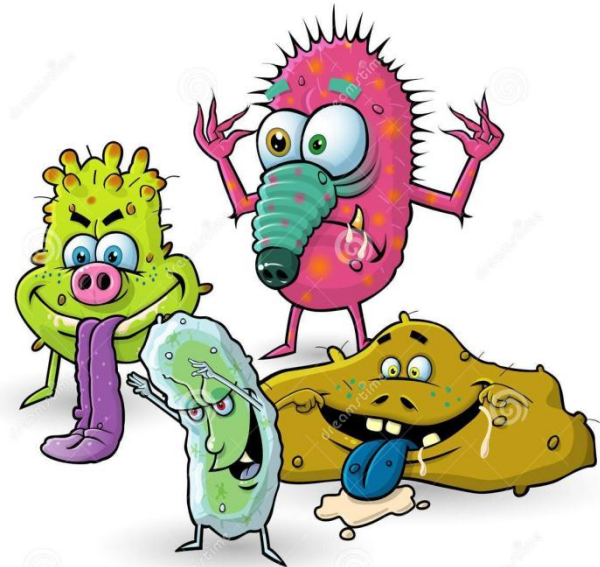
infection

- trauma
- impaired host defense
- ecological imbalance
- exogenous pathogens (gonorrhoea, syphilis, TB)

localized/systemic

Non-odontogenic infection

1. Infections of oropharynx (pharyngitis, tonsillitis)
 - virus most common
 - bacteria



Bacteria

- Streptococcal pharyngitis *S. pyogenes* (β -hemolytic strep group A)

fever, headache, sore throat, tonsilitis, pus



Scarlet fever (pharyngitis + skin rash + strawberry tongue/raspberry tongue)

Erythrogenic toxin



paranasal sinus



cellulitis, otitis media

rheumatic fever, glomerulonephritis (complications)



- Diphtheria

Corynebacterium diphtheria (gram-ve rod)

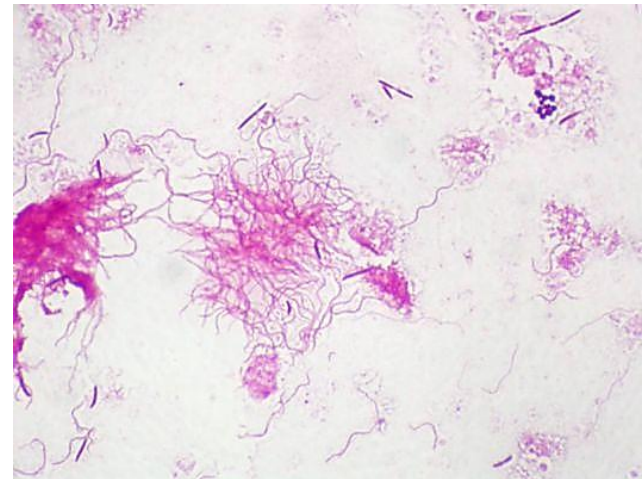
Exotoxin

sore throat, headache, nausea, vomiting,
pseudomembrane (tonsil, pharynx, trachea)



- Vincent's angina *Borrelia vincenti* + fusobacteria

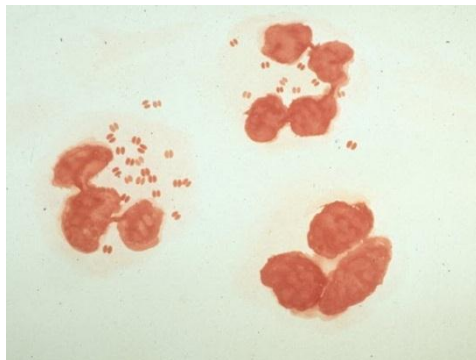
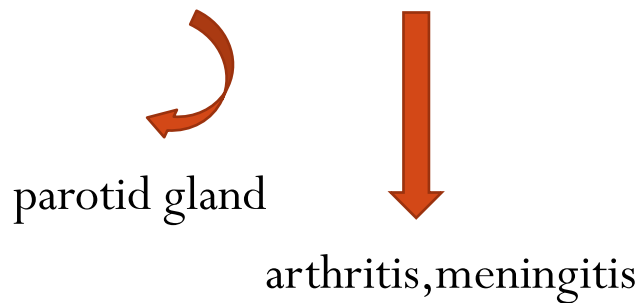
Sore throat, pseudomembrane (pharynx, tonsil), necrosis, bad breath



- Gonococcal pharyngitis and stomatitis (sexual transmitted disease)

Oral lesion *Neisseria gonorrhoea* (gram-ve cocci, paired)

Stomatitis, tonsillitis, pseudomembrane



2. Infection of the oral mucosa (localized/systemic infection)

- Pyogenic submucosal infection

normal flora, low virulence

trauma, impaired host defense



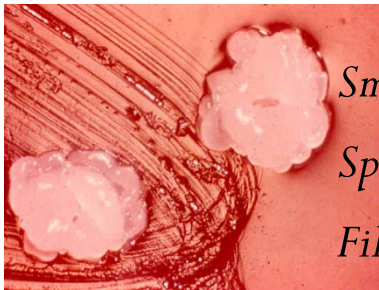
infection

- Actinomyces (chronic granulomatous disease)

endogenous infection (oral, abdominal, thoracic, cervicofacial)

Actinomyces (gram+ve branching rod, V or Y forms)

A. israeli, *A. viscosus*, *A. pyogenes*, *A. naeslundii*, *A. odontolyticus*



Smooth colony

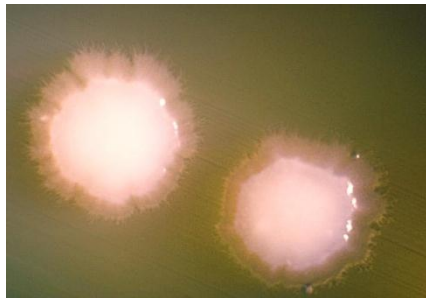
Spider colony

Filamentous colony

A. odontolyticus

A. israeli (molar colony)

A. naeslundii, *A. viscosus*



most common
plaque, calculus, infected dentin
chemotactic and mitogenic properties

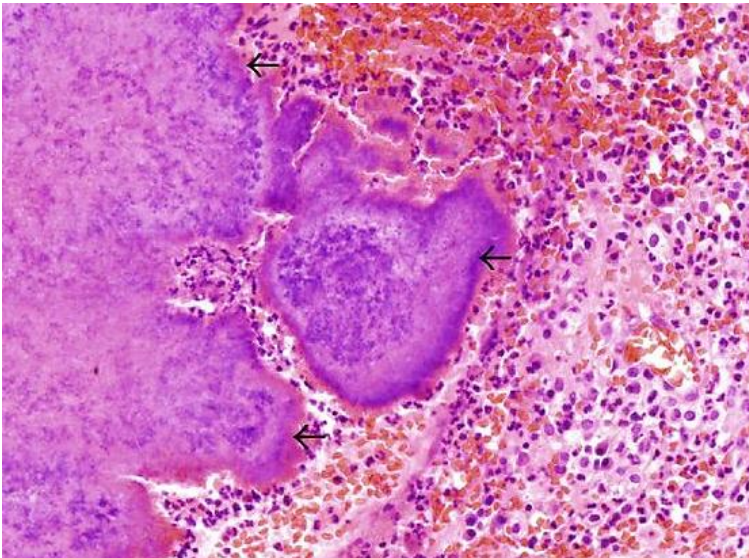
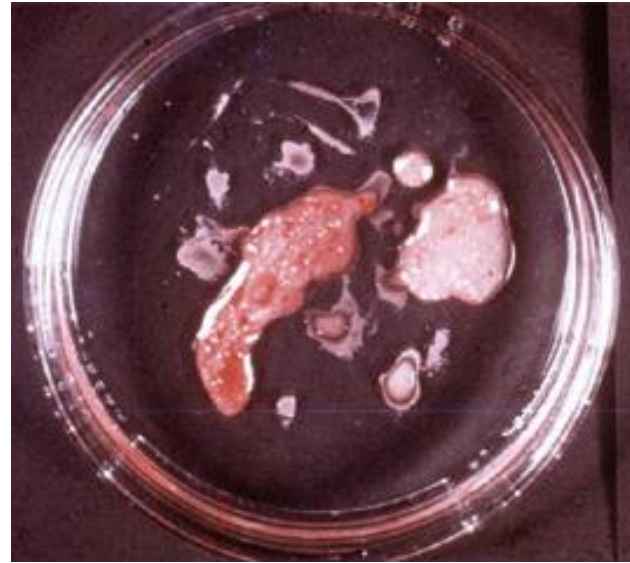
adolescence
granulomatous lesion



abscess



discharge (**sulphur granules**)



polysaccharide-protein complex
calcium phosphate
gram+ve branching filaments

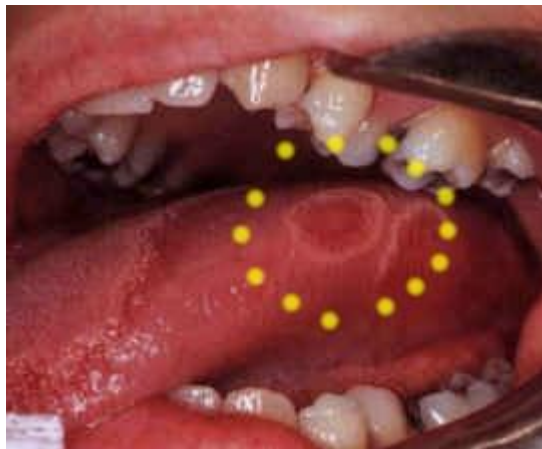
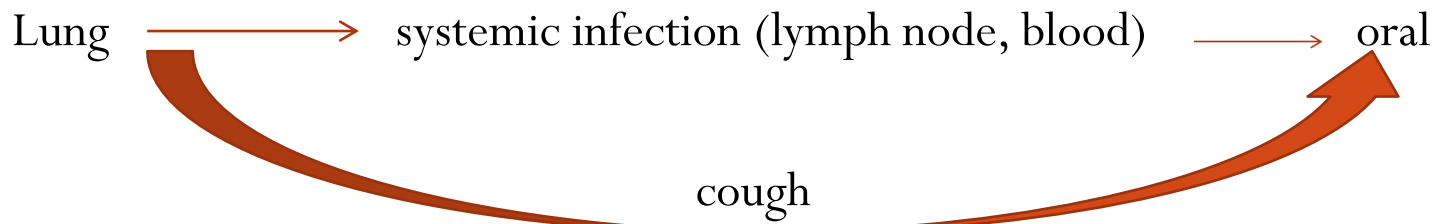
- Syphilis

Treponema pallidum



- Tuberculosis

Mycobacterium tuberculosis (acid fast bacilli)



irregular ulcer → tongue, palate, lip, gingiva
periapical granuloma, osteomyelitis

- Leprosy

Mycobacterium leprae

skin, respiratory tract



peripheral nerve, lymph node,



Lepromatous leprosy

