

Actinomycetes

Are a diverse group of G⁺ bacilli with a tendency to form chains or filaments. Most are saprophytes that live in soil. Three members causing **actinomycosis**, **Actinomyces**, **nocardiosis** and **actinomycetoma**.

Actinomycosis: is a chronic suppurative & granulomatous infection that produces pyogenic lesions with interconnecting sinus tracts. The important causative agent is ***A. israelii***. Infection usually initiated by trauma that introduces these endogenous bacteria into the mucosa.

On solid media (e.g. Brain heart infusion agar) young culture (24-48 hours) produces diphtheroid-like branching bacilli. On liquid broth (e.g. thioglycolate) after a week, long filaments were produced.

The **sulfur granules** found in tissues are yellow up to 1mm in size and composed of macrophages, tissue cells, fibrin and bacteria.

Non-spore forming G⁺ bacilli

Actinomyces israelii



Actinomyces :draining sinus & sulfur granules

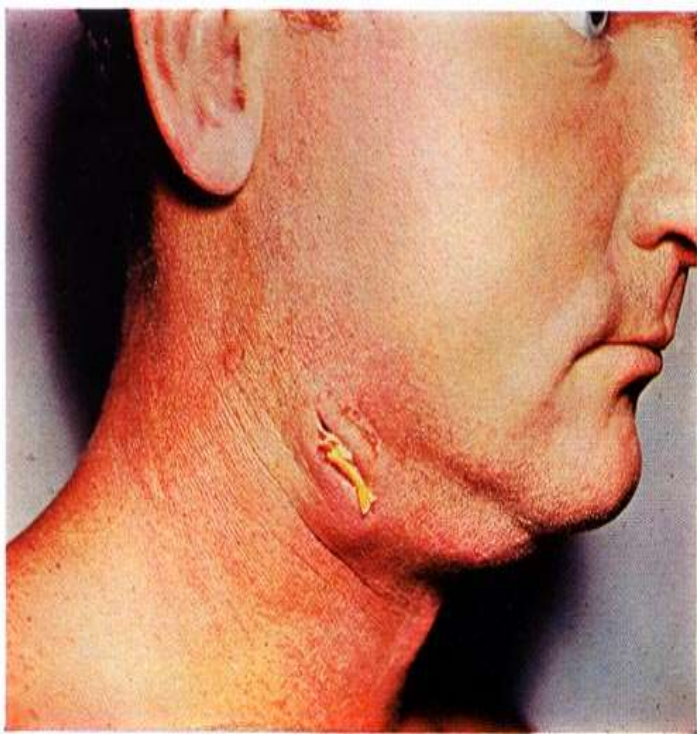


FIGURE 1.—Actinomycosis, jaw, observed at Letterman General Hospital, San Francisco, Calif., in a sergeant who had punctured the floor of his mouth with a weed stem while picking his teeth.



Non-spore forming G+ bacilli

Actinomyces israelii

Laboratory diagnosis:

Pus from draining sinuses, sputum, or specimens from tissue are examined for the presence of sulfur granules (**Diagnostic**).

Specimens are cultured on Brain heart infusion agar and thioglycolate broth and incubated anaerobically or elevated CO₂ conditions. Growth is examined for typical bacteria and biochemical reactions.

