



# Leprosy

Hansen's disease

- Chronic granulomatous infection caused by *Mycobacterium leprae*
- Mainly affects
  - Skin
  - Peripheral nerves
  - Upper respiratory tract
  - Eyes
  - Testes
- Seen mainly in developing countries
  - 60% of total patients are in India
- Bimodal age distribution
  - First peak → 10-14 years
  - Second peak → 35-44 years

# Etiopathogenesis

- Causitive organism → *M. leprae*
  - Obligate intracellular, acid fast bacillus
  - Only bacteria to infect peripheral nerves
- Mode of infection → nasal secretion
- After infection bacteria is taken up by histiocytes in the skin and Schwann cells in the nerves
- A component of the cell membrane of the bacteria (**Lipoarabinomannan**) induces immune suppression

# Clinical features

- Classified into 4 types
  - Tuberculoid type (paucibacillary leprosy)
  - Lepromatous type (multibacillary leprosy)
  - Borderline type
  - Indeterminate type

## ■ General features

- Hypopigmented patches on the skin
- Partial or total loss of cutaneous sensation
- Thickening of nerves
- Presence of acid fast bacilli in nasal smears

## ■ Tuberculoid lesions

- Single or multiple macular, erythematous eruptions
- Dermal and peripheral nerve trunk involvement
  - Loss of sensation
  - Loss of sweating
- Oral lesions are rare

## ■ Lepromatous lesions

- Early erythematous macules or papules
- Progressive thickening of the skin
- Formation of nodules on the skin
- Sever disfigurement of the involved part
- Facial paralysis
- Loss of fingers
- Plantar ulcers
- “Leonine facies”





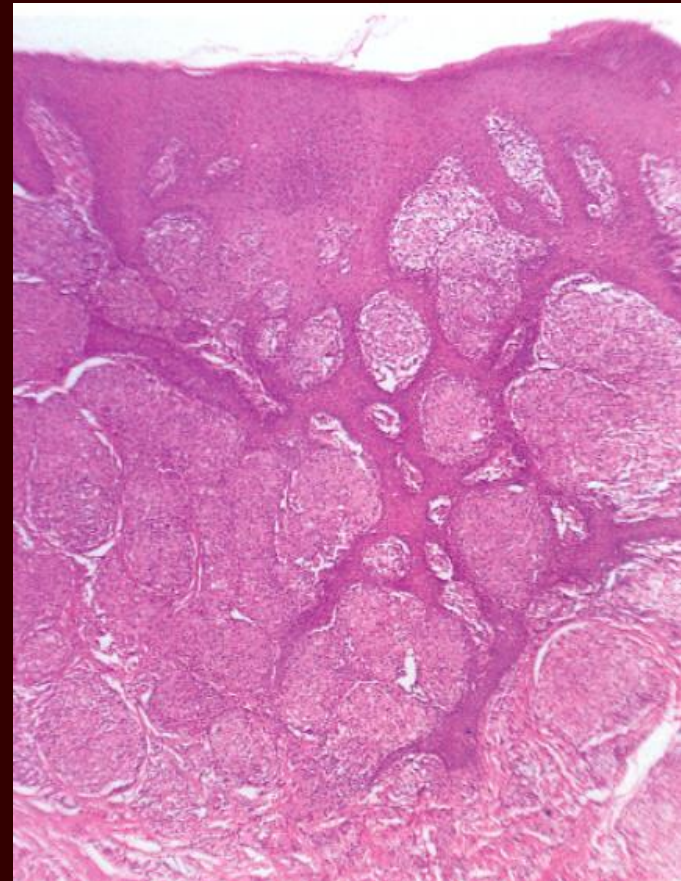
# Oral manifestations

- Small tumor like masses (**lepromas**) develop on
  - Tongue
  - Lips
  - Hard palate
- Show tendency to break down and ulcerate
- Gingival hyperplasia with loosening of teeth



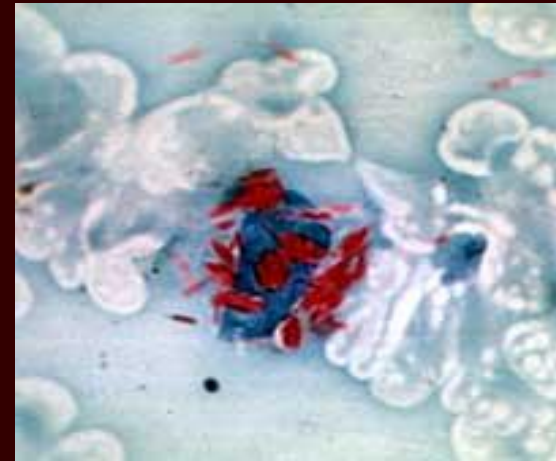
# Histopathologic features

- Granulomas containing epithelioid histiocytes and lymphocytes
- Langhan's giant cells
- Sheets of vacuolated macrophages (**lepra cells**)



# Diagnosis

- Demonstration of acid fast bacilli by **modified Ziehl-Nielsen method** in nasal smears or skin scrapings
- Skin biopsy
- Nerve biopsy
- Culture
  - **Mouse footpad**
  - **Nine banded armadillo**
- ELISA
- PCR





# Actinomycosis

- Chronic granulomatous, suppurative and fibrosing disease caused by *Actinomyces* species
  
- Previously thought to be a fungal infection
  
- Classified into
  - Cervicofacial
  - Abdominal
  - Pulmonary

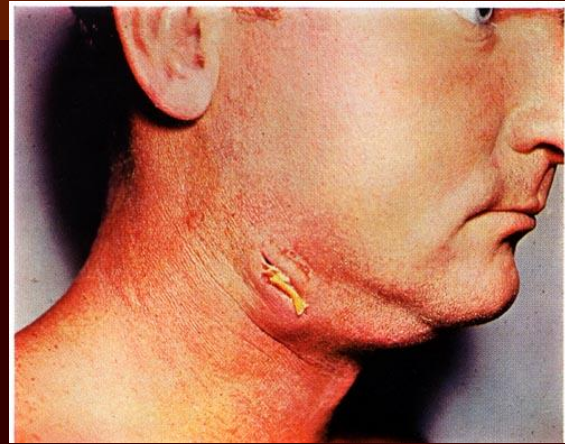
# Etiopathogenesis

- Causative organism → Actinomyces species
  - Anaerobic, gram positive, non acid fast, branched, filamentous bacteria
  - Normal saprophytic component of the oral cavity
- Disruption of mucosal barrier causes invasion of bacteria
- Initial acute inflammation followed by a chronic indolent phase
- Associated with conditions that lead to immunosuppression

# Clinical features

- **Cervicofacial actinomycosis** → most common form (2/3<sup>rd</sup> of all cases)
- Swelling and induration of the tissues
- One or more abscesses that discharge through the skin surface liberating pus containing yellowish granules (“**sulfur granules**”)
- Skin overlying the abscesses is purplish red, indurated (feel of wood), or fluctuant







- May extend to mandible or maxilla to cause actinomycotic osteomyelitis
- May eventually involve cranium, meninges, or the brain
- May occur in a localized area at the apex of teeth to simulate pulp related infections



## ■ Abdominal actinomycosis

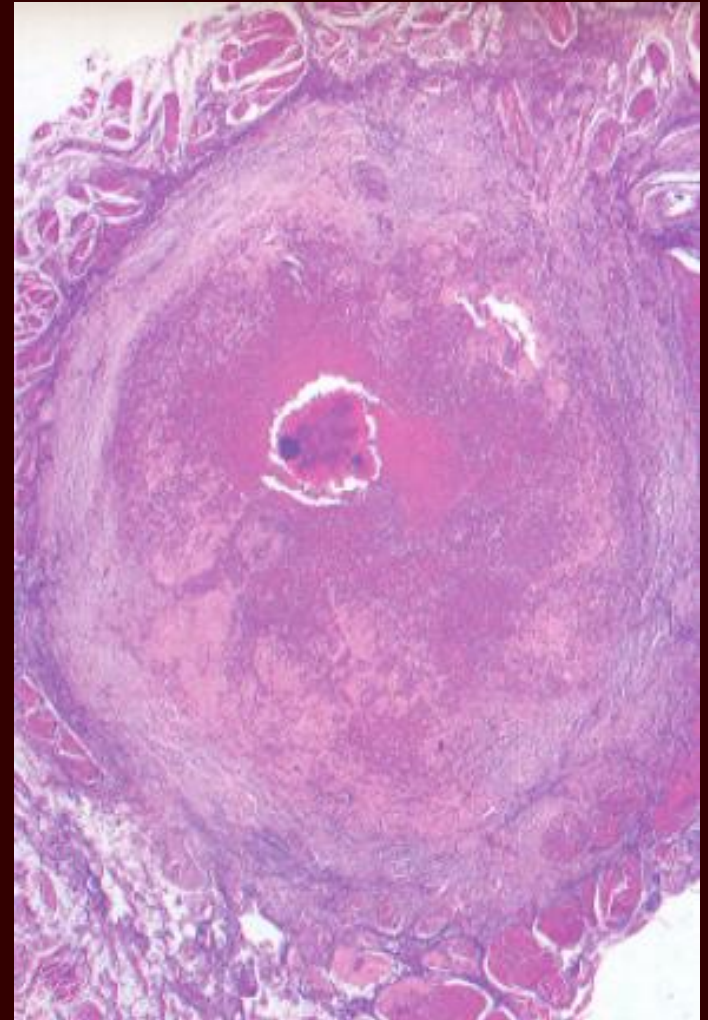
- Extremely serious with high mortality rate
- Fever, chills, nausea, vomiting, and intestinal manifestation

## ■ Pulmonary actinomycosis

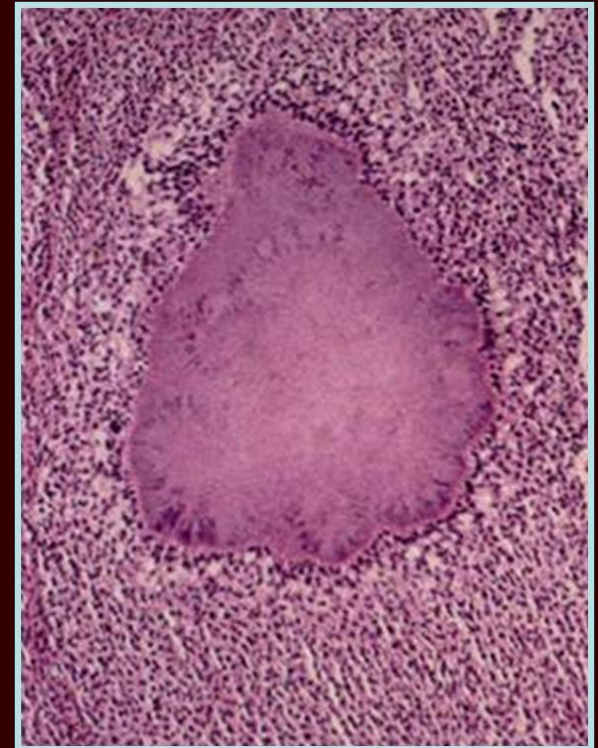
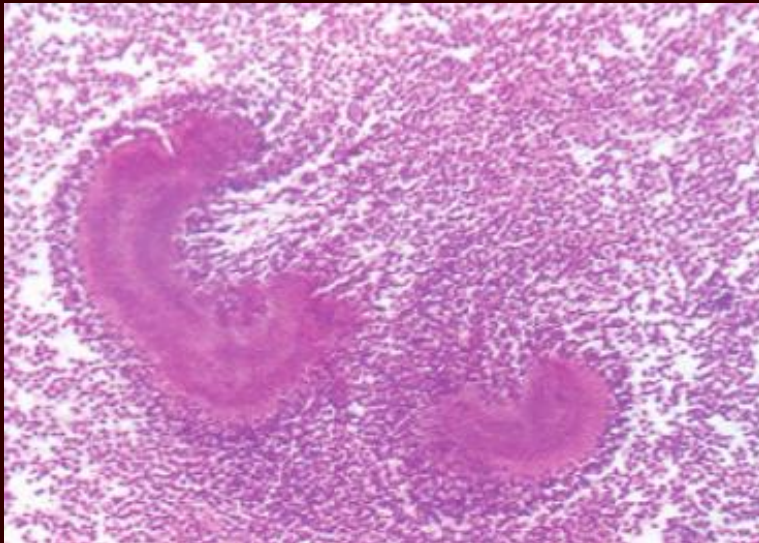
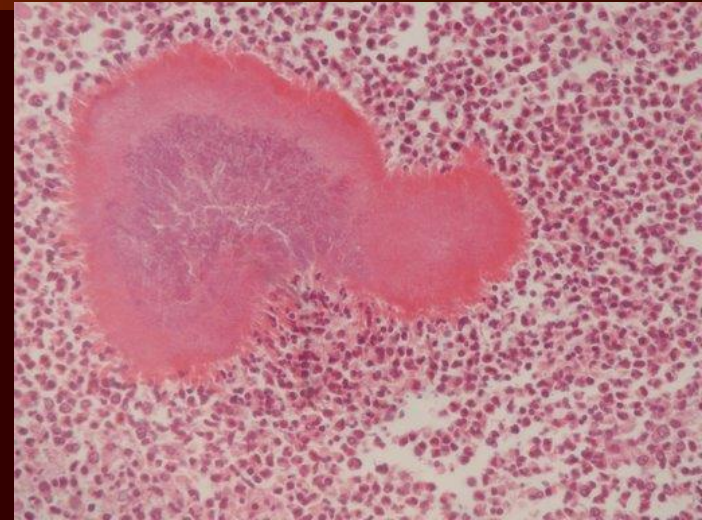
- Fever and chills
- Cough
- Pleural pain

# Histopathologic features

- Granulomas showing central abscess formation and containing colonies of microorganisms
- Multinucleated giant cells and macrophages around the periphery

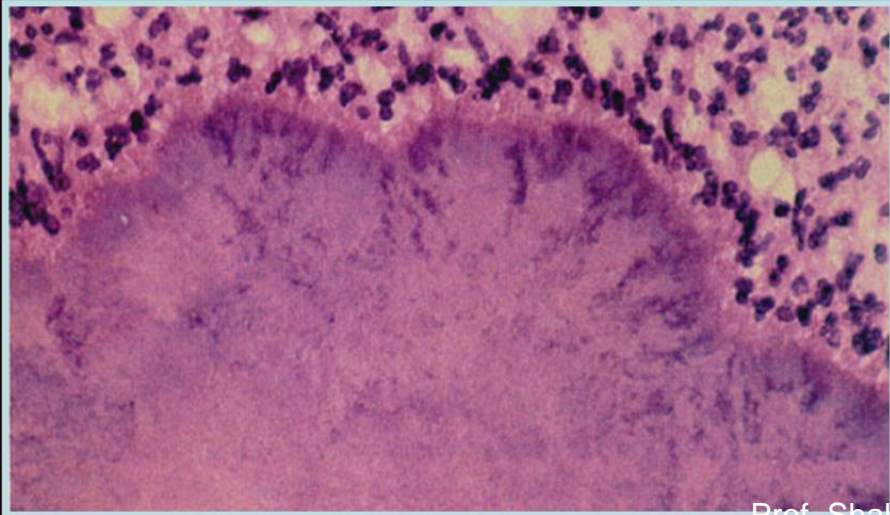
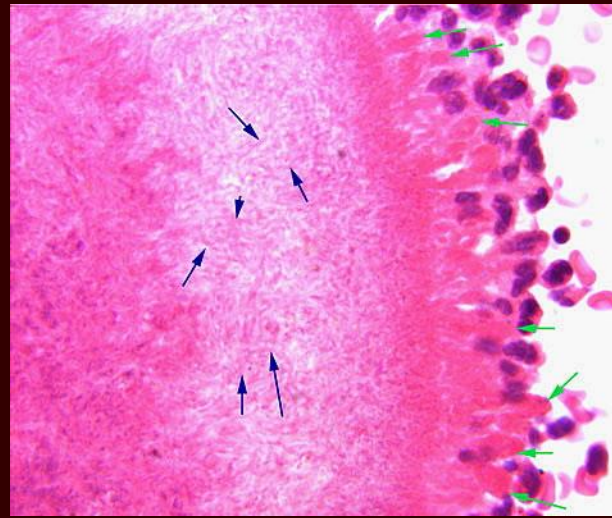
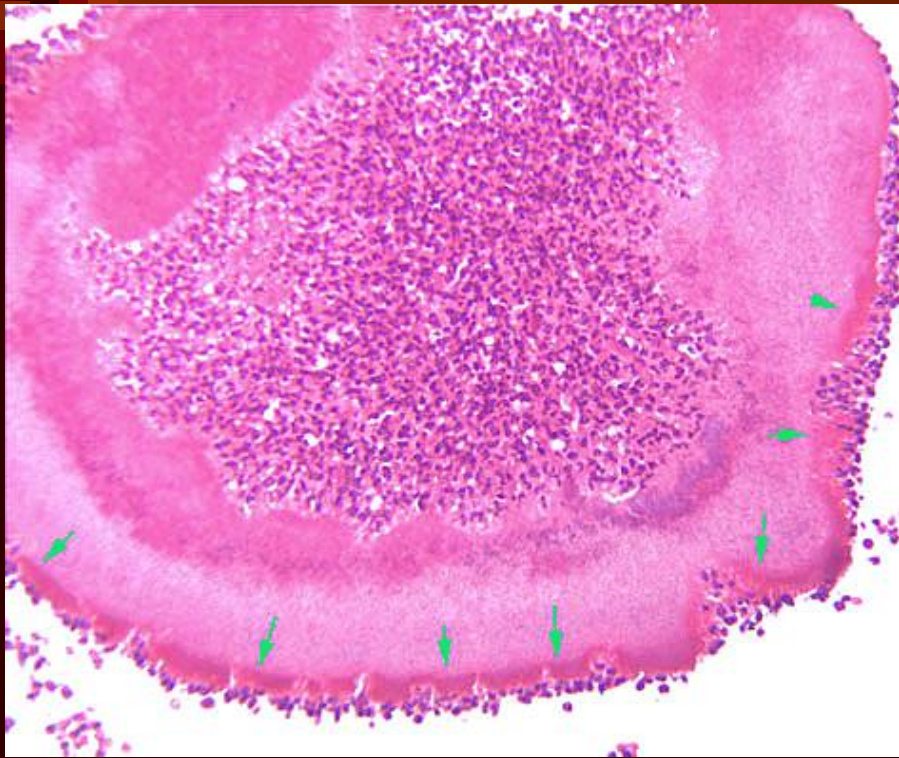


- Colonies appear to float in a sea of polymorphonuclear leukocytes



- Individual colonies
  - Rounded or lobulated
  - Made up of meshwork of filaments that stains with hematoxylin
  - Eosinophilia of peripheral club shaped ends (“Splendor-Hepoelli phenomenon”)
  - Surrounded by a rim of inflammatory cells
  - Called as “Ray fungus”





# Diagnosis

- Demonstration of organisms in tissue sections and smears
- Culture



# Cat scratch disease

Cat scratch fever

Benign lymphoreticulosis

Benign nonbacterial regional  
lymphadenitis



- Causative organism → *Bartonella henselae* (*Rochalimaea henselae*)
  - Gram negative bacillus
- Previously thought to be a viral infection
- Thought to arise after a traumatic break in the skin due to scratch or bite of a cat or other house hold animals

# Clinical features

- Seen predominantly in children or young adults
- Primary lesion
  - Papule, pustule, or vesicle at the site of injury



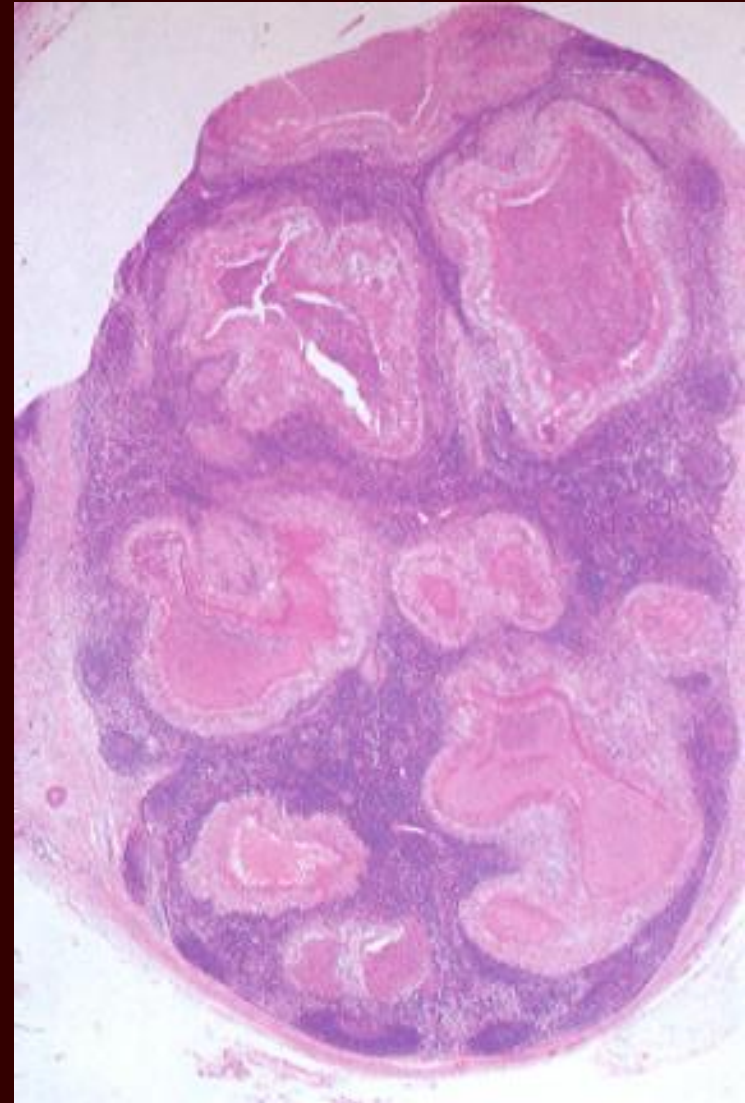
- Followed by regional lymphadenitis
  - Nodes are painful, several centimeters in diameter
  - Overlying skin may be inflamed
  - May persist for one to six months



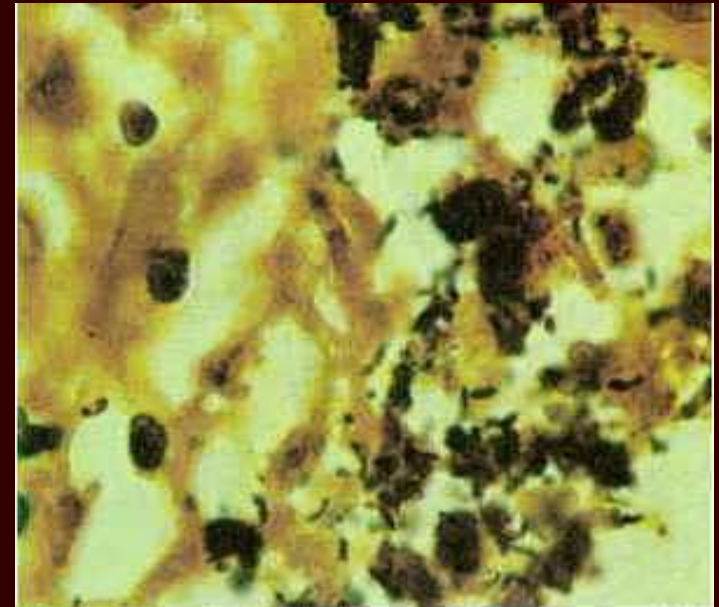
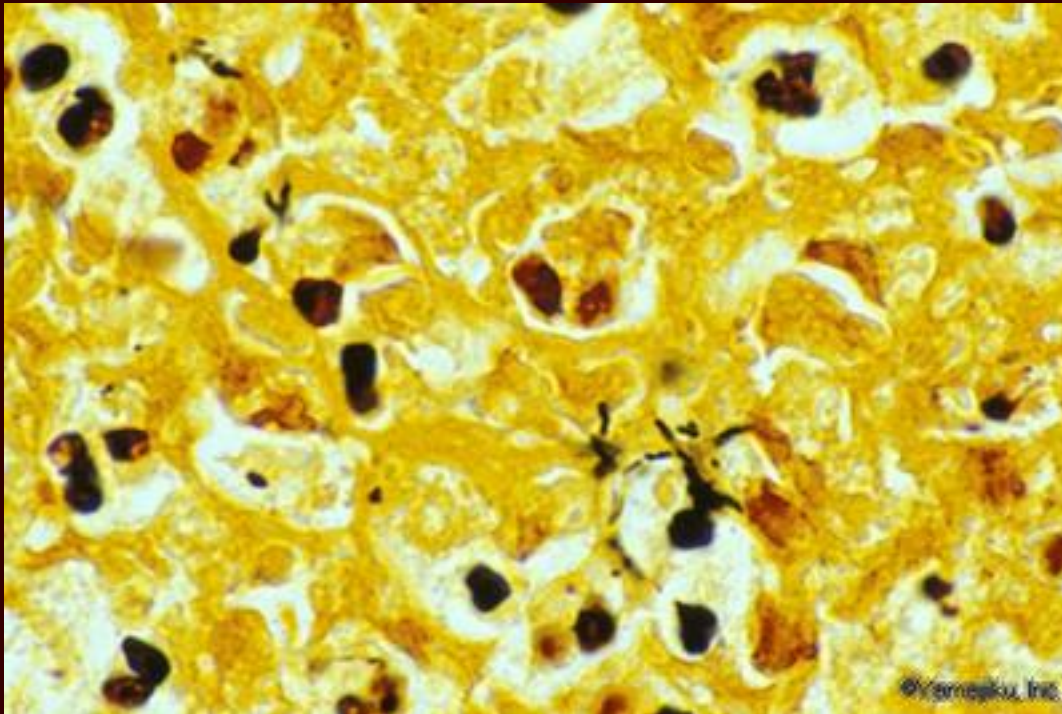
- Low grade fever
- Headache
- Chills
- Abdiminal pain
- Nonpruritic maculopalular rashes
- Parotid swelling
  
- **Oculoglandular syndrome of Parinaud**
  - Conjunctival granuloma
  - Periauricular lymphadenopathy
  - Primary lesion adjacent to the eye

# Histopathologic features

- Lymph nodes
  - Reticuloendothelial hyperplasia
  - Destruction of node architecture
  - Focal granulomas
  - Supuration and necrosis
  - Epithelioid cells and multinucleated giant cells



- Stains for the organism
  - Warthin Starry silver stain
  - Brown-Hopps gram stain



# Diagnosis

- Indirect immunofluorescent antibody assay
- ELISA
  
- Demonstration of antigen in the skin





# Noma

Cancrum oris

Gangrenous stomatitis



- Rapidly spreading, mutilating, gangrenous stomatitis that occurs usually in debilitated or nutritionally deficient persons
- Seen chiefly in children and is more common in underdeveloped countries
- Predisposing factors
  - Undernourished
  - Debilitated due to infections
    - Diphtheria
    - Dysentery
    - Measles
  - Blood dyscrasias

- Causative organism → **Borrelia vincentii**  
(Vincent's organism)
- Other organisms
  - Staphylococcus aureus
  - Streptococcus species

# Clinical features

- Usually begins as a small ulcer on gingiva
- Spreads and involves the surrounding tissues by gangrenous necrosis
- Overlying skin becomes inflamed, edematous, and finally necrotic
  - Sharp line of demarcation present between the affected and nonaffected tissues

- Sloughing out of tissues with exposure of the jaws
- Blackening of skin
- Necrosis of subcutaneous fat pad and buccal pad of fat
- Extremely foul odor
- High temperature
- Secondary infections
- Toxemia

