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 vacoulated 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

Prof. Shaleen Chandra
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 (2/3rd 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 $\rightarrow$ *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 household 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
- Abdominal pain
- Nonpruritic maculopapular 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 dysacrasias
Causative organism → Borrelia vincentii (Vincent’s organism)

Other organisms
- Staphylococcus aurius
- 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