

23/03/20

Bacterial Infections

Tuberculosis

Chronic bacterial infection caused by Mycobacterium tuberculosis characterized by formation of granulomas in infected tissue by cell mediated hypersensitivity

Causative organism Mycobacterium tuberculosis

Rod shaped

Nonsporing

Then aerobic bacteria

Etiology

- Mycobacterium tuberculosis facultative intra cellular parasite
- Human strain is responsible for many cases
- Bovine strain - passes through the digestion of unpasteurised cow's milk.
- Rarely atypical or opportunistic mycobacteria - pulmonary (1) generalised infection in immunocompromised individuals

Mode of transmission

Inhalation of Organism

Ingestion of Organism

Inoculation of Organism

Transplacental route

Pathogenesis

Cough → Droplet nuclei (80% 3h.)
1-5 μm

↓
Alveoli

↓ Ingestion (Macrophagi)

Macrophages rupture

Lymph node
(CM)

Blood
(dissem)

Clinical features:-

- Episodic fever, chills & night sweats
- fatigue & malaise
- loss of weight
- cough with (or) without hemoptysis

primary tuberculosis

- Tissue involved is lung & hilar lymph nodes, tonsils, cervical lymph nodes.
- Usually seen in children, majority asymptomatic

Symptoms of post primary TB (PSTB) Secondary TB include cough, fever, chest pain and haemoptysis

Clinical presentation

Primary infection

Latent

Active

Pulmonary manifestations
(50-84%)

Immunosuppression
malnutrition

Extrapulmonary

Involvement of cervical & hilar nodes - sarcoidosis

Lepros Vulgaris (tb of skin)

Tb shows scarring from cold abscess

Oral manifestation:-

Oral mucosa has rarely been reported

Age :- Children & Adolescents

Sex: Male : female 5:1

Primary TB :- gingiva, tooth extraction sockets, buccal folds

See TB :- Tongue, palate, lips, alveolar mucosa & jaw b.

- lesions present as Ulcers (or) less commonly as nodules, vesicles, fissures, plaques, granulomas
- Lesions may be single (or) multiple

Mucosa :- Ulcer - irregular, ragged, Undermined Edge, minimal induration.

Tongue :- lateral border, ant. Dorsum, base of tongue

painful, grayish-yellow, firm well demarcated

Lips :- shallow granulating Ulcers

Tooth apex & Socket Involvement : Brodsky & Kell

Jaw bone Involvement : T.B osteomyelitis

Involvement of major Salivary glands :

parotid gland followed by Submandibular & Sublingual glands.

Treatment 4 drug regimen for 2 months

Isoniazid hydrazide 300mg/day

Rifampicin 400-600mg/day

Scarlet fever

High Contagious, Systemic Infection

Causative agent:-

B hemolytic Streptococcus

S. pyogenes

produces pyrogenic exotoxin / scarlet fever toxin

Clinical features:-

Common in children

Enter into body through pharynx

Incubation period is 3-5 days

Causes severe pharyngitis, tonsilitis

- Headache, fever, chills, Vomiting

Cervical lymphadenopathy

2nd/3rd day - diffuse, bright red Scarlet skin rash appears.

Rash first appears on upper trunk

Spreads to extremities -

Colour of rash varies from Scarlet to dusky red.

Rash is prominent in areas of skin folds. - perianal

Rash subsides after 6 to 7 days.

Oral manifestations -

Stomatitis Scarletina

Palatal mucosa: Congested

Petechiae scattered on soft palate

palate, throat - fiery red

Tonsils, faucial pillars. Swollen.

Tongue:- White coating

Fungi from papilla become edematous, hyperemic

Tongue Coating is lost
Deepred, glistening, & smooth except for swollen hyperemic papillae -

Raspberry tongue

Treatment:-

Drug of choice is penicillin
250mg (400,000 Units)

2-3 lymns x 10 days, 27kg (60lb)

Erythromycin Estolate

Erythromycin Ethyl Succinate

Diphtheria

Acute life threatening infection

Communicable disease of skin & mucous membrane

Characterized by involvement of the respiratory system

local production of membrane

general symptoms caused by absorption of toxins

host factors:-

Affects children of 1-5 years of age

It affects both sexes

Environmental factors:-

Occur in winter months in temperate countries through out year in tropical countries

Causative Organism: *Corynebacterium diphtheiae*

- Gram +ve, Non-nFB
- Non motile, Non sporing, Non capsulated.
- Arrangement: Chinese letter / Cuneiform arrangement

Transmission is by droplet Puffection.

Portal of entry:

Respiratory route: Localises in mucous membranes.

Cutaneous route: Invades Open skin lesion due to insect bite / trauma.

- Diphtherial Exotoxin

C/F:- Gradual in onset

Incubation period:

Respiratory - 2 to 5 days

Cutaneous - 7 days

Sites:- Tonsil, pharynx, trachea

Nose, Cutaneous,

conjunctiva, Genital

Manifestations: fever, sore throat, dysphagia, headache, pts without toxicity exhibit dry cough, associated with local infection, malaise.

Respiratory Signs

Dyspnoea, respiratory obstruction

Oral manifestations:

Patchy diphtheric membrane

Often begins in tonsils

Enlarges & becomes confluent over surfaces.

- Pseudomembrane is seen on
- Tonsil, tongue, gingiva, site of erupting teeth, soft palate, lips

Erythema \Rightarrow white/grey \rightarrow coalesce to
of posterior pharyngeal wall spot form oval \rightarrow thick & black
like membrane grey

Coagulation of fibrin & purulent exudate produce
pseudomembrane.

Pseudomembrane:- Wash leather greyish green membrane

Asymmetrical membrane

Thick fibroinous, gelatinous Exudate
acute inflammation.

Stripped off leaves bleeding surfaces

Treatment:- Diphtheria antitoxins ranging 10,000 to 80,000 Units, (1) more are administered IV or IM depending on severity of case.

Gonorrhoea:-

primarily Venereal infection affecting male & female
Genitourinary tract.

Cause:- Neisseria Gonorrhoea

Clinically Asymptomatic:-

15 - 20% males

75 - 80% females

Age: 15 - 29 yrs.

C/F:-

Males:-

Acute Urethritis

Dysuria

Discharge of purulent material

Itching & burning sensation in urethra
• Epididymitis

Chronic prostatitis

Balanitis

Females:-

Cervicitis

Vaginal discharge

Discomfort

Dysuria

Ocular manifestations:-

Gonococcal Stomatitis:-

- Burning /itching sensation
- Dry hot feeling in mouth which in 24-hrs turns to acute pain
- foul oral taste, fetid breath
- Enlarged, tender Sub mandibular lymph nodes
- Severe infection - fever occurs

Gingiva:- Erythematous with /without necrosis

Lips: Acute painful ulcers leading to limitation of movement

Tongue: red, dry, Ulcerations

Similar lesions in BM and Palate

Pseudomembrane:-

White, yellow, gray in colour
Easily Scappable
Bleeding Surface
Pharyngitis and tonsillitis & Vesicles and ulcer,
with pseudomembrane -

Treatment

Inj Ceftriaxone - IM 400 mg

Uncomplicated gonococcal pharyngitis

- 125 mg Ceftriaxone - IM.

Ofloxacin 400mg

Noma

Mean to devour

A spreading sore.

Candida oris

gangrenous Stomatitis occurring in debilitated
deficient persons.

Ocurred mostly as a Secondary Complication of
Systemic disease rather than a primary disease

G/F :-

- Begins as Small Ulcer on gingival mucosa
- Rapidly spreads & involves surrounding tissues
face, lips, cheeks
- Initial site is commonly an area of
Stagnation around fixed bridge or crown.

- Overlying skin becomes discolored, edematous, necrotic.
- Tissues of demarcation develop like healing & dead tissue.
- Large masses of tissue may slough, leaving jaw exposed
- foul odour arises from tissue
- Super secondary infection.
- May die from sepsis

Actinomycosis :-

- Actinomycosis is a suppurative & granulomatous chronic infectious disease
- Usually spreads into adjacent soft tissue without regard to tissue planes.
- may also be associated with a draining sinus tract
- Caused by *Actinomyces*, *A. israelii*, *A. naeslundii*
- Arborous pocket lumpy jaw
- *Actinomycosis* are Gram positive, nonacid fast, anaerobic (&) microaerophilic filamentous branched bacteria -
- Thro dental caries, dental manipulation and nonsurgical trauma are the most common triggering events
- presents as a chronic, fluctuant mass
- Draining pus contain typical yellow sulphur granules.

- Skin overlying abscess is purplish, red
- Punched out appearance of wood
- leads to necrosis & osteomyelitis

Treatment:

Penicillin is the drug of choice.
Tetracycline & Erythromycin

Syphilis

Chronic Sexually transmitted disease with varied clinical & pathological manifestations.

Causative Org.: Treponema pallidum

Transmission: Sexual & Vertical

Pathogenesis:

Penetration:-

- Via Skin & mucous membrane through abrasion during sexual contact
- Also transplacentally

Dissemination:

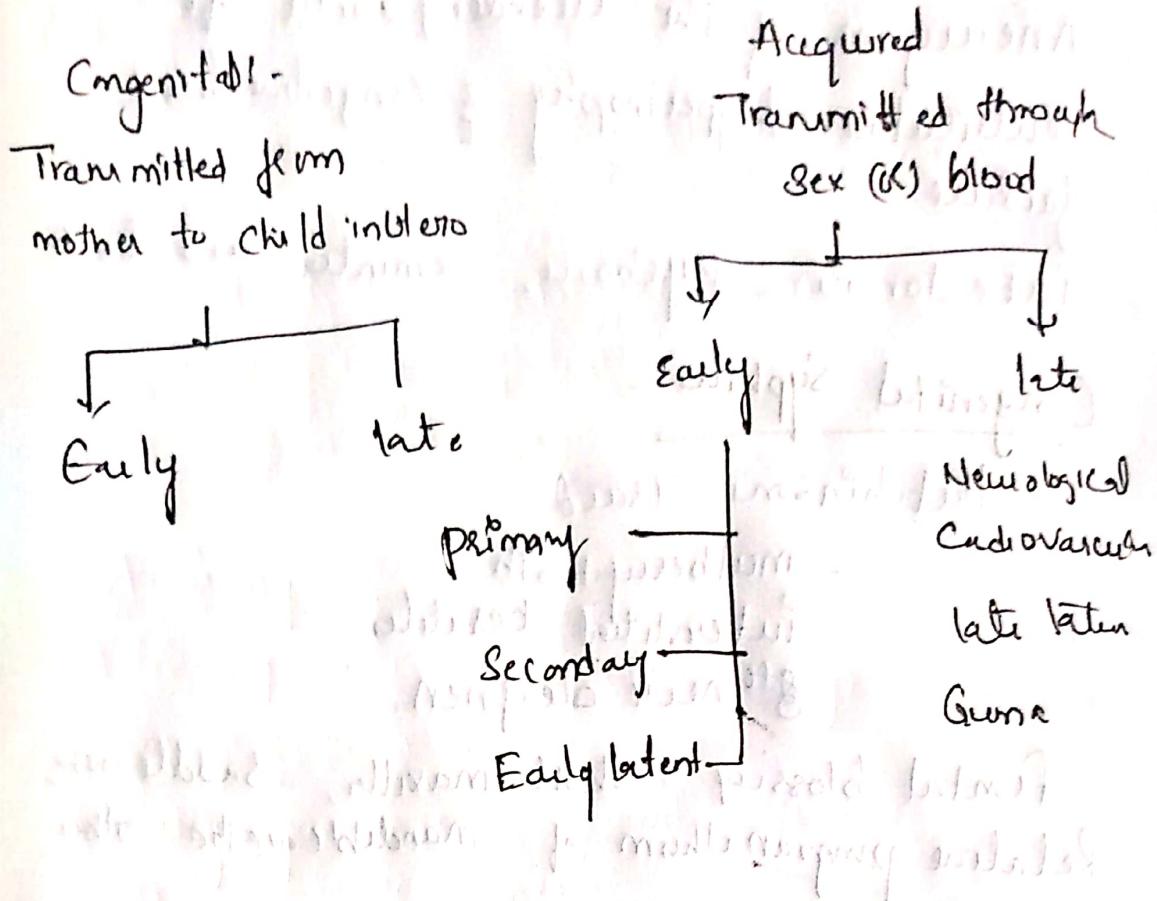
Lymphatic & haematological

Ischaemia produced by vascular lesions

Immune response

Chancres & rash - T cells, plasma cells & macrophages

Syphilis



Primary Syphilis :-

3 weeks after infection

chancre :- Single firm non tender, raised red lesion

- Regional lymphadenopathy :- clavically rubbery, painless, bilateral

Serologic tests for Syphilis may not be positive during Early primary syphilis

Secondary Syphilis :-

- 2-10 weeks after primary Chancre.
- painless mucocutaneous lesion.
- skin lesions on palms & soles.

Same plasma cell infiltrate as primary Chancre

Aneurysm of the ascending aorta left ventricular hypertrophy & congestive heart failure
Tate dorsalis, psychosis, dementia.

Congenital Syphilis

Hutchinson's Triad
- mulberry tooth
- interstitial keratitis
- gummous deafness.
frontal bossing, maxilla, saddle nose,
relative prognathism of mandible, other
features.

Diagnosis

Dark-field examination of the smear

VDRL ↓

Rapid plasma reag.

Treatment

Pencillin