



INFECTION


Dr. Avani Patel

Infection

- Saprophytes : Decayed plant
- Parasites:
- Pathogen : suffering Disease producing
- Commensal : living together
 - Opportunistic / facultative pathogen

Definition

- Infection : Lodgement & multiplication of parasite in host
- Primary infection :
- Reinfection
- Secondary infection
- Focal infection
- Cross infection
- Nosocomial infection : In greek, nosocomian = hospital
- Iatrogenic infection

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- Endogenous infection
 - Exogenous infection
 - Inapparent / subclinical infection
 - Atypical infection
 - Latent infection

Source of infection

- A. human being
 - patient
 - Carrier
 - Healthy carrier
 - Convalescent carrier
 - Temporary carrier
 - Permanent carrier
 - Contact carrier : acquire MO from patient
 - Paradoxical carrier : acquire MO from another carrier



- B. Animal

- Reservoir host

- Zoonotic disease

- Bacterial, viral, fungal, protozoal & helminthic

- C. Insects

- Arthropod borne disease

- Reservoir host

- Vector

- Mechanical : MO not multiplied
- Biological : MO multiplied in it
 - Extrinsic incubation period
 - Intrinsic incubation period



- D. Soil

- Tetanus bacilli
- Fungi
- Round worm , hook worm

- E. Water

- Cholera
- Diarrhoeal disease
- Guinea worm infection : thro' aquatic vector - cyclops

- F. Food

- External contamination
- Pre existing infection – infection in animal meat e.g. measly pork

MODE OF TRANSMISSION

- I. Contact
 - Direct : contagious disease, sexual contact
 - Infectious disease – transmitted by all mode
 - Indirect : thro' fomites, inanimate object
 - In school children
 - In family
 - 5 F'-flies, finger, fomites, food and fluid.

2. Inhalation

1. Respi. Infection : sneezing, spitting, coughing, speaking
2. Small droplet : 100 micron
3. Droplet nuclei : 1 – 10 micron
4. Dust: large droplet of more than 100 micron

3. Ingestion

1. Waterborne
2. Foodborne
3. Milkborne
4. Handborne

4. Inoculation

1. Rabies

2. Tetanus – in deep injury

3. Arboviruses injected by insect vectors

4. Iatrogenic

1. By unsterile needle / blade / knief

5. Insects- Vector borne

6. Congenital

1. Vertical transmission

1. Abortion

2. Stillbirth

3. Livebirth with congenital anomalies (Teratogenic infection)

FACTORS AFFECTING MICROBIAL PATHOGENICITY

- Pathogenicity
- Virulence
 - exaltation
 - attenuation
- Adhesion
 - Adhesin – antigenic in nature
 - Pili/ fimbria – in gonococci
 - Colonisation factor – in E.coli

- Invasiveness

- Highly invasive – generalised infection-by streptococcal
- Less invasive – localised by staph

- Toxigenicity

- By producing toxin
- 3 kg of botulinum toxin can kill all lves of world
- Toxoid
- Antitoxin
- Pyrogen in IV fluid – due to endotoxin lead shock

● EXOTOXIN

- Protein
- Heat labile
- Diffusible
- Obtained by filtration
- Enzymatic
- Specific tissue affinity
- Active in small dose
- Strong antigen
- Neutralized by antibody
- Can be toxoided
- GPB & some GNB

● ENDOTOXIN

- Prt.-polysacch-lipid
- Heat stable
- Part of cell wall,
Nondiffusible
- Obtained by cell lysis
- Non enzymatic
- Non specific in tissue affinity
- Active only in large dose
- Weak antigen
- Antibody can't be neutralised
- Can't be toxoided
- GNB



- **Plasmids**

- AMA resistance

- **Bacteriophages**

- Tox phage in diphtheria

- **Communicability**

- Virulence & communicability have no correlation
- GIT & Respi. Infection
- Epidemic/ pandemic –
 - Highly communicable
 - Highly virulent

- Coagulase – in staph.
- Fibrinolysin – strepto
- Capsule – pneumococci
- Hemolysin – in staph
- Leucocidin- in staph
- Hyaluronidase – in clostridium
- Nuclease
- Lipase
- Flagella - pseudomonas

- **Infecting dose**
 - MID – to produce disease
 - MLD – for death
 - ID50 / LD50 -
- **Route of infection**
 - Strepto – produce infe. By all route of entry
 - Cholera – only by ingestion

- Bacteremia
- Septicemia
- Pyemia
- Endemic – malaria in india
- Epidemic - conjunctivitis
- Pandemic - influenza
- Prosodemic (creeping or smouldering epidemic)
 - Spread slowly – by contact



THANK YOU

