Pathology and Pathogenesis

- Bacilli enter through ingestion,
- Bacilli attach to Microvilli,ileal mucosa, penetrate to Lamina propria and sub mucosa
- Phagocytosis by Polymorphs and Macrophages
- Enters the mesenteric lymph nodes
- Enter the thoracic duct – Blood stream

Pathology and Pathogenesis of Enteric fever

- Caused by

  S. typhi

  S.paratyphi

  A B C

The organisms penetrate ileal mucosa reach mesentric lymph nodes via Lymphatics , Multiply,

Invade Blood stream via thoracic duct

In 7 – 10 days through blood stream infect

Liver, Gall Bladder,, spleen, Kidney, Bone marrow.

After multiplication bacilli pass into blood causing secondary and heavier bactermia

What is Typhoid Fever?

- Result of systemic infection caused by S. typhi.
- Clinically characterized by typical continuous fever for 3 to 4 weeks, relatively bradycardia with involvement of intestinal lymphoid tissues, reticulo-endothelial system & gall bladder.
- "Enteric fever" includes both typhoid and paratyphoid fever.
- May occur sporadically, epidemically or endemically. Found only in human.

Salmonella typhi

- The bacterium *Salmonella typhi* is present only in human beings and is transmitted through contaminated food or water. People with this infection carry the bacterium in their intestines and bloodstream, and those who have recovered from the disease could still have the bacterium in their system; they are known as 'carriers' of the disease. Both ill people and carriers shed *Salmonella typhi* in their stool

Antigenic structure of Salmonella

- Two sets of antigens
- Detection by serotyping
- **1 *Somatic or 0 Antigens*** contain long chain polysaccharides (LPS) comprises of heat stable polysaccharide commonly.
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Typhoid carriers

- *Salmonella enterica* causes approximately 16 million cases of typhoid fever worldwide, killing around 500,000 per year. One in thirty of the survivors, however, become carriers. In carriers the bacteria remain hidden inside cells and the gall bladder, causing new infections as they are shed from an apparently healthy host.

Management of typhoid fever:

- **General:** Supportive care includes
  Maintenance of adequate hydration.
  Antipyretics.
  Appropriate nutrition.
- **Specific:** Antimicrobial therapy is the mainstay treatment.
- Chloramphenicol, Ampicillin, Amoxicillin, Trimethoprim & Sulphamethoxazole, Fluroquinolones
- In case of quinolone resistance – **Azithromycin, 3rd generation cephalosporins (ceftriaxone)**

3- IMMUNIZATION

Vaccination recommended to-

1- those live in endemic area

2- household contacts

3- Group at risk like school children and hospital staff etc.

4- those attending melas & yatras

Three types of vaccines-

1. Injectable Typhoid vaccine
   (TYPHIM –Vi, TYPHIVAX)
2. The live oral vaccine (TYPHORAL)
3. TAB vaccine