

Genus : *Salmonella*

Morphology

Gram-negative bacilli, non spore forming, facultative anaerobic, motile with peritrichous flagella.

Identification:

In addition to special selective media and biochemical tests, the related antigens (cell wall (O), flagellar (H), and capsular (Vi)) are important for taxonomic and epidemiologic purposes. The O antigens, which are the outer polysaccharides of the cell wall, are used to subdivide the salmonellae into groups A–I.

Pathogenesis and Clinical Findings

Clinically, *Salmonella* species are often thought of in two distinct categories:

1. **Typhoidal species:** those that cause typhoid fever. The typhoidal species are *Salmonella typhi* and *Salmonella paratyphi*.
2. **Non-typhoidal species:** those that cause diarrhea (enterocolitis) and metastatic infections, such as osteomyelitis, e. g. *Salmonella typhimurium*.

Transmission

The *Salmonella* infections is related to the ingestion of food and water contaminated by human and animal wastes via **fecal-oral** route. *Salmonella typhi*, the cause of typhoid fever, is **transmitted only by humans**, but all other species have a significant animal as well as human reservoir. The most frequent **animal source is poultry and eggs**, but **meat products** that are inadequately cooked have been implicated.

The infective dose to produce clinical infection in humans is 10⁵–10⁸ bacterial cells of salmonellae.

Laboratory Diagnosis

In the typhoid fever, a **blood culture** reveal the organism during the first 2 weeks of illness. In enterocolitis, the organism is easily isolated from a stool sample.

Salmonella isolate can be identified and grouped by the **slide agglutination test** into serogroup A, B, C, D, or E based on its O antigen.

When the salmonellae is difficult to recover, the diagnosis can be made **serologically** by detecting a rise in antibody titer in the patient's serum (**Widal test**).

Treatment

Enterocolitis caused by *Salmonella* is usually a self-limited disease that resolves without treatment. Fluid and electrolyte replacement may be required.

The treatment of choice for typhoid fever is either ceftriaxone or ciprofloxacin. **Antibiotics susceptibility test should be done.**

Lecturer: Dr. Eiman Ali Saeed