

Lecture no 8

Yersinia pestis

Disease

Plague, black death

It is transmitted to human by bite of the rat flea two forms

1-Bubonic

2-Pneumonia

Species *Yersinia enterocolitica*, *Y. pseudotuberculosis*

Important properties

Y. pestis is a small gram negative rod that exhibits bipolar staining. It resembles a safety pin, with a central clear area. Freshly isolated organisms possess a capsule composed of a polysaccharide-protein complex. The capsule can be lost with passage in the laboratory; loss of the capsule is accomplished by a loss of virulence. It is one of the most virulent bacteria known and has a strikingly low ID₅₀ 1-10 organisms are capable of causing disease.

L.D

Smear and culture of blood or pus from the bubo is the best diagnostic procedure. Great care must be taken by the physician during aspiration of the pus by laboratory workers, avoiding the culture not to create an aerosol that might transmit the infection. Giemsa or Wright stain reveals the typical safety-pin appearance of the organism better than does Gram stain. Fluorescent-antibody staining can be used to identify the organism in tissue. A rise in antibody titer to the envelope antigen can be useful retrospectively.

Treatment

The treatment of choice is a combination of streptomycin and tetracycline.