

Gram positive bacilli spore Bacillus anthracis

Disease

Anthrax: three forms:

Gastrointestinal

Cutaneous: cut and abrasion in skin

Inhalation anthrax are inhaled

B. anthracis has a tendency to form very long chains of rods and in culture is non motile and nonhemolytic, colonies are characterized by a rough uneven surface with multiple curled extensions at the edges resembling a Medusa head . B. anthracis has a D-glutamic acid polypeptide capsule of a single antigenic type that has antiphagocytic properties. The organism is also a potent producer of one or more exotoxins, which they have been multiple names (lethal factor, edema factor, protective antigen).

Human anthrax is typically an ulcerative sore on an exposed part of the body , the ulcer resolved without complication . If anthrax spores are inhaled, fulminant pneumonia may lead to respiratory failure and death.

pathogenesis

When spores of B. anthracis reach the rich environment of human tissue they germinate and multiply in the vegetative state. The antiphagocytic properties of the capsule as survival eventually allowing production of large enough amount of the exotoxin to cause disease. Exotoxins have multiple activities.

Diagnosis

Culture of skin lesion, sputum, blood, and CSF are the primary means of anthrax diagnosis. Gram stains of sputum or other biologic fluids showing large numbers of , these- positive bacilli can indicate the diagnosis. Such bacilli are also unusual in sputum. B. anthracis and other Bacillus species are not difficult to grow. In fact clinical laboratories frequently isolate the nonanthrax species as environmental contaminants. The saprophytic species are B-hemolytic and motile these features can be used to exclude B. anthracis. Blood culture are positive in material most cases of pulmonary anthrax. Red Albert genitesting a food drug (FDA) immunochromatographic test.

Treatment

Almost all strains of B. anthracis are susceptible to penicillin, which remains the treatment of choice for all forms of anthrax . Doxycycline or ciprofloxacin are alternative and are also recommended for

Other are widespread in the environment, and isolation of one of the more than 20 bacillus species other than B. anthracis from clinical material represent contamination of the specimen. Occasionally

B.cereus, B.subtilis, produce genuine infection, including infection of the eye, soft tissues, and lung.
Infection is associated with

1-Immunosuppression

2-trauma.

3-Indwelling catheter

4-Contamination of complex equipment such as an artificial kidney.