

GLANDERS

Burkholderia (*Pseudomonas*) *mallei* is the causative organism. It is a Gram negative bacillus and predominantly exists in infected hosts, but may remain viable for several months in warm moist environments.

Host occurrence

Horses (chronic form) , mules (acute and chronic form), and donkeys (acute form) are the species usually affected. Humans are susceptible and the infection is usually fatal. Carnivores, including lions may be infected by eating infected meat and infections have been observed in sheep and goats, cattle and pigs resistant .

Transmission

- 1- By diseased or latently infected animals.
- 2- Ingestion of the organism is the major route of infection.
- 3- Close contact between animals alone does not usually result in transmission, but transmission is facilitated if animals share feeding or watering facilities.
- 4- *B. mallei* is readily spread on fomites, including harnesses, grooming tools, and food and water troughs.
- 5- Carnivores usually become infected when they eat contaminated meat.

PATHOGENESIS

Invasion occurs mostly through the intestinal wall and a septicemia (acute form) or bacteremia (chronic form) is set up. Localization always occurs in the lungs but the skin and nasal mucosa are also common sites. Other viscera may become the site of the typical nodules.

Terminal signs are in the main those of bronchopneumonia, and deaths in typical cases are caused by anoxic anoxia.

CLINICAL FINDINGS

Acute disease

Incubation period: 1 to 5 days, There is a high fever, cough, and nasal discharge with rapidly spreading ulcers appearing on the nasal mucosa, and nodules on the skin of the lower limbs or abdomen. Death due to septicemia occurs in a few days.

Chronic disease

Three major manifestations are described:

- 1 . Pulmonary
2. Skin
3. Nasal, although the chronic nasal and skin forms commonly occur together.

Pulmonary form of disease

The pulmonary form manifests as a chronic pneumonia with cough, frequent epistaxis, and labored respiration.

Nasal form of disease

In the nasal form, lesions appear on the lower parts of the turbinates and the cartilaginous nasal septum. They commence as nodules (1 cm in diameter), which ulcerate and may become confluent. In the early stages there is a serous nasal discharge which may be unilateral and which later becomes purulent and blood stained. Enlargement of the submaxillary lymph nodes is a common accompaniment. On healing, the ulcers are replaced by a characteristic stellate scar.

Skin form of disease

- 1- The skin form is characterized by the appearance of subcutaneous nodules (1-2 cm in diameter), which soon ulcerate and discharge pus of the color and consistency of dark honey.
- 2- Thickened fibrous lymph vessels radiate from the lesions and connect one to the other.

CLINICAL PATHOLOGY

- 1- Disease is accompanied by a low hemoglobin content of the blood, a low erythrocyte count and packed cell volume, and a moderate leukocytosis and neutrophilia.
- 2- Mallein test .The principal tests used in the diagnosis of glanders are the mallein test. The intradermopalpebral test has largely displaced the ophthalmic and SC tests. Mallein (0.1 mL) is injected intradermally into the lower eyelid with a tuberculin syringe. The test is read at 48 h, a positive reaction comprising marked edema of the lid with blepharospasm and a severe, purulent conjunctivitis.
- 3- Serological tests include complement fixation test and Elisa.
- 4- Demonstration of organism If pus is available, from either open ulcers or necropsy material, the organism can be cultured or the pus injected intraperitoneally into male guinea pigs to attempt to elicit the Strauss reaction. This is a severe orchitis and inflammation of the scrotal sac but it is not highly specific for *B. mallei*. Gene sequencing can be used for rapid identification and differentiation from *B. pseudomallei*.

Differential diagnosis

Epizootic lymphangitis

- Ulcerative lymphangitis
- Sporotrichosis
- Melioidosis
- Other causes of pneumonia

Prevention

- 1- In Horses Early detection and quarantine with Disinfection.
- 2- Test and slaughter.
- 3- Reportable to state veterinarian
- 4- Vaccine not available for humans or animals.
- 5- No specific treatment