

Glanders (Farcy, Malleus, Droles)

Glanders is a highly contagious disease causes respiratory infection and skin lesions in equine and humans

ETIOLOGY

Glanders caused by *Burkholderia mallei*, a Gram negative, non-motile, nonencapsulated and non-spore-forming bacillus. Causative bacterium was previously known as *Pseudomonas mallei*.

EPIDEMIOLOGY

Glanders primarily affects horses, mules, and donkeys. Disease can be fatal in mules and donkeys. Infection can also occur in dogs, cats, goats and camels. The disease can also be severe for hamsters and guinea pigs.

SOURCES OF INFECTION AND TRANSMISSION

1. Ingestion of contaminated food or water likely via discharges from the respiratory tract or ulcerated skin lesions from carrier animals
2. Animal density and proximity increase spread as well as stress-related host factors
3. Subclinical carries often prove to be more important in transmission of disease than clinical cases

OCCURRENCE

Glanders has been recognized as an important disease of equids since its early documentation by Hippocrates (460 B.C.). Glanders continues to be reported from Brazil, China, India, **Iran**, **Iraq**, Mongolia, Pakistan, **Turkey**, and the **United Arab Emirates** and is thought to be endemic in various areas of the **Middle East**, Asia, Africa and South America. Geographic distribution determined through serological surveys for *B. mallei* is complicated due to cross-reactions with *B. pseudomallei*.

- Incubation period of glanders varies according to the route and intensity of exposure and intrinsic factors of the host and so can range from a **few days** to **6 months**).

CLINICAL SIGNS

According to the location of the primary lesions, three forms of the disease are commonly described; **nasal**, **pulmonary** and **cutaneous**.

There are also references to the course of disease as **acute** (usually associated with donkeys) or **chronic** (associated with horses in endemic areas).

Nasal and pulmonary forms tend to be more acute in nature while the coetaneous form of the disease is a chronic process.

Acute cases of glanders die from a few days to within 1–4 weeks.

A. Nasal form (nasal glanders)

- Begins with a high fever, loss of appetite and laboured breathing with coughing
- A highly infectious, viscous, yellowish-green, mucopurulent discharge is present and this may crust around the nares
- A purulent ocular discharge has also been described
- Nodules in the nasal mucosa may produce ulcers

B. Pulmonary form (pulmonary glanders)

- Usually requires several months to develop; first manifests itself through fever, dyspnoea, paroxysmal coughing or a persistent dry cough accompanied by laboured breathing
- Diarrhoea and polyuria may also occur; all leading to a progressive loss of condition

C. Cutaneous form (cutaneous glanders)

- Develops insidiously over an extended period; begins with coughing and dyspnoea usually associated with periods of exacerbation leading to progressive weakness
- Initial signs may include fever, dyspnoea, coughing and enlargement of the lymph nodes

DIFFERENTIAL DIAGNOSIS

As with all transboundary diseases of animals, clinical signs alone do not allow a definitive diagnosis especially in early stages or the latent form of the disease.

- Strangles (*Streptococcus equi*)
- Ulcerative lymphangitis (*Corynebacterium pseudotuberculosis*)
- Botryomycosis
- Sporotrichosis (*Sporotrix schenckii*)
- Pseudotuberculosis (*Yersinia pseudotuberculosis*)
- Epizootic lymphangitis (*Histoplasma farciminosum*)
- Horse pox
- Tuberculosis (*Mycobacterium tuberculosis*)
- Trauma and allergy

LABORATORY DIAGNOSIS

- Morphology: Methylene blue or Gram-stained organisms from **fresh lesions** reveal gram-negative non-sporulating, non-encapsulated rods
- PCR detection.

- **Serological tests:** pulsed field gel electrophoresis, ribotyping, VNTR, MLST, Complement fixation test in horses, donkeys and mules, Enzyme-linked immunosorbent assays (ELISA), Immunoblot assays, Rose Bengal plate agglutination test (RBT) and the mallein test.

PREVENTION AND CONTROL

Sanitary prophylaxis

- Prevention and control of glanders epizootics depends on a program of **early detection** and the **humane elimination** of test positive animals
- **Strict animal movement** controls, **effective premise quarantines** and **cleaning** and **disinfection** outbreak areas
- Affected animal carcasses should be burned and buried
- All disposable materials on positive premises (feed and bedding) should be burned or buried and conveyances and equipment should be carefully disinfected

Medical prophylaxis

- ❖ Antibiotic treatments have been used in endemic zones
- ❖ Experimentally effective treatments include: doxycycline, ceftrazidime, gentamicin, streptomycin, and combinations of sulfazine or sulfamonomethoxine with trimethoprim
- ❖ Case fatality rates can reach 95% if no treatment is administered
- ❖ Should be noted that this may lead to subclinical carrier animals which can infect humans and other animals