

Equine Strangles

Dr. M. Sonali, Assistant Professor, Department of Veterinary Microbiology, Dr. E. Kumar, Assistant Professor, Department of Veterinary public health and epidemiology, College of Veterinary Science, PVNR Telangana Veterinary University, Rajendranagar, Hyderabad DOI:10.5281/ScienceWorld.15115753

Strangles is a highly contagious and serious disease of horses & other equids. Strangles was described in early veterinary science literature. First reported by "Jordanus Ruffus" in 1251. The name Strangles was given by "Bourgelat". The Strangles caused by *Streptococcus equi* sub spp. *equi* from the genus Streptococcus. It is spherical and 0.8 to 1mm in diameter appears in the chain during division & is encapsulated. It is a hemolytic, pyogenic and Lancefield group C bacterium and produces mucoid colonies usually less than 4mm in diameter. The *S.equi spp. equi* is a catalase-negative & facultative anaerobic bacterium.

Risk factors:

- More common in young once of 3 months age to 5 years.
- Movement of horses has more influence on the occurrence of outbreaks.
- Resistance to the disease is associated with the production of serum and mucosal Ig G antibodies to Streptococcal M protein
- Recovered horses & clinically inapparent horses act as source of infection

Pathogenesis:

S.equi spp. equi

↓

Enters via mouth/Nostrils

↓

Attach to tonsil crypt cells and adjacent lymphoid nodules with the help of M protein, capsule, fibrinogen binding protein



↓

Internalization & localization in subepithelial cells

↓

Release of chemical which stimulate the acute inflammatory response

- Capsule & M protein protect S.equi spp. equi from opsonization & phagocytosis
- Streptolysin. S & streptokinase develop abscesses & lyses of host cells
- Nasal shedding of *S.equi spp. equi* usually begins after 4-14 days of infection and between 3-6 weeks after the acute phase.
- But in some horses shedding may continue to harbor infection in guttoral pouches after clinical recovery.

Clinical findings:

- The incubation period is 3 to 6 days and sometimes it may extend to 5 to 10 days.
- There is a high fever, depression and anorexia followed by an oculonasal discharge which later becomes purulent. The lymph nodes of the head and neck are swollen and painful.
- The submandibular nodes are affected and they eventually rupture, discharging purulent, highly infectious material.
- Guttural pouch empyema is a common finding.
- The morbidity may be up to 100% and the mortality rate is usually less than 5%. Reinfection may occur in some recovered horses, but immunity appears to be solid in approximately 75% of infected animals.
- Death may result from complications such as pneumonia, neurological involvement, asphyxia due to pressure on the pharynx from enlarged lymph nodes, or purpura haemorrhagica.
- Purpura haemorrhagica, considered to be an immune-mediated disease, may occur in some affected horses 1 to 3 weeks after the initial illness.
- Bastard strangles, in which abscessation develops in many organs, is a serious complication in about 1% of affected animals.

Lesions:

- Swelling in submandibular and retropharyngeal lymph nodes.
- Pharyngitis & lymphadenopathy.
- Abscesses in lymph nodes



Diagnosis: -

Clinical Diagnosis:

Based on clinical signs like fever mucopuralent nasal discharges, endoscopy.

Laboratory Diagnosis:

- The gold standard for the diagnosis of strangles is the isolation of *S. equi spp. equi* through culture of nasal swab, nasal lavage and pus from abscess or lymphoid tissue.
- In culture, *S. equi spp. equi* forms a large mucoid colony surrounded by a wide zone of hemolysis in blood agar. *S. equi spp. equi* is differentiated from other Lancefield group C ideal Streptococci by its sugar fermentation in peptone water containing serum.
- Serology is one of the most important diagnostic methods for disease ELISA.
- The polymerase chain reaction (PCR) test is a way to magnify & detect very small amounts of DNA from a variety of infection agents. The DNA may persist in the absence of viable organisms, the culture of lavage samples from the guttural pouch is probably the method for the detection of carrier animals.
- Subtyping of *S. equi* strains based on analysis of the gene encoding the *S. equi* M protein has been reported recently and suggests that certain strains may be associated with particular geographical areas. This procedure may be useful for tracing the origin of some strangles outbreaks.

Differential diagnosis:

• In the early stage of the disease, it may be confused with equine virus pneumonitis, equine adenovirus, equine viral cultures, and equine influenza, but in these diseases, there is usually no marked enlargement of lymph nodes

Treatment:

- Drugs of choice for strangles are penicillin, either Procaine penicillin or potassium (sodium) penicillin. The sulfonamides trimethoprim combination.
- NSAIDS are used as supportive treatment to reduce swelling and to provide pain relief.
- After draining the abscesses, they should be flushed regularly with 3% to 5% Povidone-Iodine.
- Systemic administration of Penicillin in the application of petroleum ointment on the surrounding skin will help to prevent scalding.
- Purpura hemorrhagic is treated with upper airway obstruction and may require replacement of short-term tracheotomy. The oral or IV fluid therapy is given for horses unable to eat or drink.



Control measure & prevention:

Hygienic measures

- In the group of infected horses, all movements should be stopped and an infected quarantine area should be separated from the healthy batch, maintain clean & contaminated areas separately with strict hygienic activities
- Infected horses should be isolated & treated
- Newly introduced horses should be quarantined for 3 weeks.
- For several months, the infection status should be determined by these methods: PCR detection, cultural examination at weekly intervals. The affected horse should be rested for a few weeks.
- Everything should be thoroughly cleaned & disinfected

Vaccination:

- Vaccination likely reduces the severity of the disease.
- Extract vaccines (M protein-rich extracts) & live attenuated vaccines are widely used
- Navie horses & foals should be vaccinated with extract Vaccines IM/IV or subcutaneously at an interval of two weeks with two or 3 doses
- Booster doses are given once annually.

