



# ACVIM

Large Animal Internal Medicine  
Fact Sheet

## **ACVIM Fact Sheet: *Streptococcus equi* subsp *equi* infection in horses (Strangles)**

### ***Overview***

Strangles is a highly contagious upper respiratory infection of horses caused by the bacteria *Streptococcus equi* subspecies *equi* (*S. equi*). It is transmitted by inhalation or direct contact with contaminated surfaces (for example horses sharing water buckets). The bacteria colonize the horse's tonsils and pharynx within hours of infection, and then infect the lymph nodes under and behind the jaw resulting in abscessation of these structures days later. Horses develop a fever initially, but are typically not contagious during the initial 48-72 hours.

Rarely, infection spreads to other parts of the body resulting in abscesses in other organs such as the intestines, kidneys, lungs, spleen or liver. This is often called "bastard strangles" or metastatic abscessation. A few horses may develop a hypersensitivity reaction to the bacteria with repeated exposure either in the form of infection or vaccination otherwise known as purpura hemorrhagica. Horses that develop classic clinical signs and are not treated with antibiotics have the potential to develop immune protection up to five years.

### ***Signs & Symptoms***

Classic clinical signs include a fever (often  $>103^{\circ}\text{F}$  or  $39.5^{\circ}\text{C}$ ) first, followed by one or more of the following symptoms: depression, thick nasal discharge and lymph node enlargement under the jaw and/or in the throat latch region. The abscessed lymph nodes may drain externally or into the guttural pouches (blind-end sacs connected to the throat in horses) resulting in nasal discharge. Horses that have been vaccinated for strangles or horses that have previous partial immunity may develop milder signs of upper respiratory tract infection.

Bastard strangles cases may develop colic signs, fever, and/or weight loss with or without a history of previous strangles disease or exposure. Horses with purpura hemorrhagica may develop edema of the head, trunk, and/or legs; and broken blood vessels or bruising of the mucous membranes of the mouth, eyes and nose. Additional signs can include fever, severe depression, and muscle tightness. The severity of symptoms in purpura hemorrhagica cases ranges from mild to life-threatening.

### ***Diagnosis***

Samples obtained from lymph node abscesses, throat washes or guttural pouch washes may provide a diagnosis by bacterial culture within 48 hours. Polymerase chain reaction (PCR, which identifies *S. equi* bacterial DNA) can provide a diagnosis the same day depending on proximity to a laboratory that provides the service. Horses do not shed the bacteria for up to 72 hours from the onset of fever, so definitive diagnosis often cannot be determined in this initial time period. An increased white blood cell count, combined

with anemia (low red blood cell count) and high proteins (inflammatory markers) can be suggestive of a bacterial disease prior to shedding but are not specific for strangles.

### ***Treatment & Aftercare***

Treatment goals are to control spread of the contagious disease and eliminate infection while providing future immunity to the disease. Uncomplicated cases require supportive care (such as soft food, shelter, anti-inflammatories, hot packing) and drainage of abscesses. Depending on the degree and length of the fever and severity of symptoms, these horses may need antibiotics such as penicillin. Horses with bastard strangles typically require an average of 2 months of antibiotics. Horses with purpura hemorrhagica usually require antibiotics and corticosteroids to quiet the overactive immune reaction for an extended period.

The enlarged lymph nodes sometimes occlude the airway, necessitating emergency tracheostomy. When the lymph nodes drain into the guttural pouch, repeated lavage might be required through an endoscope or an indwelling catheter. Removal with endoscopic equipment or surgery might be necessary to remove dried pus (chondroids). Local treatment of the guttural pouch with a gelatin/penicillin antibiotic mixture can be performed after removal of the material within the guttural pouch.

Biosecurity on the farm is necessary to prevent spread of disease.

- Isolate new horses for three weeks prior to introducing them to the rest of the population.
- Isolate any horse with a fever and signs of strangles.
- Do not share tack or equipment between sick horses and others
- Perform twice daily monitoring of rectal temperatures of all horses in an outbreak to identify new cases
- Stop all movement of horses to and from farm when strangles is identified
- Disinfect water buckets daily
- Use strict hygiene between horses to reduce spread of the disease

Ideally, three throat flush samples are obtained from recovering horses and any horses who were in contact with sick horses at approximately weekly intervals and tested for *S. equi* subsp *equi* by PCR and culture. Identification of strangles bacteria in clinically recovered horses may mean the guttural pouches have retained some infection. Endoscopy of the guttural pouches provides visualization of any pus or dried debris (chondroids) that harbor the bacteria. A small number of horses will recover from strangles and continue to shed bacteria from the guttural pouch, causing recurrent farm outbreaks. Detection and treatment of these “silent carriers” (*S. equi* bacteria in guttural pouches) via endoscopy and PCR is essential for preventing disease recurrence on a farm.

Discuss vaccination types and recommendations with your veterinarian. Vaccination does not provide 100% immunity against *S. equi* infection. Vaccination is not recommended during or within two years of a strangles outbreak due to the increased risk of purpura hemorrhagica.

***Prognosis***

Classic upper respiratory infection strangles cases have a good to excellent prognosis with proper supportive care. Cases of bastard strangles and purpura hemorrhagica have a fair to good prognosis with appropriate antibiotics and antibiotic/corticosteroid treatment, respectively.

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