

## Strangles in Horses

Strangles is an infectious, contagious disease of Equidae characterized by abscessation of the lymphoid tissue of the upper respiratory tract.

The causative organism, *Streptococcus equi* subspecies *equi*, is a G+ and highly host-adapted and produces clinical disease only in horses, donkeys, and mules.

### Epidemiology and Transmission

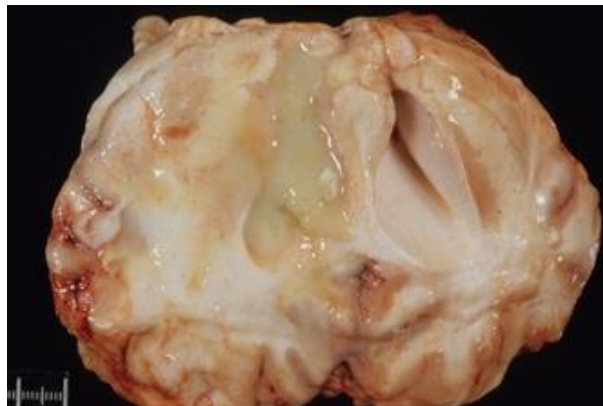
- The infection produces high morbidity and low mortality in susceptible animals.
- Transmission occurs via fomites and direct contact with infectious exudates.
- Carrier animals are important for maintenance of the bacteria between epizootics and initiation of outbreaks on previously free disease areas.
- The organism is susceptible to drying, extreme heat, and exposure to sunlight and must be protected within mucoid secretions to survive.
- Under ideal environmental, the organism can survive ~4 weeks outside the host.
- Under field conditions, most organisms do not survive 96 hr.

### Clinical Findings

1. The incubation period is 3–14 days, and the first sign of infection is fever (39.4°–41.1°C).
2. Within 24–48 hr of the initial fever, the horse will exhibit **typical signs** of strangles including: (a) Mucoïd to mucopurulent nasal discharge  
(b) Depression  
(c) Submandibular lymphadenopathy.
3. Horses with retropharyngeal lymph node involvement have difficulty swallowing, inspiratory respiratory noise (compression of the dorsal pharyngeal wall), and extended head and neck.
4. Older animals with residual immunity may develop an atypical or catarrhal form of the disease with mucoïd nasal discharge, cough, and mild fever.
5. Metastatic strangles (“bastard strangles”) is characterized by abscessation in other lymph nodes of the body, particularly the lymph nodes in the abdomen and, less frequently, the thorax.
6. *S equi* is the most common cause of brain abscess in horses.



Retropharyngeal abscess, horse



brain abscess, horse

## Diagnosis

- Diagnosis is confirmed by bacterial culture of exudate from abscesses or nasal swab samples.
- CBC reveals neutrophilic leukocytosis and hyperfibrinogenemia.
- Serum biochemical analysis is typically unremarkable.
- Complicated cases may require endoscopic examination of the upper respiratory tract, ultrasonographic examination of the retropharyngeal area, or radiographic examination of the skull to identify the location of abscesses.

## Treatment

1. The environment for clinically ill horses should be warm, dry, and dust-free.
2. Warm compresses are applied to sites of lymphadenopathy to facilitate maturation of abscesses.
3. Facilitated drainage of mature abscesses will speed recovery.
4. Ruptured abscesses should be flushed with dilute (3%–5%) povidone-iodine solution for several days until discharge ceases.
5. NSAIDs can be administered judiciously to reduce pain and fever and to improve appetite in horses with fulminant clinical disease.
6. Tracheotomy may be required in horses with retropharyngeal abscessation and pharyngeal compression.



Ruptured submandibular abscesses, horse

7. Initiation of antibiotic therapy after abscess formation may provide temporary clinical improvement in fever and depression, but it ultimately prolongs the course of disease by delaying maturation of abscesses.
8. Antibiotic therapy is indicated in cases with dyspnea, dysphagia, prolonged high fever, and severe lethargy/anorexia.
9. Administration of penicillin during the early stage of infection ( $\leq 24$  hr of onset of fever) will usually arrest abscess formation.
10. The disadvantage of early antimicrobial treatment is failure to stimulate a protective immune response, rendering horses susceptible to infection after cessation of therapy.
11. If antimicrobial therapy is indicated, procaine penicillin (22,000 IU/kg, IM, bid) is the antibiotic of choice.

### **Prevention**

- ✓ Post-exposure immunity is prolonged after natural disease in most horses, and protection is associated with local (nasal mucosa) production of antibody.
- ✓ The morbidity rate of strangles is reduced by 50% in horses vaccinated with IM products that do not induce mucosal immunity.
- ✓ An intranasal vaccine containing a live attenuated strain of *S. equi equi* was designed to stimulate a mucosal immunologic response.

### **Control**

1. Clinically affected horses should be physically separated from the herd.
2. The rectal temperature of all horses exposed to strangles should be obtained twice daily, and horses developing fever should be isolated (and potentially treated with penicillin).
3. Contaminated equipment should be cleaned with detergent and disinfected using chlorhexidine gluconate or glutaraldehyde.
4. Flies can transmit infection mechanically; therefore, efforts should be made to control the fly population during an outbreak.
5. Farriers, trainers, and veterinarians should wear protective clothing or change clothes before traveling to the next equine facility.
6. Additions to the herd should be quarantined for 14–21 days.
7. Three negative nasal swab cultures should be obtained before release from quarantine.
8. Bacterial culture of nasopharyngeal swab and/or guttural pouch lavage is used to identify persistent carriers.