



# LIPHOOK

## EQUINE HOSPITAL

# Strangles

Strangles is caused by infection with the bacteria *Streptococcus equi subspecies equi* which is often abbreviated to *S.equi* or *Strep equi*. This is a highly contagious bacteria that survives in carrier horses and then infects horses which come into contact with the carrier.



# Strangles

Infection can spread rapidly from horse to horse in populations that do not have immunity to the bacteria. Infection occurs most commonly in horses of 1-5 years of age but can occur in older animals. Most horses that are exposed to infection develop a strong immunity and are unlikely to become re-infected. Virtually all horses that are exposed to infection become sick and some may die or be euthanased.

## Clinical Signs

Following exposure to the strangles bacteria the incubation period (the time until clinical signs develop) is 2 to 6 days. A very high temperature ( $> 103^{\circ}\text{F}$ ) is characteristic of infection. Typically, infected horses are dull, disinterested in food (and possibly water) and develop a clear and then purulent bilateral nasal discharge. The eyes may also look inflamed and develop a discharge.

Within hours of infection the bacteria crosses the lining of the respiratory tract and migrates to the lymph nodes around the head. The bacteria has a number of mechanisms by which it resists the host's immune system and as more and more white blood cells move to the lymph nodes to fight the infection abscesses develop. Lymph node abscesses are the hallmark of strangles though they do not develop in all cases. They may burst out (usually around a week after infection) and persistently drain puss through the skin. Abscesses may also burst inwards into the guttural pouches where pus may accumulate and dry out to form chondroids (balls of concreted puss) which can remain in the pouch for months or years.

In a small minority of cases the infection may result in:

- abscesses of lymph nodes elsewhere in the body (so-called "bastard strangles")
- inflammation of the joints
- infection of the bloodstream
- heart disease
- loss of milk production
- inflammation of blood vessels and muscles
- skin disease ("purpurahaemorrhagica")
- abscesses within the brain

Horses often remain infected, and infectious, for 4 to 6 weeks but 1 in 10 will continue to discharge infectious material for longer and may remain carriers for years acting as a source of further outbreaks. Horses with chondroids will remain carriers until the chondroids are removed.

## Diagnosis

The clinical signs of strangles are often sufficient for diagnosis. Vets have a saying that "if it looks like strangles then it's strangles" which was coined because clinical signs were often more reliable than early lab tests. Thankfully lab tests have improved so that strangles can now be diagnosed more reliably in less obvious cases. The most simple means of investigating strangles is to look for antibody levels to the bacteria in the horse's blood. If a horse has had strangles between 2 weeks and 6 months prior to testing, or is a carrier, then it will have antibodies to *S. equi* and test positive on a blood test. The blood test is accurate in 80% of cases but is not useful in an acute case as it takes up to 2 weeks for the antibody responses to develop.



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In acute cases diagnosis can be made by identifying the bacteria before the antibody response develops.

This can be done in one of three ways:

1. The bacteria is cultured from an abscess.
2. The bacteria is cultured from a swab taken from the back of the throat. Because the timing of swabbing has to coincide with discharge into the throat and infection can be missed, 3 swabs have to be collected at 5-7 day intervals. This method is therefore laborious and doesn't give quick results when they are needed most i.e. at the start of infection to know whether other horses are at risk.
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5. Endoscopy of the throat and guttural pouches can be performed to investigate whether there are abscesses at the back of the throat and whether there is pus in the guttural pouches. If nothing is visible then samples are taken from the guttural pouches to check for bacteria. These samples are more reliable than swabs from the back of the throat.

Although the bacteria lives and multiplies exceptionally well in the horse it can be difficult to grow in the laboratory which historically resulted in lots of negative results in horses that did actually have the disease. Polymerase chain reaction (PCR) can now be performed to detect bacterial DNA so even if the bacteria die after samples are collected their presence can still be detected. PCR has greatly improved strangles diagnosis.

## Treatment

The disease is caused by bacteria and antibiotics would therefore be a logical means of treatment. However, the use of antibiotics is controversial as there are a number of potential disadvantages associated with their use.

Antibiotics may:

- Prevent the development of abscesses so the infection grumbles on for longer rather than reaching a peak and then resolving
- Increase the risk of abscesses developing in other parts of the body though there is no proof of this theory.
- Prevent development of lasting immunity so there is a risk of re-infection

Antibiotics will usually be used:

- Very early in infection before abscesses develop
- If abscesses are so big that complications develop e.g. breathing difficulties
- In horses that develop pneumonia or other infections at sites other than the respiratory tract



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Most vets will try and avoid the use of antibiotics and will treat horses supportively. If abscesses develop they may be encouraged to burst by applying poultices or lancing them to allow them to drain. The use of anti-inflammatories is important to reduce pain and inflammation and to bring down body temperature. Some horses (thankfully a minority) may need fluids if they are not drinking, may require tracheotomy to enable them to breathe or may need supplementary feeding by stomach tube. If there is infection within the guttural pouches then the puss and chondroids within them have to be removed before the infection will be eliminated. This is a very time-consuming and therefore expensive process. Surgical treatment can be required to clear the pouches and may work out cheaper in the long term.

## Disease Prevention

Strangles is a horrible disease that is associated with a huge amount of pain and suffering in animals that become infected. A small proportion may have to be euthanased. It is a source of frustration to vets and equine welfare charities that the disease appears to be becoming more prevalent because it ought to be a disease that could be eliminated. The disease cannot survive long in the environment and has to survive in infected carriers.

If all clinical cases were treated effectively and not allowed to mix with other horses until they were known to be free of disease then the disease would die-out. The disease persists because people cut corners and allow infected horses to mix with susceptible populations.

A strangles vaccination is available and whilst it does not prevent infection it reduces the severity of clinical signs if infection does occur and reduces the likelihood of disease spread.

Vaccination should not be used in an outbreak because it may increase the risk of purpurahaemorrhagica (skin disease) developing.

When new horses enter a property it is prudent to either isolate them for 2 weeks (some would say 4) and check for clinical signs of strangles. Unfortunately carriers generally show no clinical signs and few people are prepared to isolate their horses for the required period of time. A more realistic alternative to isolation is collection of a blood sample and measurement of antibody levels to *S.equi* before horses enter a yard.

## Disease Control

During an outbreak the following control measures should be taken:

1. Isolate infected horses and horses that have had direct contact with the infected case in the previous week. Seek veterinary guidance on effective isolation procedures.
2. Minimise the movement of people and equipment between horses until it is determined which horses are likely to be infected
3. Stop all movement of horses on and off the yard
4. Seek veterinary intervention to identify infected horses by regular swabbing or scoping
5. Regularly disinfect water troughs, feed bowls and any other equipment that may pass between horses
6. Regularly disinfect the stable and surrounding environment of infected horses
7. Rest stables or pastures that have contained infected horses for at least 4 weeks
8. Demonstrate that infected horses are free from the disease either i) by collecting 3 negative swabs from the throat at 5-7 day intervals or ii) by collecting negative culture and PCR samples from the guttural pouches (preferably on 3 occasions but if PCR is performed once may be acceptable).

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