

# Nursing a horse with strangles

Strangles can be an extremely debilitating and unpleasant experience for an infected horse. Diligent nursing care is important as the disease runs its course, to maximise the chances of a full and straightforward recovery. Veterinary nurses can play a critical role in strangles outbreaks by ensuring horses are in a comfortable environment within quarantine, are encouraged to eat and drink, benefit from careful abscess management and are monitored closely. Nurses also provide essential support for vets during procedures such as guttural pouch endoscopy, as well as helping to maintain strict biosecurity protocols to prevent further spread of disease.

<https://doi.org/10.12968/ukve.2021.5.5.225>

**Helen Whitelegg**, Senior Campaigns Officer, **Tom Saunders**, Registered Veterinary Nurse, Redwings Horse Sanctuary, Hapton, Norfolk, NR15 1SP. [hwhitelegg@redwings.co.uk](mailto:hwhitelegg@redwings.co.uk)

**Key words:** strangles | equine nursing | infectious disease | biosecurity

**A** strangles diagnosis is not something anyone wants to be faced with. The logistics of locking down a yard, stopping horse movements, contact tracing and managing horses in quarantine can be overwhelming. However, alongside these vital steps to contain and eliminate the bacteria, it is essential not to lose sight of the needs of the infected horses.

Strangles is caused by the bacteria *Streptococcus equi*, which is highly infectious and extremely well adapted to survive in a horse's respiratory system and spread between individuals. Any horse is at risk of infection and although there is increasing awareness of horses who only develop mild signs of disease, some individuals will experience debilitating illness that can last for days or even weeks.

Although the majority of horses will recover completely from strangles, up to 20% of cases develop complications and the disease is fatal for around 0.9–9.7% of infected individuals (Boyle et al, 2018).

## The effects of strangles

When a horse ingests or inhales *S. equi*, the bacteria move quickly to the lymph nodes around the head – most commonly the submandibular and retropharyngeal lymph nodes. By entering a lymph node, bacteria are effectively hidden, making testing and diagnosis difficult in the early stages.

Severity of disease symptoms will depend largely on the bacterial load the horse was infected with; whether the individual has any pre-existing immunity to strangles from a past exposure, or has a weakened immunity because of concurrent health problems. A horse who is vulnerable to *S. equi* bacteria is more likely to develop serious symptoms and younger horses can be particularly susceptible to infection (Rendle et al, 2021).

Signs of strangles vary, but can include:

- Fever
- Lethargy
- Loss of appetite

- Purulent nasal discharge (from abscesses rupturing into the guttural pouch(es))
- Swollen or abscessed lymph nodes (*Figure 1*)
- Difficulty swallowing (dysphagia)
- Laboured breathing (dyspnoea)
- A cough.

The earliest indications of disease are usually fever and lethargy, which develop anywhere between 3 and 21 days after the horse is first exposed to bacteria (the time taken for disease to develop is also influenced by bacterial load and pre-existing immunity). At the point when pyrexia first develops, the horse is less likely to be infectious to others. This is why monitoring rectal temperatures is such an important part of managing an outbreak and maintaining biosecurity, both as part of routine horse care and where there has been an increased risk of transmission, such as mixing with other horses at an event.

## Veterinary attention

A vet should be consulted as soon as possible if infection is suspected, along with putting an immediate stop to all horse movements on and off the premises and placing the affected horse(s) in quarantine.

Although a vet cannot 'cure' strangles, targeted medication can provide symptomatic relief. The vet can then work with those caring for the horse(s) to ensure there is careful monitoring and support through what can be an unpredictable disease.

Administration of a non-steroidal anti-inflammatory drug (NSAID) is important to provide pain relief and reduce fever. These drugs can also play a key role in improving appetite and encouraging drinking by alleviating the severity of symptoms.

Antibiotics are not recommended for routine use in cases of strangles as there are concerns they may slow progression of the disease and affect the development of immunity post-infection. The recently published best practice guidelines on strangles state that 'the use of systemic antimicrobials should be avoided unless

### Box 1. Redwings' strangles experience

Redwings regularly deal with horses who arrive at the charity with signs of strangles, or who test positive for the disease through a routine screening process for all new arrivals. Between 2011 and 2016 the quarantine teams cared for 87 strangles-positive horses; 47 of these were strangles carriers with no outward signs of infection. With treatment and good nursing care all made a full recovery, with the exception of three individuals who were euthanised after developing complications as a result of metastatic or 'bastard' strangles.

In addition, Redwings experienced its own strangles outbreak in 2015 when infection spread from horses at the charity's quarantine centre to a resident at another sanctuary site. Thanks to prompt use of quarantine and lockdown measures by staff, the outbreak was limited to 30 horses on a site caring for over 300 rescued equines.



Figure 1. Retropharyngeal and/or submandibular lymph nodes (pictured) are commonly abscessed during *S. equi* infection.



Figure 2. A raised feed bowl was an important part of Norma's care while she had large abscesses forming.

they are indicated in horses with dysphagia, dyspnoea or persistent pyrexia' (Rendle et al, 2021).

### Caring for a horse with strangles

While veterinary involvement is vital, the management and care provided by a nurse or owner to a sick horse is equally important

to reduce pain and discomfort and support the body as it fights infection.

### Environment

A quiet, well-ventilated stable with a deep bed will encourage the horse to rest. The following considerations should also be factored in to the creation of a suitable environment for a horse with strangles to recover in:

- It is important to remember that strangles is not an airborne disease, so good airflow poses no risk of transmission and clean air has important health benefits for a horse with compromised respiratory function
- The horse's mental, as well as physical, wellbeing should also be taken into consideration. Confinement and isolation work against fundamental equine needs and can create additional stress for a sick horse
- Try and provide a wide field of vision for the horse, as this has been shown to have significant psychological benefits for stabled equines (Cooper et al, 2000)
- If possible, include other horses in the field of vision – at a safe distance
- A stable mirror can help simulate companionship, but check the horse is happy with it if introducing for the first time (they are not recommended for use with stallions).
- Nursing in an outdoor environment might suit some horses and owners better, in which case ensure the horse has shelter options especially since many outbreaks happen in the colder months.
- If caring for a horse with strangles in a paddock, clean and disinfect water containers regularly as *S. equi* bacteria can survive for up to 6 weeks in water (Boyle et al, 2018). Fencing, gates, shelters and other structures will also need cleaning and disinfecting after use by a horse with strangles as there is evidence bacteria are able to survive for several days in wet, cool situations (Durham et al, 2018).

### Nutrition

Loss of appetite and even difficulty swallowing (dysphagia) are common signs of strangles, but nutrition is essential to the horse's recovery. There are many small but successful adaptations that have been used successfully at Redwings Horse Sanctuary (Box 1) to help maintain nourishment and hydration levels:

- When the horse is reluctant to swallow, monitoring fluid intake is critical. NSAIDs can provide vital symptomatic relief, but also mean that hydration is particularly important to ensure healthy kidney function
- Use buckets rather than automated water tanks so you can monitor how much the horse is drinking.
- Soak hard feed liberally to make food softer and easier to swallow and increase fluid intake.
- A raised feed bowl may be helpful as strangles can make stretching the neck uncomfortable (Figure 2)
- Make sure hay is of a good quality, as soft as possible and consider soaking to soften further
- If forage is not being eaten, consider offering the horse all its daily intake as regular small portions of soaked fibre cubes, alongside a small soaked haynet that can be picked at but not relied on



### Box 2. Case study: Dancer

Rescued as a foal at foot, Dancer (*Figure 3*) developed signs of strangles shortly after her arrival at Redwings. Struggling with multiple abscesses, laboured breathing and persistent fever, Dancer required intensive veterinary and nursing support. Still suckling, but also requiring some hard feed because of her age and her mother's poor condition, the team needed to carefully monitor her feeding, drinking and suckling. Recognising when Dancer appeared to be suckling, but was not in fact managing to ingest milk, meant more support was provided by stomach tube over a critical 36-hour period.

A large number of micro-abscesses around her face almost certainly contributed to Dancer's reluctance to eat and drink. She clearly found regular application of warm compresses soothing and cleaning dried pus from her skin helped improve comfort and malleability, in addition to reducing infective material in the quarantine area.



Figure 3. Dancer the foal infected with strangles.



Figure 4. Warm compresses can help an abscess to rupture and encourage drainage.

- Try adding appetisers such as sugar beet, grated carrot or handfuls of fresh grass to feed
- Do not mix medication with feed if it is being left uneaten; the horse needs both, so administer drugs separately.

- Try using warm water to soak feed or fill water buckets if the weather is cold
- Keep feed bowls and water buckets clean and ensure all disinfectant is thoroughly rinsed off
- Do not give up – be imaginative, offer different feeds in different ways, or talk to a vet if there are concerns that a horse is not drinking or eating enough
- Be ready for additional intervention in more severe cases
- Monitor and make a note of what the horse is eating and drinking along with other health indicators, particularly their hydration status.

### Abscess management

Lymph node abscesses are a relatively common sign of strangles. These swellings are caused by accumulating pus and can be large, painful and compromise functions such as breathing and swallowing. The build-up of pressure will eventually cause the abscess to burst via the route of least resistance, providing welcome relief to the horse, often resulting in an immediate improvement in demeanour. If abscesses have burst but the horse is still dull and painful, it suggests further abscesses have yet to rupture.

It is recommended to let abscesses develop and rupture naturally (Boyle et al, 2018), although when respiration, eating and/or drinking are impaired (*Box 2*), or the patient is struggling to cope with their infection, it may be necessary for a vet to lance an abscess. Often abscesses are made up of several separate chambers linked together so lancing may not achieve the desired outcome, particularly in the earlier stages of disease but helping an abscess to burst naturally can provide relief and reduce suffering.

In cases where abscesses are impeding respiration and lancing is not possible or is ineffective, the vet may need to perform an emergency tracheotomy to clear the airways until the abscesses have ruptured.

Regular application of warm compresses can encourage an abscess to develop and rupture more quickly, and often seems to be soothing for the horse. Compresses can be applied safely and effectively using the following steps:

- Depending on the behaviour of the horse, using a headcollar and leadrope and/or enlisting the help of a handler can help
- Pour about half a litre of hand-hot water (think warm bath) into a clean bowl and dunk a good handful of cotton wool or a clean rag into the water and form into a palm-sized pad
- Apply gently to the edge of the abscess at first, checking that the horse is comfortable with the feeling
- Then, carefully cover the surface of the abscess with the compress. Do not apply pressure, but make sure it is in close contact with the skin (*Figure 4*)
- Leave until the compress has cooled, then resoak in water and repeat. If there are multiple abscesses, use the same technique for each one in turn.

Once an abscess has burst, compresses can still be used to help keep the opening clean and to encourage pus to drain.

- Trim long hair away from the drainage hole and keep the area clean using standard wound hygiene practices
- Continue to hold a clean, warm compress over the drainage hole

- Discard each used compress rather than resoaking and reusing
- Remember that drained pus will be highly infectious, so use a suitable container to collect the used compresses and be ready to dispose of in clinical or quarantine waste
- If an abscess is draining freely, spend as long as you can using a compress to collect and dispose of it in order to reduce infective matter contaminating the area. Less pus means less chance of bacteria being inadvertently transported out of quarantine

## Careful monitoring

Strangles can be an unpredictable disease, with some horses only exhibiting the mildest signs of infection and others developing severe, life-threatening illness. Although many patients start to recover in a few days, there is a small but significant number who develop complications that may last for months. As we never quite know what to expect with strangles, monitoring each infected horse closely is an essential part of patient care (Rendle et al, 2021).

Regular temperature, pulse and respiration checks are essential. Temperature and respiration are both commonly affected in strangles cases, and a raised heart rate can indicate pain or discomfort.

Droppings and mucus membranes are important indicators of food intake and hydration levels, which can be adversely affected by *S. equi* infection. Observing changes in demeanour is equally important. Dullness and loss of appetite are common, particularly in the early stages of infection and when abscesses are developing. If a horse with a burst abscess remains off-colour, or deteriorates, it is often related to further abscesses which may not always be visible externally.

When administering medication such as an NSAID, monitoring temperature, pulse, respiration and demeanour can help the vet determine the effectiveness of the drug and enable them to optimise the dosage.

Record keeping should follow the same protocol as other cases, but with quarantine it helps to set up a system so that notes can cope with disinfection or be written up outside quarantine.

## Quarantine

The key to offering the best nursing care to a horse with strangles without risking further spread of infection is to have robust quarantine procedures in place (Figure 5). A quarantine area for a horse with strangles should always include:

- A margin of at least 10 feet beyond the horse's living area (where it is not protected by a solid partition)
- A clearly marked boundary for entry and exit point(s)
- Signage explaining entry restrictions
- Clean overalls and disposable gloves for use by anyone entering quarantine
- A receptacle for used overalls – either a tub of disinfectant or bin if single-use
- A brush for removing dirt from boots and foot dip for disinfecting
- A heavy duty bin liner for waste, including disposable gloves
- Hand sanitiser
- A supply of disinfectant, measuring jug and accessible water supply
- Room to store the essentials for patient care within the



Figure 5. Setting up and using an effective quarantine area is critical to outbreak management and ensures a patient can have all the care they need while still protecting other horses.



Figure 6. An experienced scoping assistant can make an endoscopy a much quicker and more comfortable for the horse.

quarantine area, including nursing supplies, stable equipment, feed and bedding

- A system for managing muck, either within the quarantine area, or by taking it safely to a designated quarantine muck heap that is clearly segregated from the main yard muck heap.

## Scoping support

In addition to diagnostic procedures that may be used during an outbreak, every infected horse should be tested once clinical signs of strangles have resolved to ensure they have a negative result before quarantine measures are lifted. It is common for horses to remain infectious for several weeks after their recovery (Boyle et al, 2018), meaning this screening process is essential to determine when there is no longer a risk of further transmission.

Endoscopy (Figure 6) is the quickest and most accurate way of determining whether a horse is carrying *S. equi* bacteria in their guttural pouches, including any horses who have solidifying pus



retained in one or both pouches, meaning they are at high risk of developing 'chondroids' and becoming a strangles carrier. A vet can use the scope to clear residual pus and nascent chondroids to help prevent carriers forming, thereby eradicating one of the most common sources of new strangles outbreaks.

It is recommended that all horses are scoped around 4 weeks after the last patient becomes symptomless (Rendle et al, 2021). The timeframe needs to be a balance between giving horses a reasonable chance of testing negative (avoiding the need to repeat the procedure), and not prolonging their time in quarantine unnecessarily.

A veterinary nurse or assistant is usually needed to help with scoping, supporting the vet by:

- Setting up the scoping equipment so that everything is to hand for the vet while the procedure is carried out
- Holding the horse for sedation (required to help keep the horse's head still throughout and reduce the unnatural sensations of the scoping procedure)
- Supporting, raising and lowering the horse's head as required to ensure samples can be collected from the pouches
- Working with the vet to gently guide the scope up the horse's nasal passage and into the pouch (the horse may be unsure about the sensation when the scope is inserted and when water is introduced to the pouch to collect the sample, but most horses show very little resistance to the procedure thanks to the sedation)
- Ensuring the horse does not have access to forage until the effects of sedation have worn off
- Providing plenty of water and bedding for the patient to encourage them to urinate as they flush the sedatives out of their system
- Taking time to scrupulously sterilise the scoping equipment after each use to ensure there is no transmission of bacteria between samples from different horses
- Ensuring the whole process is carried out within strict quarantine protocols, including disinfecting everything that has been taken into the isolation area before exiting.

## Complications

Up to 20% of horses can suffer complications as a result of strangles infection (Boyle et al, 2018), which is why monitoring is such an important part of patient care. Strangles carriers are perhaps the most commonly recognised complication, but other, less common but more severe complications include metastatic ('bastard') strangles, purpura haemorrhagica, myositis (muscle inflammation) and myocarditis (heart inflammation).

While the fatality rate for strangles overall is relatively low at around 1–10%, mortality increases significantly in complex cases and intensive treatment may be required. Bastard strangles, where infection migrates to lymph nodes beyond the respiratory system, can be particularly difficult to diagnose as abscesses are often not visible and symptoms vary considerably depending on which parts of the body are involved. Metastasised infection has been known to affect a horse's lungs, brain, abdominal and thoracic lymph nodes or peritoneal and thoracic cavities, producing very different symptoms in each case (Boyle et al, 2018).

## KEY POINTS

- While managing a strangles outbreak involves a broad perspective to assess and curtail the extent of disease spread, we must be equally mindful of the experience and care of infected horses:
- Small adaptations to a horse's environment, diet or care can make a big difference to alleviating the effects of *Streptococcus equi* infection.
- Monitoring and maintaining sufficient food and water intake is critical to a dysphagic or anorexic horse and a persistent, creative approach is sometimes needed.
- Careful abscess management can speed up rupture and drainage of purulent material and provide significant symptomatic relief for the horse.
- Strangles is unpredictable and a horse's condition can deteriorate rapidly, meaning close monitoring and record-keeping are essential.
- Exemplary biosecurity practices must be maintained at all times to prevent disease spread and uphold professional standards.

Purpura haemorrhagica results from damage to small blood vessels, leading to leakage of fluid into tissues that presents as oedema. On rare occasions, this may result in irreversible damage to certain organs because of a severe compromise to blood supply and oxygen delivery. Such cases, which carry a poor prognosis, are likely to require intensive supportive and targeted treatment, usually necessitating referral to an equine hospital facility.

## Prevention through biosecurity

Seeing a horse suffering the debilitation of strangles infection is a reminder of how important it is to use routine biosecurity to help prevent the spread of a disease that is still, sadly, all too common. As equine professionals, we have a responsibility to use exemplary biosecurity practices to reduce the possibility of cross contamination as we move between horses and between premises. Being aware of transmission risk points, and routinely sanitizing ourselves and our equipment, not only prevents spread, but also demonstrates to clients what good biosecurity involves, and familiarises us with the resources and procedures that are required when we provide vital nursing care to an infected horse. **EQ**

## Conflict of interest

The authors declare no conflicts of interest.

## References

- Boyle AG, Timoney JF, Newton JR, Hines MT, Waller AS, Buchanan BR. Streptococcus equi infections in horses: guidelines for the treatment, control and prevention of strangles—revised consensus statement. *J Vet Intern Med.* 2018;32(2):633–647 <https://doi.org/10.1111/jvim.15043>
- Cooper JJ, McDonald L, Mills D. The effect of increasing visual horizons on stereotypic weaving: implications for the social housing of stabled horses. *Appl Anim Behav Sci.* 2000;69(1):67–83 [https://doi.org/10.1016/S0168-1591\(00\)00115-5](https://doi.org/10.1016/S0168-1591(00)00115-5)
- Durham AE, Hall YS, Kulp L, Underwood C. A study of the environmental survival of *Streptococcus equi* subspecies equi. *Equine Vet. J.* 2018;50(6):861–864 <https://doi.org/10.1111/evj.12840>
- Rendle D, de Brauwere N, Hallowell G et al. Streptococcus equi infections: current best practice in the diagnosis and management of 'strangles'. *UK-Vet Equine.* 2021;5(Sup2). <https://doi.org/10.12968/ukve.2021.5.2.S.3>