GETTING UNDER *his skin*

Cellulitis is a common condition that appears suddenly and can be nasty, but how can you protect your horse against it? Vet Aoife Byrne from Chapelfield Vets, a member of XLEquine, explains

Finding your horse with a massively swollen, painful leg can be alarming, especially when it occurs completely out of the blue with no obvious cause. There are few conditions that cause this dramatic symptom and one of them is cellulitis. Cellulitis is widespread infection and inflammation that is generally associated with bacterial infection of the skin and the soft tissue directly underneath it (subcutaneous tissue).

Photos: Bob Langrish, Bob Atkins and XLEquine. With thanks to XLEquine for their help with this feature, xlequine.co.uk

Our expert

Aoife Byrne DrMedVet MRCVS qualified from Szent István University Faculty of Veterinary Science in Budapest in 2007. After a stud season at the Beaufort Embryo Transfer Centre, she worked at Rowe Equine and the Equine Eye Clinic, before moving to Chapelfield Vets equine clinic.

What's the cause?

The disease can be divided into two categories – cases with a known cause, known as secondary cellulitis, and cases with no obvious underlying cause, known as primary cellulitis.

Causes of **secondary cellulitis** include infections that occur following surgery, joint injections, wounds or blunt trauma such as a kick. **Primary cellulitis** is thought to arise from a break in the skin, which could be as small as the tiny puncture wound created by an insect or mite bite and not discernible even on careful inspection of the area. In most cases, there is no obvious damage to the skin and it appears as though the limb has simply swelled up for no reason.

It is often assumed that the infection is caused by staphylococcal organisms (above), since *Staphylococcus* is the chief inhabitant of equine skin surfaces. In many instances, it's not possible to confirm the actual pathogen involved, but certain environmental conditions — including prolonged exposure to deep mud or sand (both of which cause drying and irritation of the skin, which allows bacteria to break through its protective barrier) — can promote the development of cellulitis.

Spotting the signs

In horses, cellulitis often only affects one limb and it's usually a hindlimb. Typical signs include heat, marked swelling and pain in a limb. Sometimes this is centred around a given area, such as the hock or pastern, and sometimes it extends up and down much of the limb. The swelling is usually hot and painful, and pits when firm pressure is applied. Your horse may also develop a fever – a temperature over 38.6°C.

Affected horses will be lame and sometimes unable to bear weight on the swollen limb. The lameness develops acutely and may precede the swelling, which follows within a few hours. Owners often suspect that their horse has a fracture due to the severity of the lameness – it's not unusual for the horse to be non-weight bearing on the affected leg. You should call your vet as soon as you suspect cellulitis, because prompt treatment is essential.

Your horse may be severely lame

DID YOU KNOW?

➤ Lymphangitis causes swelling similar to cellulitis, but lymphangitis is inflammation of the lymphatic vessels, whereas cellulitis is infection of the skin and soft tissue beneath it.

Confirming the diagnosis

Your vet will examine your horse and a diagnosis can usually be assumed on the clinical signs. To confirm the diagnosis, your vet may decide to conduct an ultrasound scan of the limb to check the subcutaneous tissues for evidence of cellulitis and take an X-ray to rule out the possibility of bone involvement, such as a bone fragment or bone infection. They may also decide to take a sample of fluid or tissue from the leg to be cultured, so that they can decipher which bacteria is causing the infection. This enables them to select an appropriate antibiotic. Ultrasound can be useful for finding a suitable area from which to take a fluid sample.

Alleviating the symptoms

Antibiotics and NSAIDs will be prescribed by your vet to help combat the swelling and infection. It's important to cold hose the leg and hand walk your horse, if he is comfortable enough, to help maintain his circulation. Doing this up to three times a day will help to decrease the build-up of fluid, and improve his circulation and comfort. After hosing and walking, the leg should be dried thoroughly before putting on a compressive bandage – your vet will be able to show you how to do this safely and effectively. Massaging the leg will also help to improve circulation and encourage fluid drainage.

A recurring problem

An episode of cellulitis can become a chronic or recurring problem, so if your horse has suffered with the condition, you may get it under control initially, but it's likely that he'll have flare-ups in future. It is important to treat the condition early and aggressively to help prevent this situation, but there are many instances in which the horse does get treated promptly and the inflammation still returns at a later date.

Bandaging (left) and hand walking can help relieve the symptoms

"If your horse has suffered with cellulitis, you may get it under control initially, but it's likely he'll have flare-ups in the future"

Swelling control

The swelling that occurs due to fluid build-up is not only painful in the initial stages, but is often hard to get rid of, even once the infection has resolved, and this can contribute to continued lameness issues. Therapies aimed at minimising inflammation, fluid accumulation and swelling include compression and cryotherapy (treatment using extreme cold)...

- **Compression** has been shown to be effective in stimulating tissue healing, minimising fluid build-up and increasing blood flow. It can be provided by bandaging the limb, or by using boots or other devices that intermittently inflate to squeeze the limb, then deflate (intermittent pneumatic compression therapy).
- **Cryotherapy** reduces the inflammatory response in the tissue, reduces the amount of energy required by the tissue and provides short-term pain relief. You can use ice packs, ice boots or whirlpool systems.

KEEPING CELLULITIS AT BAY

There are several things you can do to help prevent a bout of cellulitis...

- Maintain a regular exercise programme or provide plenty of turnout on a daily basis, as long as your horse is fit to do so. This helps improve fluid drainage through the lymphatic system from the legs.
- Bath your horse carefully. Bathing equipment may act as a carrier for the causative bacteria, and the act of bathing may predispose the skin to drying and chapping. Therefore, hygienic handling of bathing equipment and careful drying of limbs after bathing is highly recommended. Avoid using harsh disinfectants such as chlorhexidine where possible.
- Observe your horse closely and communicate with your vet if you suspect it may be recurring, so that treatment can be initiated promptly.
- Keep his legs clean and dry. Loss of skin integrity is an important risk factor for cellulitis.
- Avoid turning horses out in areas with standing water, mud and deep sand, if possible.
- Use protective leg boots if your horse is prone to self-trauma while turned out or during exercise.

Potential complications

Although cellulitis itself can be fairly problematic, there are also several complications that can occur as a result of this condition....

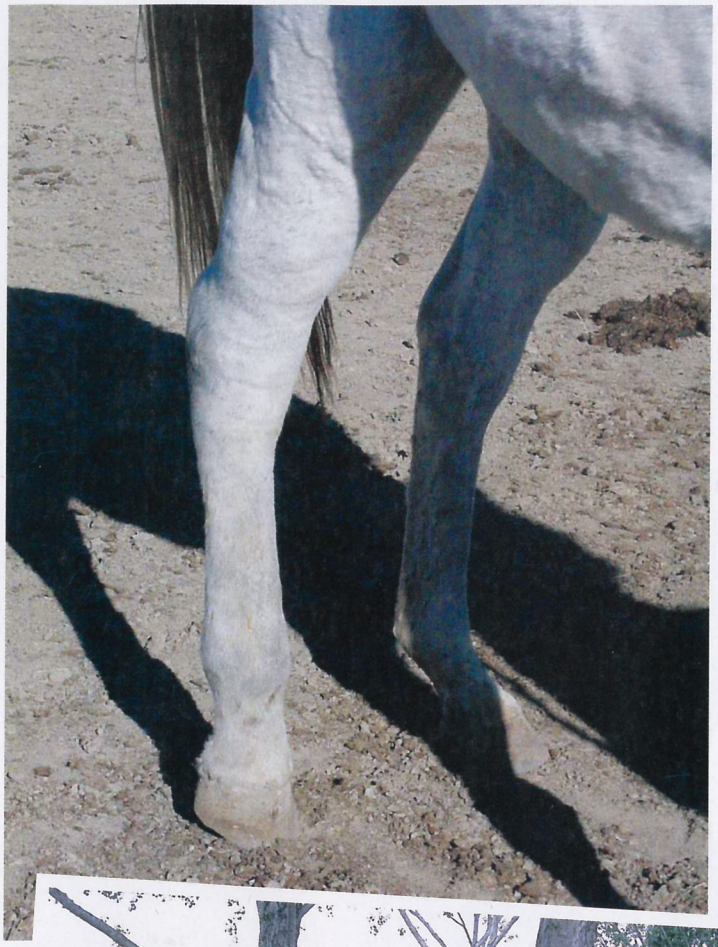
● **Laminitis** can be a factor during the acute phase of the infection, when it is still developing. The horse may become septic, and bacteria, bacterial toxins or both can enter the circulation and injure the laminar tissues in the feet. Also, if the affected limb stays very painful for a protracted period of time, the horse may develop mechanical laminitis in the unaffected foot due to excessive weight-bearing. The laminitis may be severe enough to put the horse's life at risk.

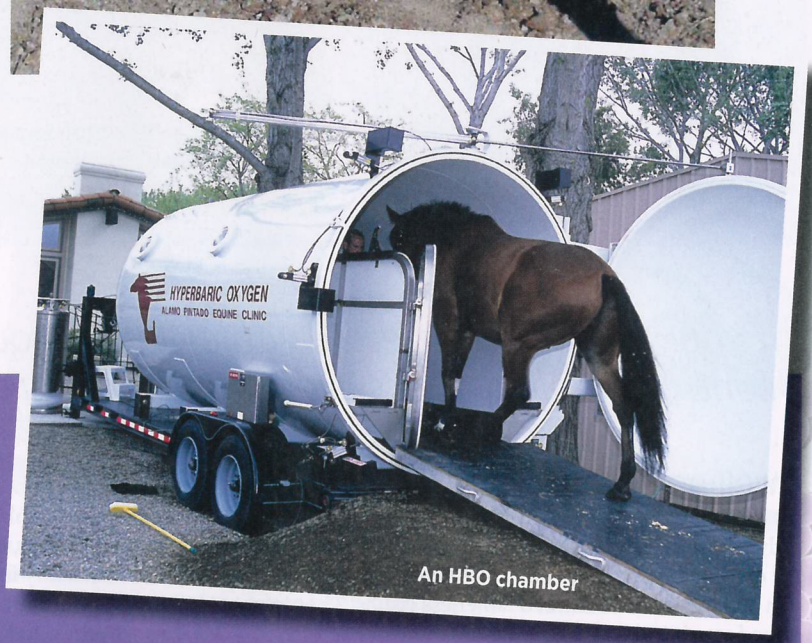
● **Dermal necrosis** (death of the skin overlying the cellulitic area) may develop as a result of the skin's blood supply becoming compromised. This may be secondary to severe swelling, as a direct result of toxin production or as a result of a combination of these factors.

● **Vascular thrombosis** often occurs in the jugular veins of the neck due to either the presence of a long-term catheter or repeated injections of antibiotics and anti-inflammatories into the vein.

● **Persistent lameness** may occur as a result of permanent damage to the limb, which often does not return to its normal shape.

● **Colic** can occur when the horse does not eat or drink enough as a consequence of being in pain, either due to the cellulitis itself or conditions related to it, such as fever or laminitis.





An HBO chamber

Alternative therapies

While hand walking, cold hosing and bandaging is a mainstay of treatment for cellulitis, new rehabilitation tools that have shown promise as additional treatments are becoming more readily available.

There are boots on the market that are specifically designed for equine use and provide both intermittent pneumatic compression and cryotherapy. Typically, the system is applied to the limb 1–2 times a day for 20–30 minutes at a time.

Also, salt-water spas provide cold, hypertonic water with aeration (having a higher osmotic pressure than fluid in the body, hypertonic water draws fluid out). This combines the efficacy of cryotherapy with the osmotic (movement of fluid across a membrane) action of salt water to decrease soft tissue inflammation and provide pain relief.

In the USA hyperbaric oxygen (HBO) chambers are becoming increasingly available for horses. They increase the oxygen content delivered to the tissues by having the horse breathe 100% oxygen within a pressurised chamber. The proposed therapeutic effects of HBO therapy for cellulitis include reduction in fluid build-up, accelerated destruction of microbes and improvement of antibiotic exchange across membranes.

For cases where systemic (treating the whole body) antibiotics have failed, intravenous regional limb perfusion can be tried. This involves injecting antibiotics directly into a vein as close as possible to the affected area. Alternatively, another method of delivering antibiotics directly to the cellulitic area is to implant antimicrobial-impregnated beads or collagen sponges into the leg. ■