



Proximal Suspensory Desmitis

The suspensory ligament is an integral part of the suspensory apparatus in the horse and is prone to injury. The suspensory ligament runs down the back of the cannon bone, from the knee (the hock in the hindlimb) to the fetlock, in between the two splint bones.

The suspensory ligament can be split into three sections: the proximal (top) portion, the body and the branches. The ligament is made up of both muscle and ligamentous (collagen) fibres. Each section of the suspensory ligament can become injured and inflamed (what we call 'desmitis'), but this article will focus on the desmitis of the proximal suspensory ligament.

So how does the proximal suspensory ligament become damaged? At high intensity work, the ligamentous fibres are put under heavy strain, which can cause some to stretch and break. This fibre disruption causes an inflammatory response, which is what causes the pain associated with the disease. Proximal suspensory desmitis (PSD) is common injury in both the forelimbs and the hindlimbs of athletic horses. PSD in the forelimb is a common injury in racehorses and can occur in one or both limbs. There is often a pain response when pressure is applied to the area. Hindlimb proximal suspensory desmitis often occurs in dressage and showjumping horses. In the hindlimb, proximal suspensory desmitis has a similar presentation as forelimb PSD, but often a pain response cannot be induced when pressure is applied.



The suspensory ligament runs between the two splint bones from the knee (hock in the hindlimb) to the fetlock. The proximal (top) part is prone to injury.

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Contents:



Proximal Suspensory Desmitis p1



Corneal Ulcers p3



Choke p5



Welcomes and Farewells p6

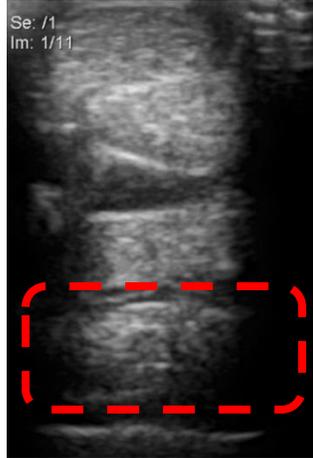
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How will I know if my horse has proximal suspensory desmitis?

Perineural anaesthesia ('nerve blocking') is often the first step taken to diagnosing PSD. In order to image the suspensory ligament, an ultrasound scan can be performed to assess the fibre pattern and any sign of swelling.



If my horse has proximal suspensory desmitis, how can it be treated?

You may have heard 'box rest' being the key to treating a case of proximal suspensory disease. It is an important component of a more rigorous 'controlled exercise programme'. Our vets will develop a personalised programme for your horse depending on the extent of the lesion. The programmes often start with an initial box rest period of a couple of weeks to months (depending on the severity of the lesion), on a course of non-steroidal anti-inflammatories (e.g. bute) followed by increased levels of activity over a period of several months. Repeat ultrasound examinations are recommended throughout the programme to assess how the ligament is responding to the therapy.

Additional therapies that may be recommended as part of the controlled exercise programme include:

- Medicating the proximal suspensory ligament with corticosteroids to reduce initial inflammation
- Extracorporeal shockwave therapy ('Shockwave') – this is a portable machine that generates pressure waves that pulse the specific area of injured tissue in order to help accelerate the healing process.
- Therapeutic Laser: this is another portable, non-invasive therapy that uses a specific range of wavelengths in order to help

reduce inflammation and the formation of scar tissue.

The key elements to treating proximal suspensory desmitis are to repair the damaged ligament and to reduce the formation of inelastic scar tissue. Scar tissue development increases the risk of re-injury, which occurs in many cases of proximal suspensory disease. However, by following the controlled exercise plan, we hope to have your horse get back their normal level of work.

Left: an ultrasound scan of the tendons and ligaments of the lower limb. The suspensory ligament is highlighted in red.



Source: horseracing.com.au



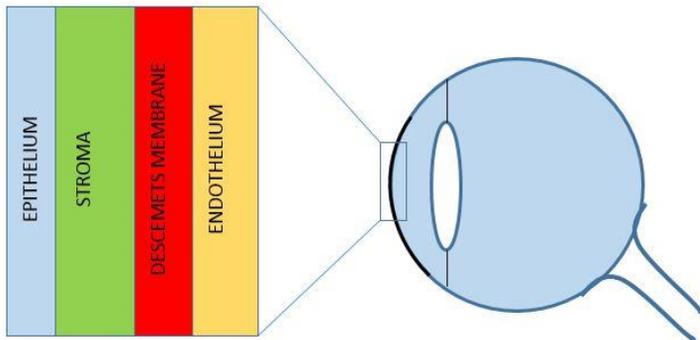
Source: abc.net.au

The main function of the proximal suspensory ligament is to support the fetlock during the weight bearing phase of the stride (see the arrows pointing to the limbs of the racehorse and dressage horse above), and it is during this phase that most injuries to the ligament occur.

Corneal Ulcers

The horse's eye is relatively large and is positioned prominently on the side of the face, predisposing it to injury. Corneal ulceration is very common and is usually due to a traumatic injury to the surface of the eye.

The outer most layer of the eye is called the cornea. The cornea is made up of four layers, depicted in the schematic below:



- Corneal Epithelium
- Corneal Stroma
- Descemet's Membrane
- Endothelium

The epithelium is the outer layer of the eye and consists of a thin layer of cells. The stroma is the main body of the cornea, made up of collagen fibres. Beneath the stroma is a thin layer called 'Descemet's Membrane', which connects the stroma to the endothelium. Features of the cornea which make it a unique tissue in terms of disease and treatment include its complete lack of blood supply (so drugs given systemically will not reach the normal cornea in any significant concentration) and the perfectly aligned collagen strands which form the stroma which allow light through. If this perfect alignment is disrupted the clarity of the cornea is seriously affected.

A corneal ulcer occurs when the corneal epithelium is damaged, exposing the stroma beneath it.

How will I know if my horse has a corneal ulcer?

The signs associated with a corneal ulcer are similar to other sources of eye pain. Therefore, if you notice the following signs, it is important to call your vet immediately:

- Closing of the eyelids (blepharospasm)
- Avoiding light (photophobia)
- Constricted pupil (miosis)
- Increased tear production (epiphora)

Corneal ulcers may be obvious to the naked eye or may need to be stained with fluorescein to be visualised. Fluorescein is an orange dye, which becomes fluorescent green when exposed to water and binds temporarily to the surface of the eye where the outer epithelial layer has been lost.



Above: this image represents the fluorescein dye binding to the stromal layer of the cornea (red arrow) revealing the extent of the corneal ulceration.

How serious are eye ulcers?

Uncomplicated, superficial ulcers will often heal quickly with appropriate treatment. Deeper ulcers which become infected can very rapidly become serious problems. A wide variety of bacteria and fungi are present on the surface of the normal eye and conjunctiva. Many of these can cause disease once the cornea is injured. Some of these bacteria produce enzymes called collagenases which destroy the substance of the stroma, leading to

large, rapidly deteriorating ulcers, which have a gelatinous, “melting” appearance. If unchecked, these continue to worsen, exposing Descemet’s membrane and finally leading to rupture of the eyeball.



Above: This corneal ulcer has the gelatinous appearance of a ‘melting ulcer’, which requires urgent veterinary treatment.

A common complication of corneal injuries is inflammation of the uveal tract (the iris which forms the pupil, the ciliary body which supports the lens and the choroid which forms the back of the eyeball), known as uveitis. Horses are far more prone to uveitis than other species. If unchecked, uveitis can lead to chronic pain, cataract formation, scarring within the eyeball, glaucoma (increased pressure within the eyeball) and permanent damage to the retina ultimately leading to blindness.

Treatment of corneal ulcers

Initial treatment for corneal ulcers should be aimed at preventing infection, reducing inflammation and keeping the pupil dilated. It is also important to ensure that all foreign material (eg wood, sand, grit etc.) is removed from the eye, especially beneath the third eyelid.

Broad-spectrum, topical antibiotics should be used, as there are many different bacteria which can infect ulcers and prevent healing. Topical atropine will dilate the pupil and help to prevent and control uveitis. If indicated topical anti-fungal ointment or drops will also be used.

Systemic anti-inflammatories (flunixin or phenylbutazone) are important to provide pain relief and prevent inflammation, especially in the early stages. Even with the best behaved horse, effective regular application of topical medication can be almost impossible if the eye is very painful for an extended period.

As bright light can be painful, horses with corneal ulcers should always be kept in darkened stables or wear some form of protection from light (e.g. mesh fly veil with tape placed over the affected eye). Working horses with ulcers (or any form of eye inflammation) should also be avoided.

Horses will often resent repeated application of topical medication for corneal ulcers. As treatment may be required up to every two hours, sometimes it is necessary to use a lavage system either through the nasolacrimal duct (through the normal tear drainage duct) or more commonly through an eyelid. This allows drops to be applied regularly without having to directly handle the eye, which may be very painful.

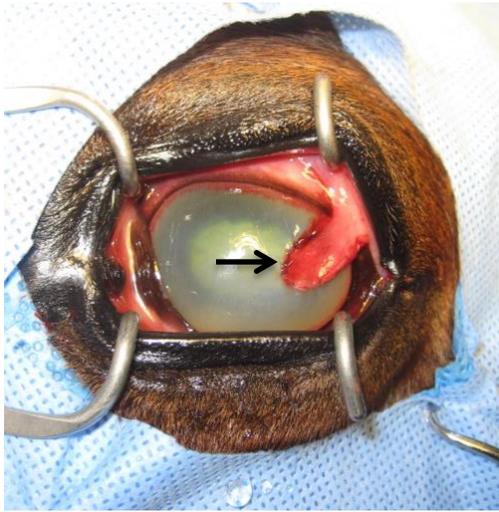


A subpalpebral lavage (SPL) system can be placed to allow eye medications to be administered from a distance (often the tube is attached to the mane, as shown in this photo). This is useful for horses that are becoming head shy from long term eye treatments.

Choke

In more severe and deeper ulcers it may be necessary to debride the area. This involves cutting or scraping away unhealthy tissue from the edges under local or general anaesthesia. This can also be a valuable diagnostic aid to allow laboratory determination of what bacteria or fungi are involved in any infection.

In severe ulcers which are so deep the eyeball is in danger of rupturing surgery is required. A section of conjunctiva (the fleshy pink tissue from around the eyeball) can be dissected away and sutured over the ulcer. This provides a rich blood supply for healing as well as providing protection and some strength to the area where the cornea has become very thin.



Above: This horse has had conjunctival graft surgery under general anaesthesia. A section of the conjunctiva (arrow) has been sutured to the corneal ulcer, improving the blood supply and stability to the area to aid healing.

The key to management of corneal ulcers is early recognition and treatment. Simple ulcers will often heal within a matter of days, but more extensive lesions can take weeks of aggressive treatment.

Choke is a relatively common condition in the horse that requires veterinary attention as soon as it is noticed.

What is 'choke' and what causes the problem?

The term 'choke' actually refers to an obstruction of the oesophagus (gullet), as opposed to an obstruction of the airway when a human chokes.

Choke may occur as primary problem, such as swallowing a large or dry piece of food material. Choke can also occur secondarily to issues such as poor teeth, leading to inadequate chewing and breaking down of food.

How will I know my horse has choke?

Often, the first thing you will notice in a case of oesophageal obstruction is a green, frothy discharge coming out of both nostrils. The discharge usually has food material in it and is due to build-up of ingested food in front of the obstruction. Unlike other species, horses can't vomit, so the easiest path for food material to track back up the oesophagus is out through the nose.

Horses that are "choking" often hold their head out stretched, swallowing multiple times, coughing and can also look anxious. You may even see a bulge in the left side of their neck where the obstruction is.



Above: green discharge containing food material from both nostrils is a characteristic sign of oesophageal obstruction (choke).

If you notice the above signs, you must call your vet. It is also important to ensure your horse does not eat or drink anything until the vet has arrived.

How is choke treated?

Firstly, your vet will often sedate your horse to calm them down, allowing further investigation without any stress. An anti-spasmodic drug is often used to relax the oesophagus to increase the likelihood of the obstruction passing into the stomach. A nasogastric tube is often passed into the oesophagus. This helps to identify how far down the obstruction is and sometimes your vet may be able to push the obstruction into the stomach or potentially flush it down by administering some water into the tube.

The vast majority of choke cases in the horse resolve to simple treatment on farm, but sometimes they don't resolve easily and further investigation and treatment may be required at a referral hospital. Often an endoscope is required to visualise what is causing the obstruction and how serious the obstruction is.

Are there any complications associated with choke?

The main complication associated with choke is aspiration pneumonia. This occurs when food material that has tracked back up the oesophagus due to the obstruction and becomes inhaled down the trachea and into the lungs. Even small amounts of food and saliva down in the lungs can cause an infection and develop into a severe pneumonia. If your vet suspects that this may be occurring they will most likely start your horse on some antibiotics. The other common complication of choke is the formation of an oesophageal stricture. A stricture is essentially a narrowing of the oesophagus due to scar tissue formation after the oesophagus has been traumatised by the obstruction. It is also important to treat any primary dental disease that may have caused your horse to choke in the first place.

Welcomes and Farewells

We would like to welcome our new intern: Dr Megan Bartels. Megan grew up in Queensland and graduated from The University of Queensland in 2016. She has a keen interest in equine sports medicine and lameness.



Sadly, we have had to say goodbye to one of our vets, Dr Sophia Sommerauer. Sophia has been with us for 3 years and has done a fantastic job of anaesthetising the many horses that come into REC for surgery. She returns to her home country of Austria where she will continue working in another equine hospital. We would like to thank Sophia for all her hard work over the past few years and wish her all the best for the future.

