

SUMMER EDITION 2017

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Inside this issue:

Anaesthesia in horses

How it's done safely

A day in the life of...

An equine veterinary nurse



Equine



SUMMER EDITION

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FROM THE EDITOR

Welcome to the 'Summer 2017' issue of Equine Matters...

...produced by XLVets Equine practices.

Welcome to the Summer issue of Equine Matters! Hopefully as you sit down to read this we are enjoying some lovely summer weather. The better weather also sees us out and about more with our horses and in this issue Clare Smith explores how you can keep your horses healthy when they are travelling. Tying up can also be an issue when levels of work are suddenly increased and Katherine Gray explains why this happens and what you can do to help prevent the problem occurring.

Summer tends to be a busy time of year for anyone involved with horses, so sit back, relax and I hope you enjoy this issue of Equine Matters.



Susan Donaldson

BVMS CertAVP(EIM) CertAVP(ESM) MRCVS
Clyde Veterinary Group

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Veterinary Surgeon Alison Howie

XLVets Equine practice Clyde Veterinary Group



Alison Howie BVMS Cert AVP (ESO) MRCVS,
Clyde Vet Group.

General anaesthesia in horses

Whilst many procedures can be performed in standing sedated horses with the help of local anaesthetic drugs, there are occasions where full general anaesthesia is required for procedures to be carried out safely for both horse and surgeon.

Some short anaesthetics can be performed in the field, these instances are more often the exception than the rule and in most cases full theatre facilities are required (figure 1).

Pre-Anaesthetic Preparations

Before surgery is performed, there is a series of tasks that must be carried out;

Fasting: If the procedure is elective (planned), the horse will be starved overnight to ensure the stomach is free from food contents. In an emergency situation this is not vital and the priority must be given to treating the emergency over starving the horse.

Weighing: Where possible the horse will be weighed to ensure accurate drug dosage calculations.

Clinical Examination: A thorough clinical examination is performed, with particular attention to the heart and lungs, to ensure that the horse is well enough to undergo surgery.

Shoe Removal: The shoes will be removed to prevent them slipping during recovery, pulling a shoe and damaging themselves, or damaging the padded floor of the recovery box.

Catheter: An intravenous catheter is placed in the jugular vein to allow venous access throughout the procedure. The catheter is usually placed on the left hand side of the neck, however if the procedure involves the right leg, it will be placed in the right vein, this allows access to the catheter when the horse is lying with its affected leg uppermost.

Clipping: The catheter site is clipped and prepared in a sterile fashion. Other areas may be clipped to allow application of ECG pads and other pieces of monitoring equipment.

Medication: Pain relief and antibiotics, if appropriate will be administered preoperatively.



Figure 1. A fully equipped theatre will be required for most operations

Induction and Maintenance of Anaesthesia

Anaesthesia is induced via the intravenous catheter, the horse is first sedated and then a combination of two drugs is the usual regime. Once the horse is asleep, an endotracheal tube is placed either from the mouth, or from the nasal passageways into the trachea (windpipe) (figure 2). This depends on the intended surgical procedure, for example tooth extractions will require the tube to come from the nose, in order to give the surgeon greatest access to the mouth.

Anaesthetic gas and oxygen are administered via this tube to the lungs to keep the horse asleep. The anaesthetist will alter the amount of anaesthetic gas depending on how responsive the horse is.

The horse is then moved from the induction box to the theatre suite via a winch suspended from the ceiling. The operating table is well padded to prevent muscle damage.

Recovery

Once the procedure is complete, the horse is placed back into the recovery box (the padded room) and further sedated, the sedation allows the horse to come round slowly from the anaesthetic drugs, to prevent them from panicking and trying to stand too soon.

A rope recovery system is commonly used to help stabilise the horse once it is back on its feet. In young or unhandled horses, often the rope system won't be used as it can make them panic if they are not used to being restrained.

It takes approximately one hour for the horse to get back onto its feet, however this varies depending on the length of the surgery and the resulting amount of anaesthetic agents used. The horse will remain quite subdued or sleepy for several hours after returning to its stable.

Anaesthetic Risk

General anaesthesia carries a risk of death or serious injury in any species, however the risk of mortality in the horse is greater. That said, the majority of horses undergoing anaesthesia do so very safely, we use up to date monitoring equipment to ensure the horse's cardiovascular system is stable - however risks can never be completely eliminated (figure 3). The statistics show that 1% of healthy horses have complications during or following anaesthesia. This number is higher for compromised patients, such as very sick horses undergoing colic surgery. The problems most frequently encountered include injury during induction or recovery from anaesthesia, unexpected drug reactions, heart or breathing difficulties and muscle or nerve damage.

Anaesthesia and Insurance Companies

If the horse is insured, the insurance company should be informed of the intention to perform a general anaesthetic. Many companies will not cover costs of complications if they did not have prior notice. In an emergency situation where it is not possible to contact the insurers, exceptions can be made.

Foals

In many ways the foal is very similar to the adult horse in its response to anaesthetic agents. Some of the risks that adults can encounter are not as much of a concern in foals, for example they are not as heavy and so they don't encounter the same muscle damage as a large horse lying on its muscles and they are more easily held manually to help them to their feet.

Newborn foals do bring their own complications; they need intravenous infusions of glucose throughout the procedure as they don't have fat stores to rely upon for energy, they are susceptible to becoming hypothermic (too cold) again due to their lack of body fat. The mare should be kept with the foal for as long as possible, even allowing the mare to see induction of the foal. The mare usually requires to be sedated for the duration of the surgery, to keep her calm.

In summary, anaesthesia in the horse is a complex procedure, and as such it is more often than not carried out by a veterinary surgeon. In order to reduce the risks associated with anaesthesia, advanced monitoring equipment is required to ensure the horse has as few complications as possible. It can be a daunting and worrying time when your horse has to undergo an operation, so having a good line of communication with the surgeon and anaesthetist before the procedure and raising any worries you have should help to ease some of these concerns.



Figure 2. An endotracheal tube administers gas and oxygen



Figure 3. Monitoring a horse during anaesthesia

St Boniface 
Veterinary Clinic



Veterinary Surgeon Clare Smith

XLVets Equine practice St Boniface
Veterinary Clinic



Clare Smith BVSc MRCVS, St Boniface Equine Vets.

Healthy travels: biosecurity away from home

As the weather improves and the competition season gets underway, good biosecurity is vital to ensure infectious diseases don't ruin your plans or harm your horse. Taking simple steps to reduce the risk of infection will help you and your horse enjoy travelling away from home worry free!

This article will discuss

- What infectious diseases pose a risk to competing horses
- Preparing for competition
- Biosecurity at events - single days and staying away
- What to do when you get home

Infectious Diseases

Horses that regularly travel and mix at competitions, camps and training events are at risk from three common and infectious contagious diseases;

Influenza - A highly infectious respiratory virus. Incubation period of one to five days. Spreads rapidly by inhalation of virus particles from respiratory secretions of infected animals - may be airborne spread. Can also be carried on clothes, equipment, bowls and grooming kits.

Strangles - Bacterial infection of the lymph nodes of the head and neck. Incubation period of 7-14 days, but may be up to 3 weeks. Transmitted by close contact with an infected horse, and may also be spread via shared feed/water buckets, on clothes and grooming kits.

Equine Herpes Virus (EHV) - A common virus with the ability to recur in previously infected horses at times of stress. Spread by close direct contact between horses, and indirectly on shared equipment and clothing.

Before you travel

Before you leave the yard, there are a few simple steps you can take to help keep your horse safe:

- Know what is normal - take your horse's temperature daily, at the same time each day, to learn what their individual normal temperature is. Any increase in rectal temperature should be investigated by your vet. If you aren't sure how to take your horse's temperature, please ask your

vet to show you next time they visit (figure 1).

- Ensure your horse vaccinations are up to date. Flu vaccinations require a primary course followed by annual boosters, while EHV vaccines need a booster every 6 months. Regular vaccinations give your horse the best protection against contagious diseases, and reduce the risk of disease spread. If possible, ensure all horses on the yard are vaccinated, even if they never travel. This will reduce the risk of infection being transported home and transmitted to unvaccinated animals.
- Plan your trip - make sure you have enough feed and water buckets, a grooming kit and mucking out tools. It is safer to take your own equipment than use someone else's when you get there!



Figure 1. Get to know the normal temperature for your horse

At the show

One day competitions

Take your own hay, water and buckets (figure 2). This reduces the risk of disease spreading from sharing buckets, and some horses are reluctant to drink strange water. Taking your own water from home means you are more likely to be able to keep your horse well hydrated.



Figure 2. Take your own water and buckets to a show

Avoid close contact with other horses to reduce risk of spread of infectious diseases. Between classes it is better not to stand around outside the ring in close contact with other horses. Put your horse back onto the lorry, or tie them safely to your trailer with a hay net (figure 3). This also gives the horse a chance to relax and recover before you ride again.



Figure 3. Tie up your horse after competing to avoid unnecessary contact with other horses, and provide a hay net.

Letting your horse graze at shows is a nice treat and a good way to pass the time, but consider who has been grazing there before you. If their horse is carrying an infectious disease and has sneezed on the grass, your horse could be at risk. (figure 4).



Figure 4. Hand grazing at a show is enjoyable for horse and rider, but the risks need to be carefully considered



Figure 5. Staying away from home is fun!

Staying away at Competitions or Training

Staying away, often in temporary stables in a strange environment, requires a bit of planning and preparation, especially if you

are going for the first time! By making sure you have all that you need, an overnight show can be a fun and exciting experience for you and your horse (figure 5).

Take your own buckets and bowls to avoid sharing with others. Make sure you take enough hay and feed for your trip as well. If your horse is normally turned out you will need to pack more hay than you would normally use! Make sure your horse drinks during their trip to avoid dehydration.

On arrival, ensure the stable is clean before you unload your horse. Temporary stables are likely to have been used by another horse before you, and someone else may move in after you leave. If there is used bedding in the stable when you arrive, remove it and replace with new bedding before you stable your horse. Make sure any left over hay has been removed too. It is a good idea to take a disinfectant spray, e.g. Virkon Spray, to spray the walls and doors of temporary stables before you use them (figure 6).



Figure 6. Temporary stabling at a multi-day show

Try to avoid nose to nose contact between neighbouring horses. If the walls of the stables aren't solid, you may want to consider using stable curtains. Alternatively you could hang a rug or sheet over the stable wall, but remember to wash it again before using it on your horse!

Avoid handling other horses at the show. We all like to help others, so if you do hold someone else's horse for them, it is sensible to wash your hands before handling your own horse again.

When you get home

Taking the simple steps described above will significantly reduce the risk of bringing any unwanted infections home from a show, but to really improve your biosecurity and protect other horses on the yard, it is a good idea to isolate horses that return from shows for 2-3 weeks, and take their temperature daily. Any coughs, nasal discharge, swollen lymph nodes, loss of appetite or increased temperature should be checked by your vet.

If you need any further advice on biosecurity when travelling, please contact your veterinary practice for more information.



Veterinary Surgeon Katherine Gray

XLVets Equine practice Endell Veterinary Group



Katherine Gray MA VetMB MRCVS, Endell Equine Hospital

Tying up

Tying up (otherwise known as Azoturia, Exertional rhabdomyolysis or Monday morning disease) is the outcome of a number of different conditions in horses causing cramping of the muscles and muscle damage. The condition is often seen when there is a mismatch between a high energy diet and low fitness level, followed by a sudden increase in exercise demand.

This is a very painful condition but generally has a good prognosis and can be avoided with effective management changes.

Causes

Tying up is caused by a mismatch between exercise demands and the muscles' ability to respond, with two major categories:

- Sporadic – sudden overexertion beyond the horse's fitness level
- Recurrent – Underlying genetic muscle disorder predisposing horses to tying up

Tying up can occur in any horse, but recurrent cases are often seen in specific breeds, with differing causes. The cause in Thoroughbreds is often due to abnormal calcium regulation within muscle (recurrent exertional rhabdomyolysis or RER), whilst Warmbloods, draft horses and quarter horses often have abnormal ability to use glycogen in muscles (polysaccharide storage myopathy or PSSM).

Clinical Signs (see table 1)

Tying up is usually seen at the start of, during, or immediately after exercise (figure 1).



Figure 1. Tying up is triggered by exercise

Varying severities of tying up can be seen. A mild case may just lose impulsion or feel stiff during exercise. In contrast, a severely affected horse may be reluctant to move or appear

severely lame. The hindquarters have the biggest muscle mass and so are usually the most affected. The horse may appear lame on a hind leg, and the muscles over the hindquarters and gluteals may be very firm and painful.

Some horses get distressed, and their heart rate, respiratory rate and temperature may increase. Muscle breakdown products enter the blood and are excreted from the body by the kidneys into the urine. This can make the urine turn very dark red or brown (figure 2).



Figure 2. Urine samples will confirm diagnosis

Diagnosis

- Clinical signs are often sufficient to make a diagnosis.
- Blood and urine samples are important to confirm the diagnosis and assess the degree of muscle damage and potential kidney damage (muscle breakdown products are toxic to the kidneys). The main markers used in blood samples are creatinine kinase (CK) and aspartate aminotransferase (AST), which rise dramatically high after muscle damage. AST can be raised for several weeks after an episode, whilst CK falls quickly once muscle damage has stopped.
- In mild cases an exercise test can be performed, where blood samples are taken before and after a short period of exercise to assess the muscle response.

- Underlying muscle diseases can be diagnosed with genetic hair testing and/or a muscle biopsy (figure 3).

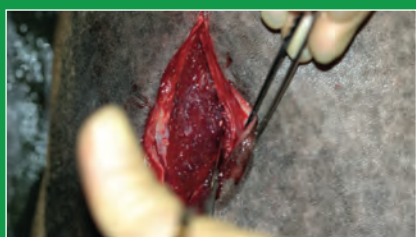


Figure 3. A muscle biopsy

Treatment (see table 2)

Treatment is aimed at stopping ongoing muscle damage and preventing potential kidney damage. Stopping exercise and keeping your horse as still and calm as possible until your vet arrives is important to stop ongoing muscle damage. Your vet will provide pain relief (usually intravenous bute or flunixin) and may sedate your horse. In severe cases, fluids may be given to avoid dehydration and kidney damage; these are either given orally via a

stomach tube, or intravenously. Resting the horse initially whilst they are in pain is important. Once they are moving comfortably turning them out into a paddock or frequently hand walking the horse will reduce the chances of another episode occurring. Your vet may take sequential blood samples to monitor the muscle and kidney damage. Once the horse is no longer tying up, gradual return to work can begin.

Prevention

To prevent further episodes management changes are essential for a horse that is prone to tying up. Simple changes to routine can be highly effective.

- Avoid long periods of box rest - keep your horse turned out if possible (figure 4).
- Make any changes to your horse's fitness gradually so they do not become suddenly overexerted. Ideally exercise your horse daily and maintain their fitness level.
- Ensure long warm up and cool down periods. Exercise sheets can be useful in winter to keep muscles warm.

- Provide good quality hay, and a high fat (oil based) and low starch diet, matched to your horse's exercise level.
- Electrolyte supplements such as vitamin E can be useful.
- Drugs such as dantrolene (muscle relaxant) can be useful in some cases before exercise.
- Keep to a calm routine, especially before a competition or event.



Figure 4. Turning out helps prevent further episodes

Table 1:

Clinical signs of tying up
• Stiffness
• Lameness
• Reluctance to move
• Dark red/brown urine (myoglobinuria)
• Firm muscles especially over hindquarters
• Sweating
• Signs of distress
• Signs can sometimes be similar to colic

Table 2:

Treatment
• Stop exercising the horse immediately
• Keep the horse still and call your vet
• Offer water and encourage the horse to drink
• Your vet will provide intravenous pain relief
• Sedation may be required
• Fluids and electrolytes may be required to prevent kidney damage (either via a stomach tube or intravenously)
• Keep the horse rested until they are able to move freely
• Turn out into a small paddock or hand walk your horse gently
• Repeat blood samples will be needed to monitor muscle damage
• Full recovery after a severe episode may take several weeks
• Very rarely, extreme cases may need to be hospitalised if there is severe kidney damage

Summary

Tying up can be a very debilitating condition, but with quick recognition and veterinary attention there is a good prognosis for a full recovery. Although there is not a cure, changes to your horse's routine can very effectively manage this condition.



Veterinary Surgeon **Charlotte Stanley**

XLVets Equine
practice

**Scarsdale Veterinary
Group**



Charlotte Stanley BVSc MRCVS, Scarsdale Vets.

Targeted worming

The importance of implementing an appropriate parasite control protocol should not be underestimated. Parasites are a problem that all grazing animals are exposed to and if not correctly managed can cause health problems such as chronic weight loss, colic, and in serious cases, death. Whilst there are currently multiple wormers (anthelmintics) on the market, the documentation of resistance is driving veterinary medicine towards targeted worming protocols.



All horses in the UK that have access to grazing are exposed to worms (endoparasites). The level of infection depends on the type of parasite, the degree of exposure and the immunity of the horse. In the past it was customary to routinely 'blanket treat' all horses on a yard at regular intervals. Unfortunately, as a result of this approach, there is now

documented resistance to the older classes of anthelmintic on the market - particularly benzimidazoles.

As vets we now must look to safeguard the efficacy of other treatments and are therefore recommending that yards begin implementing 'targeted treatment programmes'.



Common endoparasites

Cyathostomin (red worm) - the most common equine endoparasite. The adults live attached to the wall of the large intestine. Larval stages (L4) migrate into the wall of the intestine, become encysted and hibernate before emerging to develop to adults. Larvae hibernate during winter and disease occurs during mass eruption of L4 in the spring causing irreversible damage to the gut lining (figure 1).

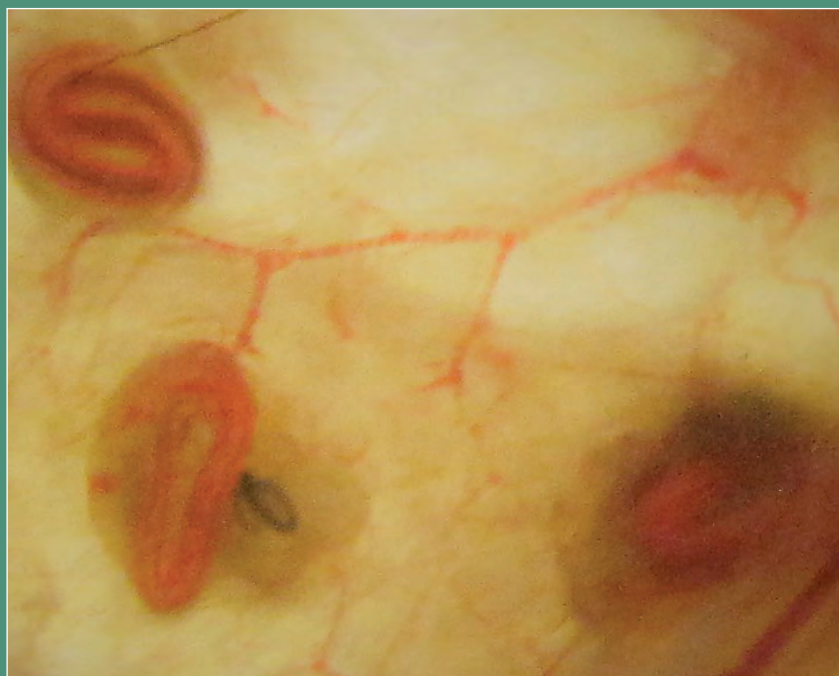


Figure 1. Encysted redworm L4 larvae

Parascaris Equorum (roundworm) - only cause disease in foals. These worms grow very large and cause a mechanical blockage to the large intestine leading to poor growth, diarrhoea and impaction colic.

Anoplocephala Perfoliata (tapeworm) - reside at the ileocaecal junction (where the small intestine meets the colon). Can cause impaction colic (figure 2).

Targeted Treatment Programme

Cyathostomin related disease is caused by mass eruption of encysted larvae into the large intestine lumen and creating irreversible damage to the gut lining. This typically happens in late winter/early spring. L4 are not detected on a traditional faecal worm egg count (FWEC); it is therefore important to treat all horses with a treatment that is effective against encysted larvae in the late autumn. Currently the only effective treatment against these larvae is moxidectin - this drug should be reserved exclusively for this time of

year in a targeted programme to ensure its efficacy is maintained.

During the summer months we must remember that it is impossible to eradicate worms completely and that actually, healthy horses can live disease free with a low worm burden. It is suggested that 20% of a herd population will hold 80% of the worm burden. With that in mind, from February onwards at 10-12 week intervals, FWECs should be taken to identify the high shedding animals that require further worming.

The cutoff for deciding whether a horse requires further treatment on the basis of FWEC results will be influenced by the age of the individual. By only treating the high shedders, hopefully, anthelmintics will be protected from overuse. At this time of year it is recommended to use one of the other classes of drug such as ivermectin, pyrantel or benzimidazoles. However, note that these will treat against adult red worm and roundworm.

Tapeworm is not treated by any of the above drugs, nor is it detected in an FWEC. Tapeworm can be assessed (although not routinely) via a blood test or more recently testing saliva. To treat against tapeworm we recommend annual treatment with praziquantel or a double dose of pyrantel.

Additional prevention measures

Good pasture management - pasture should not be overcrowded and regular poo-picking should be carried out.

Resting pasture - allows time for worm eggs present on the pasture to die before being grazed. For this method to be effective the land must rested for at least 6 months.

Cross species grazing - sharing pasture with other livestock can be helpful in reducing the number of eggs available for horses to pick up. Livestock cannot become infected by horse worms as they will be destroyed in their stomach.

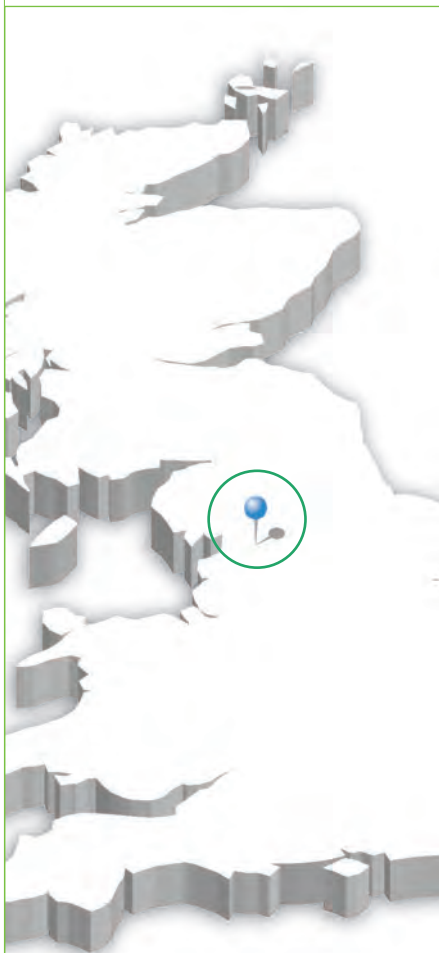
Worming new horses - worming any new horses with a moxidectin/praziquantel treatment at least 48 hours prior to first turnout will reduce the numbers of eggs shed onto the pasture.

Correct dosing - when giving a worm treatment ensure that the dosing given is appropriate for the size of the animal. Weight tapes are really cheap but effective ways of ensuring the correct dose is given.



Figure 2. Tapeworm in the bowel



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Veterinary surgeon Jane King

XLVets Equine practice North West
Equine Vets

Jane King BVetMed MRCVS, North West Equine Vets

Feeding the foal at weaning

Steady consistent growth from the newborn foal through weaning to maturity can influence lifelong soundness, so it's important to get feeding and nutrition right for the developing young animal.

Weaning usually happens at a time of peak growth and is a stressful time for foals. The growth of the foal is often set back by weaning and so proper nutrition at this time is of utmost importance.

Most reputable feed companies employ expert nutritionists who are there to help you, so you can make use of their advice along with that of knowledgeable breeders and your veterinary surgeon to ensure weaning goes as smoothly as possible for your foal.

Weaning top tips

- Weaning is usually carried out when the foal is 5-7 months old.
- Consideration needs to be given as to where the process is going to take place, as mare and foal need to be physically separated eventually.
- Why do we wean? If the mare is in foal again, she needs to have a break from producing milk for the foal at foot before the next one arrives. Mares are usually quite ready to say goodbye to their boisterous foals. Sometimes weaning may need to happen early, for instance if the mare is ill or there is limited grazing for mare and foal.
- A secure field with safe fences or a stable where the top door can be shut to stop the foal jumping out is essential.
- There are different methods of weaning; if mares and foals are in a group, one mare may be removed at a time over a period of days until eventually only one mare and then no mares are left with the foals. Other times an older barren mare or gelding may be left to nurse-maid youngsters.
- Make sure the foal is used to eating some creep feed for at least one month prior to being separated from mum. Foals will usually start to nibble from mum's bucket from a few weeks old.

Did you know?

- At 6 months old a foal is 50% of its adult weight and 80% of its adult height.

- The bone mineral content (BMC) at 6 months of age is 66% complete, and by 12 months 76%. However maximum BMC is not reached till 6 years of age.
- Before weaning the average foal is growing at the amazing rate of 1.0kg/day.



Feeding:

The ability of the weanling to grow to its full genetic potential depends on it being fed a well-balanced diet containing the correct amounts of energy, protein, vitamins and minerals. This diet must be fed at the correct rates.

How the foal is fed at and after weaning depends on what breed it is and what is expected of it in the months ahead. A thoroughbred foal destined for the sale ring will be fed more intensively than a native pony foal living out and which will not be broken in until 4 years of age.

The aim of breeders producing animals for sale or the show ring is to achieve steady consistent growth through weaning and beyond. It is a good idea to periodically weigh the weanling (using scales or a weigh tape) as well as taking a height measurement to track this growth.

Foals have special nutritional needs and weanlings cannot consume enough energy from forage alone to satisfy requirements for optimal growth.

Weanlings have specific requirements for high quality proteins, especially those containing the amino acid lysine; soya is a good source of lysine. In addition to protein, the growing horse requires extra energy in its diet. A diet deficient in either energy or protein will result in a reduced

growth rate.

It is the total energy intake that dictates how fast the young horse will grow. The energy provided in the diet as digestible energy (DE) is the fuel for growth, whilst having the right proteins and amino acids in the diet provides the building blocks for healthy tissue and bone. So in summary you need to feed the right amount of energy as DE, and the protein in the diet must then be at the right ratio to support this growth. Typically a diet should be high energy at 12MJ/kg and 16% crude protein.

The calcium:phosphorus ratio is important for healthy bone growth and should be 1.8:1. This can be hard to achieve in a grain based diet, and so in this case, calcium supplementation may be required.

Just like adult horses, some weanlings do rather too well. A close eye should be kept on condition and body fat. Ribs should be just covered but able to be felt.

To achieve optimum growth, typical rates of hard feed for a weanling thoroughbred or sport horse in the autumn and winter months would be 0.5-0.75kg/month of age/day, split into 3 or 4 feeds. This can be halved in pony breeds.



Beware gastric ulcers

Stress at weaning may be a contributing cause of gastric ulcer formation in foals. Researchers in Germany conducting studies reported at the 7th European Workshop on Equine Nutrition and found gastric ulceration in over 62% of foals in their study.

Epiphysitis and Developmental Orthopaedic Disease (DOD)

These conditions seem to occur particularly in foals that are growing rather too fast and doing too well. Epiphysitis is when the growth plates in the bone are under extra pressure and the area just above the joints becomes swollen, most often affecting knees and fetlocks. It can also be seen in summers where the ground is particularly hard.

DOD is not caused by diet alone, but an excess of energy and excessive growth rates may be a contributing factor to the development of joint problems.

Dietary management and veterinary advice are recommended for foals affected by either of these conditions.

General tips for feeding foals and weanlings

It is particularly important to observe the general rules of feeding as with any horse:

- Only good quality feeds should be used
- Make sure clean drinking water is available at all times
- Feed little and often
- Feed plenty of good quality forage. At least 50% of the ration should be made of hay/haylage or other forage replacer
- Keep to the same routine each day
- Make any changes gradually
- A salt lick or other access to salt should be available.
- Feed according to condition and work done (or in the case of foals and young horses feed for growth)
- Feed should be stored correctly, ideally in clean, dry containers

Being aware of this critically important stage of a young horse's life, and managing it well, will help produce a horse that's healthy and fit for purpose in later life.





Veterinary Surgeon **Dominic Alexander**

XLVets Equine Practice **Belmont Farm and Equine Vets**



Dominic Alexander BVMS MRCVS, Belmont Farm and Equine Vets

Common eye disorders

The horse has one of the largest eyes relative to body mass, when compared with other species. However, the size and prominence of the eye means it can be prone to problems and injuries. As a prey species the horse's vision is crucial to its survival in the wild, and for this reason, it has almost 360 degree vision. There are two blind spots, one behind the withers and one directly in front of the poll.

A healthy eye should be open and free from discharge, with the outer surface of the eye (cornea) appearing shiny. Dust or flies can cause some tear staining which is normal. If you notice anything different from the norm, then it is very possible that something could be wrong (Table 1).

Many eye problems present with the horse clamping shut its affected eye and tears developing; both of these are signs of discomfort and ocular pain (figure 1). They may also have a watery or purulent (pus-like) discharge from the eye and may also resent bright light.

Table 1:

A painful eye will present with one or more of the following signs:

- Blepharospasm (excessive blinking/clamping of eye shut)
- Drooping of the upper eyelid
- Excess lacrimation (overflow of tears)
- Conjunctivitis (swollen/inflamed conjunctivae)
- Discharge (variations of: white, yellow or green and varying consistency)
- Corneal oedema (cloudy cornea)
- Photosensitivity (sensitive to light)
- Miosis (constricted pupil)
- Head tilt
- Rubbing the eyes on forelimbs or objects such as door frames
- Asymmetry of the shape or size of the eyes

Corneal disease

Keratitis

Keratitis simply means inflammation of the cornea. Small, innocuous looking defects in the cornea that are only visible with an ophthalmoscope can be extremely painful.

Corneal ulcers

The cornea is the transparent membrane covering the surface of the eye, and although it is less than one millimetre thick in places, it is made up of four layers. Corneal ulcers are one of the most common equine eye conditions leading to a painful eye and can range from being quite simple to treat, to a potentially sight threatening disorder. An ulcer is a break in the cornea, and the severity of a corneal ulcer depends on its size, depth and progression. Any perforation, such as grit causing abrasion to the cornea or trauma, for example, a twig poking into the eye, can cause an ulcer. Reduced tear production may also lead to ulceration or impair healing.

Bacteria, or occasionally, fungal or viral infections, can cause ulceration or at the very least may impede healing. It is often not

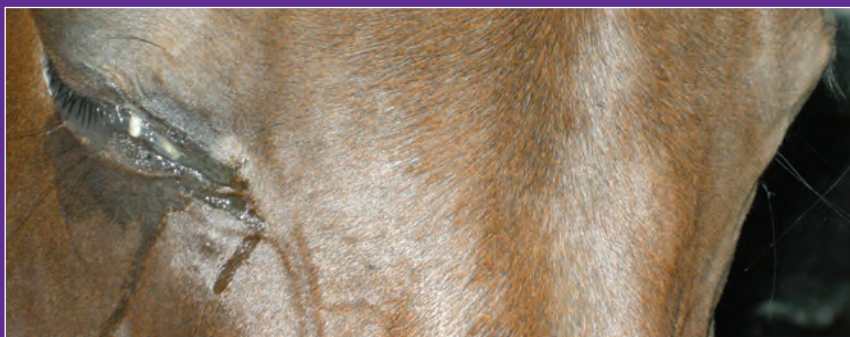


Figure 1. Tears are a common symptom of many eye problems

possible to see an ulcer with the naked eye, so an orange dye called fluorescein is applied directly to the cornea. The dye will turn bright green on contact with a damaged cornea which enables defects to be more readily seen (figures 2 and 3). Gaining access to the eye can be difficult because horses invariably become head-shy when they are in pain, and may need some sedation. The eyelid muscles are very strong so a nerve block may also be required to facilitate opening the upper eyelid.

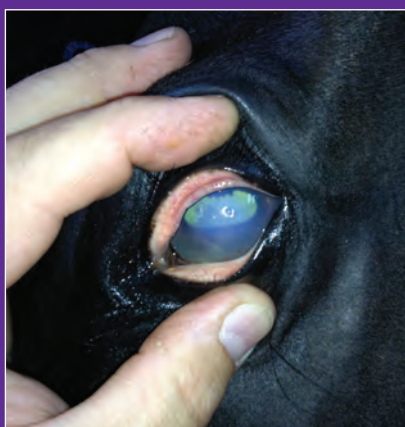


Figure 2. Ulcers are difficult to see



Figure 3. Fluorescein dye makes diagnosis easier

Very minor ulcers can be treated by topical antibiotics and anti-proteinases. If the horse is particularly head-shy and difficult to treat, a subpalpebral ocular lavage can be fitted. This is a tube that carries medication to the surface of the affected eye from the neck or withers.

Anti-Proteinases

Anti-proteinases are used to speed up healing of the cornea. They inhibit enzymes that are naturally present to defend/protect the eye against pathogens which can become overzealous and impede healing. The horse's own blood serum is a good anti-proteinase and is easy to obtain.

Uveitis

Uveitis is the inflammation of the front (anterior) part of the eye (figure 4). It is a very complex syndrome that once a horse has been affected, can recur. If there are repeated episodes of uveitis it is known as equine recurrent uveitis (ERU) or 'moon blindness'. The inflammation caused by uveitis within the eye is the result of the immune system going into overdrive to try to kill a perceived pathogen. Uveitis often occurs secondarily to other conditions; for example, corneal ulceration, and if not promptly treated it will get worse and, in extreme cases, can lead to the loss of the eye.

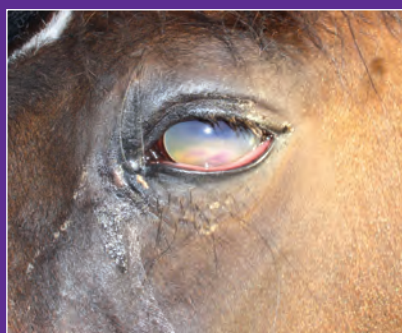


Figure 4. Uveitis. The creamy coloured area in the lower aspect of the eye is called hypopyon. This is essentially inflammatory cells (pus) in the front chamber of the eye. The red area is hyphaema (haemorrhage) into the same area.

Your vet will prescribe non-steroidal anti-inflammatories (NSAIDs) such as phenylbutazone (bute) and topical steroids for the eye. The pupil often contracts and can be treated with atropine. This relaxes the muscles that control the iris allowing the pupil to open/dilate.

If a horse has uveitis, and especially if they are receiving atropine, they are unable to protect their eyes in sunny conditions - normally the pupil would constrict in bright light. The horse needs to be kept inside in sunny weather or wear a fly mask with a dark cotton patch stitched-in to cover the whole affected eye to block out the light. It is advisable to not ride the horse whilst undergoing treatment because they are unable to focus properly. The use of atropine also carries a slight risk of reduced gut motility and colic, which must be borne in mind with certain individuals.

Cataracts

A cataract is an opacity of the lens of the eye (figure 5), which is the part of the eye used to focus. The lens needs to be clear like glass for the horse to see through it. If a cataract becomes cloudy and opaque, light will still pass through it but the image will be blurred. The best analogy is that it is akin to looking through frosted glass. The horse can see shapes but the clarity will be reduced as the density of the cataract increases. In severe



Figure 5. Cataracts reduce the clarity of vision

cases the horse will become blind and, at best, will only be able to differentiate between light and dark.

Cataracts can develop gradually or be relatively sudden onset. When gradual, horses usually cope well in familiar environments. There can be a number of causes - some horses are born with them (congenital or juvenile cataracts) whilst many are secondary to conditions such as uveitis. Others are a natural age-related progress in older horses.

A cataract can be treated by removing it surgically, however surgery is relatively expensive and only a small proportion of cases are suitable. There is also a high risk of postoperative complications such as uveitis.

Glaucoma

Glaucoma is an increase in the pressure inside the eye (intraocular pressure). It is relatively uncommon in the horse and is rarely seen as a primary condition, more commonly being a secondary complication to a disease such as uveitis. It is a very serious condition that requires immediate veterinary attention. The increase in pressure within the eye can permanently damage the retina, the light sensitive tissue at the back of the eye. Glaucoma is very painful and, like most ocular diseases, often presents with a closed eyelid. If you are able to see the eye, in contrast to other conditions, the pupil will be dilated.

Neoplasia (cancer)

Finally, tumours and cancers of the equine eye, although not too common, do occur (figure 6). Again, the sooner these are diagnosed the better the chances of a successful outcome being achieved.

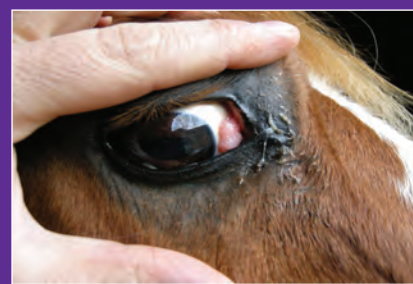
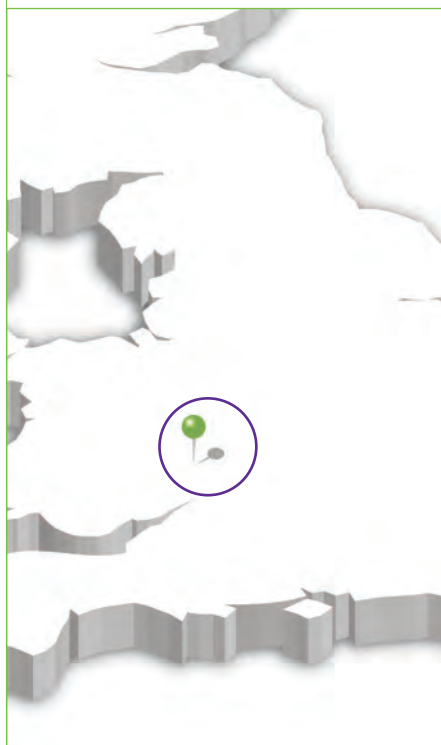


Figure 6. A type of cancer known as a squamous cell carcinoma. This one is attached to the third eyelid of the eye.

Beth Lawrence BVSc MRCVS, Belmont Farm and Equine Vets

Happy Endings: A case of Recurrent Equine Uveitis



Veterinary Surgeon **Beth Lawrence**

XLVets Equine Practice **Belmont Farm and Equine Vets**



Following our description of uveitis on the previous pages and, just to show there can be positive outcomes, here is a case with a 'happy ending', courtesy of Elco, an 8 year old Friesian gelding.

Elco was first seen by Belmont Farm and Equine Vets in 2014 after being imported from Europe. He presented with a very painful and closed eye which was diagnosed by the attending vet as uveitis. A closed or painful eye should always be treated as an emergency, and thankfully with prompt treatment, this condition resolved quickly.

Typical signs of uveitis include the eye being closed, swollen eyelids, sensitivity to light, a cloudy cornea (outer surface of the eye), constriction of the pupil, red conjunctiva and sometimes material floating in the front chamber of the eye.

In 2016, Elco presented again with a painful closed right eye with a watery discharge (**Figure 1**). I attended Elco and following a thorough examination, began treating him with systemic anti-inflammatory medications and multiple anti-inflammatory eyedrops. As in the previous episode, Elco responded well to treatment but unfortunately relapsed a few weeks later, necessitating a further intensive course of anti-inflammatory medications. Elco is a gentle giant and remained patient and well-mannered throughout the entire treatment, allowing multiple examinations and eyedrops to be placed in his eye up to six times a day without any fuss at all.



Figure 1. Elco's right eye becomes inflamed again

Due to the multiple episodes of uveitis, Elco was then diagnosed as suffering from Recurrent Equine Uveitis (ERU), also known as moon blindness. This condition is the most common cause of equine blindness and each episode of uveitis can trigger irreversible damage within the eye. It has been reported that 56% of horses that develop ERU will lose sight in the affected eye.

At this stage, I decided to bring in Equine Ophthalmology specialist, Brian Patterson BVM&S CertVOphthal MRCVS, to help manage the case. We discussed with Brian the best way to prevent any further recurrence of this painful condition; he recommended an operation to place a small implant beneath the sclera, the white of the eye. This implant delivers high doses of an anti-inflammatory immune suppressing drug directly into the eye preventing recurrence of this immune-mediated condition.

We are glad to report that despite being rather large for the operating table, Elco's surgery went well and he had a smooth recovery, and most importantly, he has not had any further episodes of uveitis or eye pain.

The prompt treatment and prevention strategy has given Elco and his vision an excellent prognosis.

This is critical for a favourable outcome with ERU. As UV rays are likely to exacerbate ERU, Elco wears his protective Guardian Horse Mask (**Figure 2**) when turned out.

He is now focussing on his dressage and competing at Preliminary level (**Figure 3**).



Figure 2. Elco wearing his protective mask



Figure 3. Back to work doing dressage

Atypical Myopathy

What is Atypical Myopathy?

Atypical Myopathy (AM) also known as Seasonal Pasture Myopathy, is becoming a more frequently diagnosed condition in horses. It is a serious and usually fatal equine disease caused by the ingestion of a toxin called hypoglycin A, which is found in the seeds, leaves and seedlings of sycamore trees. The amount of hypoglycin A varies enormously between the part of the tree and time of year, so it is difficult to judge its overall toxicity.

What are the signs of Atypical Myopathy?

The toxin hypoglycin A causes damage to the muscles, including those of the heart and lungs. This leads to cardiac and respiratory failure. Kidney failure often follows because the toxin is filtered out by the kidneys.

Clinical signs:

- Sudden onset of muscle weakness and stiffness
- Mild colic signs
- Collapse
- Difficult or laboured breathing
- Inability to raise head
- Urine is typically dark-red brown

Diagnosis is made on the basis of very high levels of muscle enzymes in the blood or by the presence of myoglobin (the product of muscle breakdown) in the urine.

All horses affected will have grazed pasture with nearby sycamore trees but it is important to remember that the seeds may travel some distance in the wind.

What treatments are available?

Unfortunately, there are no specific treatments available. Instead, treatment is aimed at supporting the horse by administering intravenous fluids, painkiller and lots of nursing. Even with very intensive care, only around a quarter of affected horses will survive.

When are horses most at risk?

Outbreaks tend to be seasonal, with most occurring in autumn and spring or following periods of heavy winds. Horses affected tend to be kept on pastures with poor grazing and are therefore more likely to graze sycamore seeds and saplings.

What can we do?

- Ensure there is enough grazing and pastures are not overstocked
- Supply extra forage (haylage/hay) when grazing is poor
- Do not graze pastures with sycamore trees, and fence off areas where sycamore seeds fall (**Figure 1**)
- If possible, remove sycamore seeds from pastures. Ensure seeds have not been blown onto the pasture
- If you have any concerns, contact your vet immediately
- To find out if plants from your pasture contain the toxin hypoglycin A, the Royal Veterinary College is now offering testing of seeds, seedlings and leaves. Speak to your vet about sending in some samples.



Figure 1. Fence off areas close to sycamore trees



Veterinary Surgeon **Bella Maine**

XLVets Equine practice **Larkmead Vets**





Veterinary Surgeon **Alison Harvey**

XLVets Equine practice **Cedar Veterinary Group**



Alison Harvey BVSc MRCVS,
Cedar Veterinary Group

Sarcoids: What's new?

Sarcoids are a form of skin cancer, and should be treated as such. They account for 50% of all skin lesions in the horse, and owner-reported frequency has been calculated at 5.8%.

Generally, sarcoids are diagnosed based on their characteristic clinical appearance, coming in six different forms: nodular, occult, verrucous, fibroblastic, malevolent (which are highly aggressive) and mixed (i.e. made of two or more different types). It is worth remembering though, that sarcoids can mimic the appearance of other skin lesions (both cancerous and non-cancerous); for example an occult or verrucous sarcoid could appear similar to ringworm lesions, bacterial infections, or rub marks/trauma. A fibroblastic sarcoid could be confused as granulation tissue. A nodular sarcoid could have a similar appearance to a different type of tumour such as a mast cell tumour, or squamous cell carcinoma. For this reason, biopsy is sometimes necessary to make a definitive diagnosis.

There are many treatments available for

sarcoids, indicating that no treatment is perfect - and in fact very few have good scientific evidence of efficacy. Despite the fact that some sarcoids will remain small and not cause a problem for many years, leaving them alone is often not recommended as a treatment option, as it is far easier to treat small or quiescent lesions than large aggressive or active lesions. No two sarcoids are the same, so treatment plans need to be tailored individually, but early intervention will almost certainly lead to a more successful outcome.

The long list of available treatment options for sarcoids is summarised in **Table 1**. This article will focus particularly on laser sarcoid removal, and high dose radiation (HDR) brachytherapy - an exciting new treatment for dealing with those awkward sarcoids around the eye region.

Table 1: Sarcoid treatment options

Treatment	Comments
Topical treatment (AVV5 LUDS)	The cream can only be applied by a veterinary surgeon and, out of the available topical treatments, it usually offers the best balance in terms of cost, efficacy and practicality.
Topical treatments (Others)	Examples: 5-fluoro-uracil cream (Effudix™), Imiquimod (Aldara™), Aciclovir (Zovirax), Retinoid drugs, Blood Root Ointment/Exterra™. All can be used in individual cases but usually for superficial sarcoids alongside other treatments such as surgery.
Surgical removal	Wide margins are needed to achieve complete excision. Recurrence rates may be high if margins are not wide enough.
Laser surgery	See text for further discussion.
Chemotherapy	Intralesional injection with drugs such as cisplatin, mitomycin-C or 5-fluoro-uracil can be very effective in certain types of sarcoids. Disadvantages include difficulties associated with handling hazardous drugs, and possible need for general anaesthesia to administer the drugs.
Radiotherapy	Both teletherapy (external beam radiotherapy) and brachytherapy (a sealed radiation source is placed inside or next to the area requiring treatment) targets cells by damaging DNA and preventing replication. Success rates are very good but availability is limited due to the human health risks associated with working with radiation.
Ligation	Only appropriate where the lesion has no roots, and should only be performed by a veterinary surgeon.

Table 1: Sarcoid treatment options (cont.)

Treatment	Comments
Immunotherapy	Intra-lesional BCG can be used in some cases but is currently unavailable. There are some studies looking at the potential use of vaccination against equine sarcoids with papillomavirus-like particles.
Cryotherapy	Sometimes used in conjunction with surgery but treatment has a high rate of recurrence.
Others	Hyperthermia, electrochemotherapy, photodynamic therapy

High Dose Radiation (HDR) Brachytherapy

HDR brachytherapy is a new form of radiotherapy and is now considered the gold standard for sarcoids around the eye. These can be some of the most difficult lesions to treat, due to their location and tendency towards being aggressive and invasive lesions. HDR brachytherapy uses specialised technology to drive the radioactive source from a special shielded safe into the patient via catheters that are implanted directly into the tumour under standing sedation.

Specialised Imaging is used to confirm correct wire placement. A bespoke radiation treatment is devised for each case by mapping the lesion and feeding the wires into carefully pre-planned locations in order to get the maximal effect of treatment whilst minimising side effects on the eye.

During planning, computer software is used to calculate the dose given to the tumour - different areas of the tumour can be given different doses. A typical treatment consists of two sessions delivered a week apart. Large or aggressive lesions may need some surgery prior to treatment. This new and exciting treatment is available at the Animal Health Trust in Newmarket, and early results suggest a greater than 90% success rate, with good cosmetic outcomes.

Laser Removal

Laser stands for 'light amplification by stimulated emission of radiation'. Laser surgery has become increasingly popular in the treatment of equine sarcoids. Heat energy from the laser beam vaporises the cancer cells, and creates an area of irreversible cell damage around the margin of the surgical site, and a further zone of reversible swelling and inflammation. Advantages over traditional 'sharp' surgery include limitation of 'seeding' of cells from the lesion surface or from cut roots. It is also said to offer increased precision, reduced bleeding, swelling and pain, sterilisation of the surgical site, and shorter hospitalisation times compared with traditional surgery. A recent study looking at long-term outcome of

sarcoids treated with laser surgery reported that in 83% of horses there was no recurrence of the removed sarcoid, and in 72% of horses there was no recurrence of any sarcoids at all.

It was also noted that if recurrence was going to happen, it would most likely be within 6 months following surgery. Verrucose sarcoids, and sarcoids on the head or neck, as well as sarcoids that had previously been treated with topical creams had higher rates of recurrence. Wounds created by laser surgery have to be given time to heal, meaning they have to granulate and 'fill in' with scar tissue - so healing times can be slower than conventional surgery. Laser surgery isn't suitable for sarcoids close to the eye for obvious reasons!



Figure 1. Periocular sarcoid.

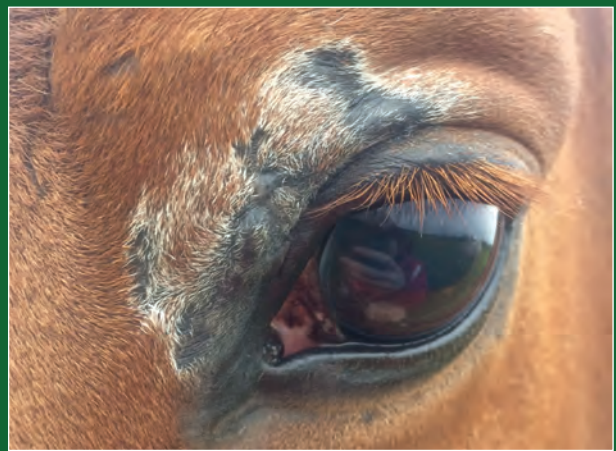


Figure 2. 9 months post HDR brachytherapy treatment

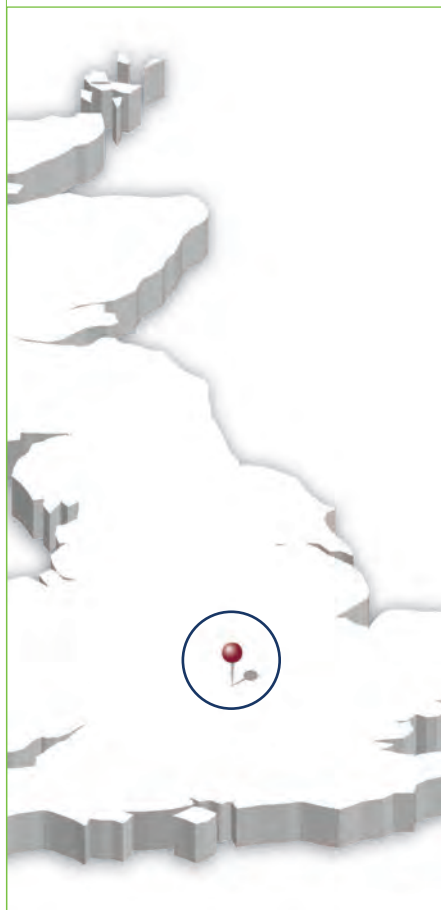


Figure 3. Wires placed for HDR brachytherapy treatment of a periocular sarcoid.



Figure 4. Horse undergoing HDR brachytherapy for a periocular sarcoid.

Photos courtesy of Anna Hollis BVetMed DipACVIM DipECEIM MRCVS, Animal Health Trust.



Veterinary Surgeon Kieran Rowley

XLVets Equine practice Buckingham Equine Vets



Kieran Rowley BVSc CertAVP(EM) PgCertVPS MRCVS,
Buckingham Equine Vets

Advances in equine dentistry

Equine dentistry has come a long way in the last 10 years. A routine dental visit is now not just a "rasping" but a full dental check via an oral examination with a head torch along with an assessment of eating habits, ridden work, and management. The equipment we use has also evolved and dental picks, mirrors and motorised dental equipment are now commonplace.

Dental endoscopes

The equine mouth can be a challenging area to visualise, even with a good head torch and dental mirror. However, advances in technology mean that equine dental endoscopes are becoming commonplace within veterinary practices as an invaluable diagnostics step for the diagnosis of dental disease. Using a dental endoscope we can see clearly in **figure 1** a healthy cheek tooth compared with a diseased cheek tooth.

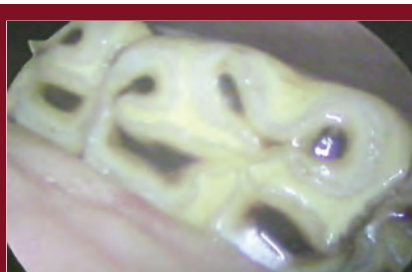


Figure 1. Healthy cheek tooth (above) and a diseased tooth (below).



Restorative equine dentistry... Yes, horses can have fillings too!

You may think we have gone absolutely crackers but horses can require fillings just like us. In human dentistry we usually have a filling if we have exposed the sensitive portion of the tooth (pulp). Horses can require fillings for two reasons.

Similar to humans they can have exposure of pulp tissue or they can develop decay called 'caries' in a part of the tooth called the 'infundibulum'. The infundibulum is a folded enamel cup on the surface of the tooth designed to increase the area available for grinding.

The pulp tissue in the horse is vastly complex compared with a human's and also changes with age. Cheek teeth can have between 5-7 individual pulp chambers.

Pulps can be exposed for a number of reasons including tooth fracture and over-rasping such as bit seats. In some instances the tooth will manage to 'protect' itself, however in others the pulp will die, leaving the tooth at risk of developing a root abscess. This requires a root canal-like therapy to remove the dead pulp tissue and fill the void with an inert dental product. **Figure 2** shows a healthy pulp tissue (right) next to dead pulp tissue. These pulp tissues were removed from the same tooth.

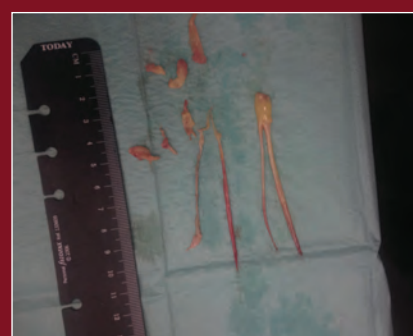


Figure 2. Pulp tissue, healthy and unhealthy, taken from the same tooth

Infundibular 'caries' can also develop if there is a fault in the development of the adult tooth. These faults allow food to become impacted within the tooth, which rots over time resulting in the defect getting larger. Advanced infundibular caries can result in tooth root infections and tooth fracture.

Figure 3 shows an endoscopic image of a normal infundibulum and a diseased infundibulum.



Figure 3. Healthy infundibulum above and diseased below



The filling or restorative process itself is similar to humans in most cases. It requires removal of all impacted material and dead tissue, disinfection of the cavity and chemical bonding of a flowable composite to the tooth. **Figure 4** shows a computed tomographic (CT) image of a horse's head with an infundibular filling present (at the point of the arrow).



Figure 4. A tooth filling, as seen by a CT scan

Cheek tooth extractions

One of the biggest advances in equine dentistry in recent years is the extraction techniques we use. This is due to advances in the equipment available coupled with new dental techniques being developed. One massive advancement is introduction of the Minimally Invasive Transbuccal Extraction

(MTE) technique. Historically, complicated extractions (fractured teeth) could require a general anaesthetic (knock down) and invasive extraction techniques. The MTE technique has drastically reduced the chance of this being required, resulting in minimal stress to the patient, allowing us to operate using standing sedation and local anaesthetics.

MTE involves a small incision in the cheek and the placement of a trocar (a tubular needle like instrument). This allows direct access to the cheek teeth to aid with elevation of the dental soft tissues. A drill is passed through the trocar so that the tooth that is to be extracted has a hole drilled into it. This hole is then threaded to allow the attachment of an extraction screw. The tooth is then tapped out of its socket.

Equine Odontoclastic Tooth Resorption and Hypercementosis (EOTRH)

Equine odontoclastic tooth resorption and hypercementosis or EOTRH for short is a newly characterised dental condition which tends to affect older horses, and predominantly only their incisors and canines. Currently the cause of this disorder is unknown, but we think it is a complex autoimmune condition (where the horse's own immune system attacks the tooth).

Figure 5 shows an advanced case of EOTRH where all incisors are affected.

EOTRH is characterised by chronic gum inflammation and infection resulting in recession of the gums, which leads to exposure of the un-erupted crown. Chronic inflammation leads to resorption of the tooth, compromising the sensitive tissues (pulp). In a bid to try to save itself, the tooth produces ever increasing amounts of cementum (a normal component of equine teeth). This 'hypercementosis' is the tooth's last hurrah before it dies. **Figure 6** shows an intra-oral X-ray of a healthy set of incisors and **Figure 6a** is an X-ray of the EOTRH incisors shown below.

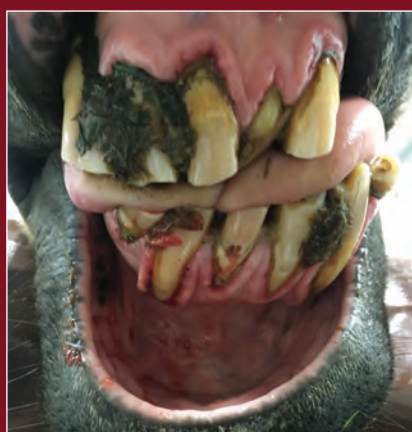


Figure 5. Receding gums caused by EOTRH



Figure 6. Normal incisors



Figure 6a. EOTRH affected incisors

Many treatments have been tried for EOTRH, however currently, extraction of the affected teeth when the condition is advanced is the only effective treatment. In some cases, this can require extracting all the incisors. This may seem drastic, however horses suffering from advanced EOTRH are often in a lot of pain when eating. The horse in **figure 5** had been struggling to keep weight on and was unwilling to bite harder feeds such as carrots. This horse had all its incisors extracted in 2 stages. Almost instantly this horse was eating better and in as little as 2 months had put weight on.

Horses diagnosed with EOTRH often have abnormal gaps between the incisors (diastema) which become impacted with forage which can rot and cause gingivitis. To help prevent EOTRH from developing, we advise owners of older horses to regularly remove any food which becomes trapped using a brush and salty water. This could help reduce the progression of the disease and might prevent the need for extraction.

Louise Salt REVN Animal Health Advisor (J) MBVNA, Wright & Morten



Day in the life of an Equine Nurse ...at Wright & Morten



Louise has been working for Wright & Morten since May 2004, and became a fully qualified Equine Veterinary Nurse in 2007. Since then she has become Head Nurse and oversees the general running of the equine clinic. She became a Qualified Clinical Coach in 2008 and is responsible for the training of student nurses. She also holds an AMTRA qualification, which allows her to dispense certain medicines, such as equine wormers.

In equine nursing there is really no such thing as a typical day! Each day's work is 'case' dependent so it can vary from treating a horse with a cut to assisting with an emergency admission or surgery, and everything in-between. Teamwork is a very important aspect of the role, both as part of the nursing team, and the practice as a whole.

The nursing team at Wright & Morten consists of 4 fully qualified equine nurses, 1 trainee equine nurse, and 1 groom/nursing assistant. As nurses we are involved in a wide range of procedures in and out of the clinic, and here are some examples of what we carry out in our daily work;

- Lameness investigations - trotting, lunging of horses, preparing for nerve/joint blocks and ultrasound scans, performing/assisting with radiography.
- Assisting with procedures such as endoscopy and gastroscopy.
- Surgical procedures - preparing theatre, assisting during surgery, general maintenance of the theatre and all surgical equipment.
- Wound management/bandage changes.
- In-patient care - 3 x daily checks for all in-patients, which include Temperature, Pulse and Respiration (TPR).
- Prepare and administer medications, place intravenous catheters, blood samples.
- General maintenance of the clinic including all equipment.
- Scheduling - booking appointments for surgical procedures.
- Laboratory work - worm egg counts, sample processing.

If there is a typical day, this is what it might look like;

8.00am – the working day starts

Our first task is a general check on all our in-patients, discuss each patient needs with

groom/nursing assistant, including any oral medication that is required. In-patient checks including TPR, as well as observing their general demeanour, food/fluid intake and their droppings. We then change any bandages or dressings and administer medication.

Once our patients are all done, then we can check the diary for the day's work ahead, and prepare the clinic, equipment and materials that will be needed. We will also prepare the theatre for the morning's surgical case, which includes anaesthetic equipment, surgical instruments, monitoring equipment.

This is also usually when we admit any out-patients for procedures such as medical and lameness investigations.

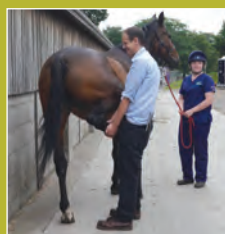
8.30am

Vets arrive and carry out their own checks of in-patients and discuss on-going care and treatment plans with the rest of the team.

Our first surgical case is prepared for theatre we remove shoes and clean the feet; this is to reduce contamination in theatre. The surgical site is clipped so as to reduce time under general anaesthetic, and an intravenous catheter is placed in the jugular vein for venous access during surgery to administer any sedation, pain relief and antibiotics that are required.

9.30am

The horse is then taken into the induction box where the anaesthesia is administered. Once asleep the horse is winched onto the surgical table where he is positioned for surgery.



Surgical site is scrubbed; trolley and instruments are set up, urinary catheter placed. It's our job to assist the anaesthetist with setup of monitoring equipment, and then during surgery to assist the surgeon by passing materials.

11.30am

Once the surgery is complete, the horse is placed in recovery. The theatre is cleaned and surgical instruments cleaned and sterilised.

Once the horse is back in the stable it is the nurse's job to monitor them closely post op, this includes checking recovery, taking and recording TPR's, slowly introducing food, and of course my favourite, lots of TLC!

12.30pm onwards

It's then on to the day patients, which includes assisting with lameness investigations and carrying out scans.

4.30pm

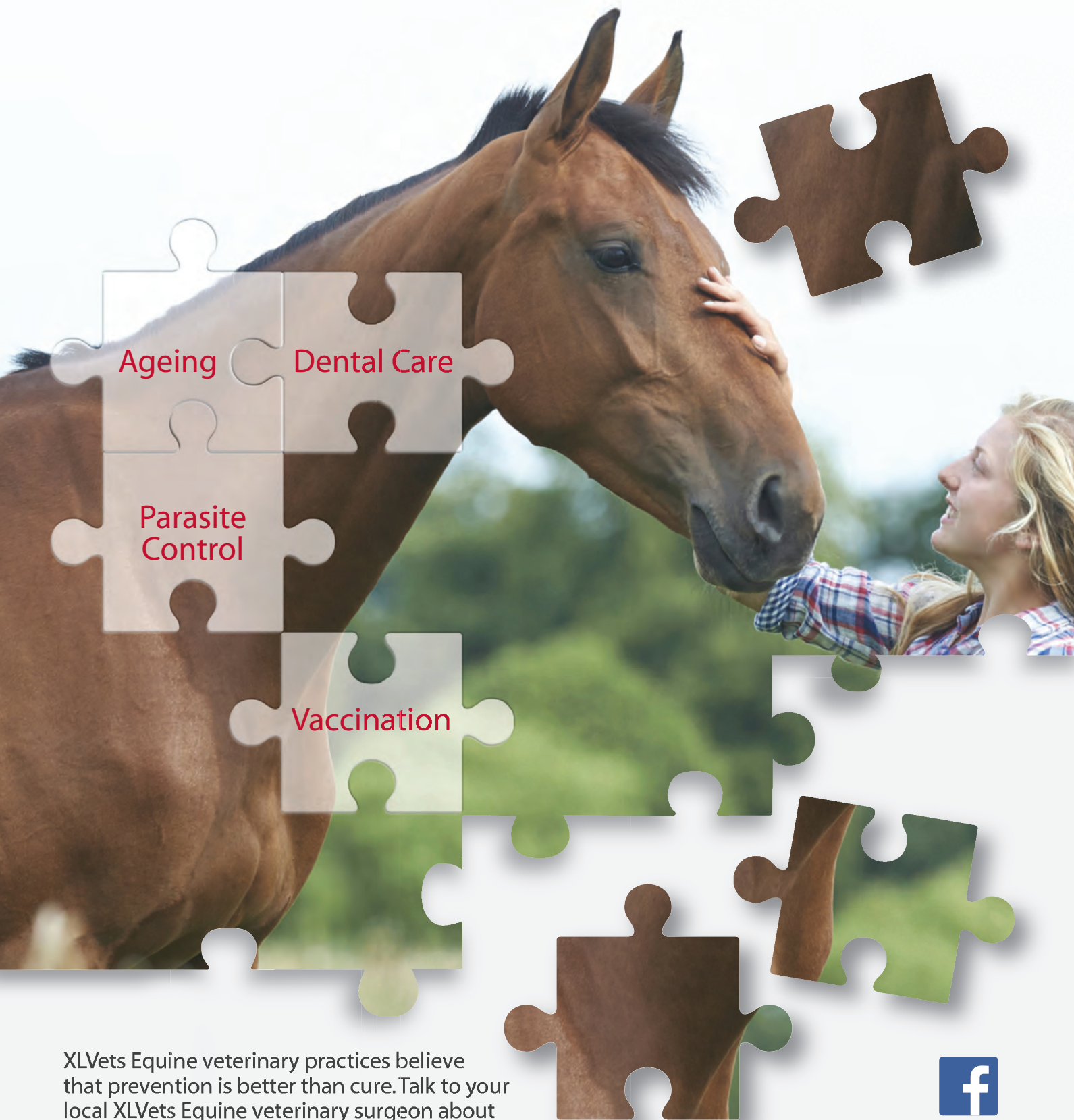
It's now time to prepare and administer afternoon medications and TPR's, and to clean and tidy the clinic and generally prepare for the next day.

5.00pm - Finish for the day.

The length of the working day can vary, and overtime is a regular occurrence. We also work weekends on a rota. Efficient record keeping is essential, so all this must be up-to-date before we go home for a well earned rest and recharge for the next day!



Working together to build a **Picture of Health**



XLVets Equine veterinary practices believe that prevention is better than cure. Talk to your local XLVets Equine veterinary surgeon about preventative healthcare so together we can ensure your horse is a complete **Picture of Health**.

T: 01228 711788 www.xlequine.co.uk



Equine

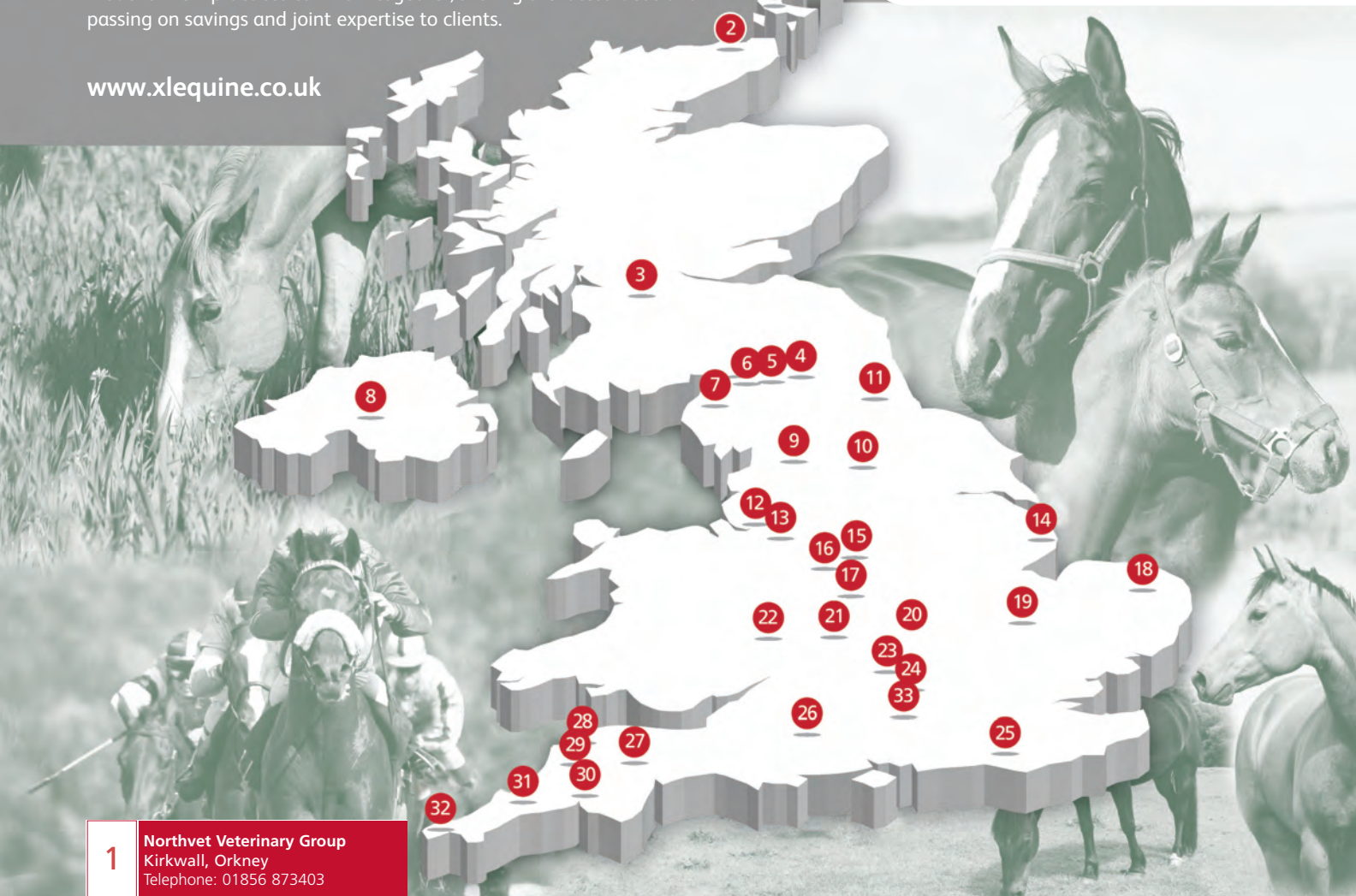


EXCELLENCE IN PRACTICE

XLVets Equine - Better Together

The members of XLVets have worked hard to create what they see as a model of how practices can work together, sharing the latest ideas and passing on savings and joint expertise to clients.

www.xlequine.co.uk



1	Northvet Veterinary Group Kirkwall, Orkney Telephone: 01856 873403	10	Bishopton Veterinary Group Ripon, North Yorkshire Telephone: 01765 602396	18	Chapelfield Veterinary Partnership Norwich, Norfolk Telephone: 01508 558228	26	Endell Veterinary Group Salisbury, Wiltshire Telephone: 01722 710046
2	Donald S McGregor & Partners Turso, Caithness Telephone: 01847 892387	11	Durham Equine Durham Telephone: 0191 603 1122	19	Fellowes Farm Equine Clinic Huntingdon, Cambridgeshire Telephone: 01487 773333	27	St Boniface Veterinary Clinic Credon, Exeter, Devon Telephone: 01363 772860
3	Clyde Veterinary Group Lanark, Lanarkshire Telephone: 01555 660000	12	Ashbrook Equine Hospital Nr Knutsford, Cheshire Telephone: 01565 723030	20	Buckingham Equine Vets Milton Keynes, Buckingham Telephone: 01908 560789	28	Torch Farm and Equine Vets Ilfracombe, Devon Telephone: 01271 879516
4	Scott Mitchell Associates Hexham, Northumberland Telephone: 01434 608999	13	Wright & Morten Macclesfield, Cheshire Telephone: 08458 330034	21	608 Farm and Equine Veterinary Surgeons Rowington, Warwickshire Telephone: 01564 783404	29	Penbode Equine Vets Holsworthy & Okehampton, Devon Telephone: 01409 255549
5	Capontree Veterinary Centre Brampton, Cumbria Telephone: 016977 2318	14	Fenwold Veterinary Practice Spilsby, Lincolnshire Telephone: 01790 752227	22	Belmont Farm & Equine Vets Hereford, Herefordshire Telephone: 01432 370155	30	Calweton Veterinary Group Callington, Cornwall Telephone: 01579 383231
6	Paragon Veterinary Group Carlisle, Cumbria Telephone: 01228 710208	15	Scarsdale Veterinary Group Derby, Derbyshire Telephone: 01332 294929	23	Hook Norton Veterinary Group Banbury, Oxfordshire Telephone: 01608 730085	31	Kernow Farm & Equine Vets Bodmin, Cornwall Telephone: 01208 72323
7	Millcroft Veterinary Group Cockermouth, Cumbria Telephone: 01900 826666	16	Glenthorne Veterinary Group Uttoxeter, Staffordshire Telephone: 01889 562164	24	Larkmead Veterinary Group Wallingford, Oxfordshire Telephone: 01491 651479	32	Rosevean Veterinary Practice Penzance, Cornwall Telephone: 01736 362215
8	Parklands Veterinary Group Cookstown, Northern Ireland Telephone: 028 867 65765	17	Midshire Veterinary Group Limited Nuneaton, Warwickshire Telephone: 02476 384064	25	Cliffe Veterinary Group Lewes, East Sussex Telephone: 01323 815120	33	Cedar Veterinary Group Alton, Hampshire Telephone: 01420 82163
9	North West Equine Vets Rathmell, North Yorkshire Telephone: 0808 168 5580						

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