



ST DAVID'S EQUINE
VETERINARY SURGEONS

ST DAVID'S EQUINE

NEWSLETTER

Vol. 5 Issue 2

APRIL 2009

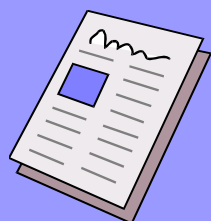
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JESTER SAUNDERS X-RAY SUITE

We are pleased to announce that the Jester Saunders X-ray Suite is now fully functional. We have completely upgraded the x-ray facilities at the our Nutwell clinic with the purchase of a gantry mounted x-ray machine, floor tube and new developer. The new x-ray machine is a vastly more powerful machine than our previous machine and in combination with the new developer, is capable of taking higher resolution images than digital x-ray machines. We can now produce excellent quality, clear images of vertebral bodies which is useful for the diagnosis of kissing spines and vertebral facet joint arthritis (see article on next page) as well as stifles, elbows and even chests! We can obtain images of chests in horses up to thoroughbred size and this will be especially useful for respiratory infections in foals. The high definition floor tube enables us to take excellent quality foot x-rays which are an important tool in the fight against laminitis and poor foot balance. We are offering a 15% discount to owners of laminitic horses and ponies when they have foot x-rays taken at the practice with our new equipment.



WORM EGG COUNTS

If you would like a faecal worm egg count analysis for your horse please collect 1 dropping and send to Sarah Woolloff at the practice.

TAKE ADVANTAGE OF THIS MONTH'S SPECIAL OFFER

£13.00 (normal price £18.09)

St David's Equine Practice

Nutwell Estate, Lymstone, Exmouth, Devon, EX5 8AN

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THE DIAGNOSIS AND TREATMENT OF EQUINE BACK PAIN—PART 2

This article follows on from Clare McDonald's article which was printed in the previous newsletter. In it she described the physiotherapy aspects of the diagnosis and treatment of equine back pain.

A BRIEF OVERVIEW OF THE ANATOMY OF THE BACK

The vertebrae of the spine join together in a complicated way to make up the vertebral column. The spinal cord carries all the nerves to the rear end of the animal from the brain and runs through a bony canal through the centres of the vertebrae. Spinal nerves branch off the spinal cord and exit the spinal canal between each pair of vertebrae. These spinal nerves supply each 'segment' of the body with sensation and muscle control.

The spine must act as a rigid protective case for the sensitive spinal cord, which is easily damaged, and act as a rigid pole from which the muscles making up the abdominal wall hang. However it must also allow movement to allow the animal to bend its back and transmit power from the hind legs to the body when moving. The joints between the adjacent vertebrae are twofold. Between each pair of vertebral bodies there is an intervertebral disc which is a fibrous pad with a jelly-like centre. The discs absorb shock and allow some movement between the vertebrae. There are also a pair of so called 'facet joints' between each vertebra, one each side, which allow limited movement in a limited direction. Although the movement at each intervertebral joint is limited, when the small movements at each joint are added together the result is a flexible column which can bend and twist in a number of directions.

Each vertebra has bony projections on each side (transverse processes) and on top (dorsal spinous processes) which act as sites for ligament and muscle attachment. Between each transverse process is an intertransverse ligament and running along the top of the dorsal spinous processes is the supraspinous ligament which runs from the back of the head to the base of the tail. These ligaments limit the degree to which the spine can flex and so protect the spine and its contents from injury.

The pelvis joins to the spine at the so called sacro-iliac joints which are paired joints, left and right. They are mainly made up of various strong ligaments, although there is also a small true fluid joint as well. The main role of this joint is to transmit power from the hind legs to the rest of the body.

THE COMMON CLINICAL CONDITIONS OCCURRING IN THE HORSE'S BACK

There are a number of clinical conditions that can occur in the horse's back. These can then lead to various signs of back pain or poor performance as described in Clare's article.

- Desmitis (strain) of the supraspinous or intertransverse ligaments

- Desmitis of the ligaments which make up the sacro-iliac joint
- Arthritis of the vertebral facet joints
- Kissing spines

This last condition occurs when the dorsal spinous processes of adjacent vertebrae (which should be separated by a space in the normal horse) are too close together and rub against each other. In some cases this occurs simply because the horse is born with dorsal spines crowded together. In other cases the impingement is caused by an abnormal posture often caused by another factor which causes the horse to dip its back. This can be a hindlimb lameness, sacro-iliac pain or a poor fitting saddle.

DIAGNOSIS

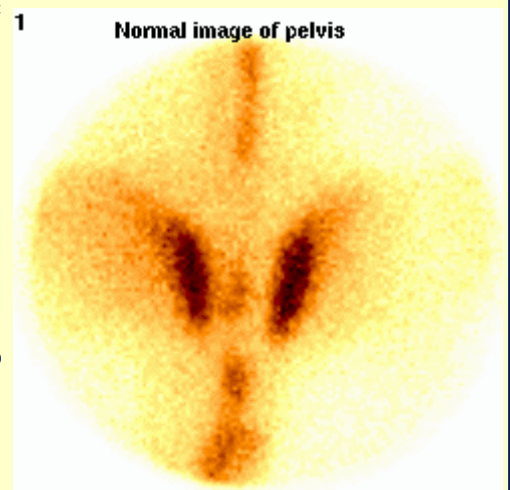
There is no one diagnostic tool that can diagnose all the conditions affecting the horse's back and the tools cannot replace the value of a good, thorough examination of the back. Many of the back cases we have seen at the surgery over the last few months have been sent in by Clare and usually the diagnostic tools confirm what she has already suspected. However, the tools are necessary to specifically diagnose the condition and the site of pain to allow appropriate treatment.

SCINTIGRAPHY (BONE SCANNING)

A short-acting radio-labelled isotope is injected into the horse. This is incorporated for a short time into bone where there is an active remodelling process. Bone remodelling is going on all of the time but can be most active

where there is disease such as a fracture or arthritis. The radioactivity is detected by a gamma camera and the active sites of bone metabolism show up as hot spots.

Scintigraphy is useful to identify bony disorders of the back such as sacro-iliac disease, kissing spines and arthritis of the facet joints. A normal scintigraphic image of the pelvis is shown above.



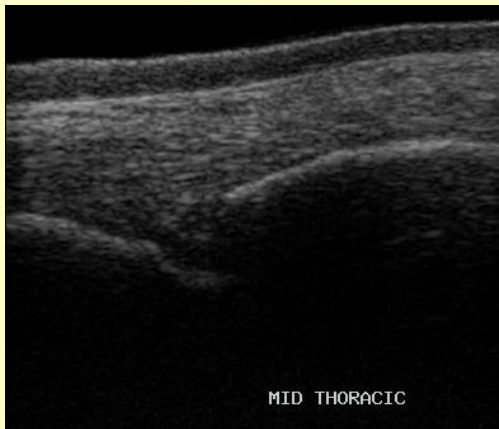
X-RAY EXAMINATION

X-ray examination also examines the bony structure of the back and is most useful to diagnose kissing spines and facet joint arthritis. Unfortunately the sacro-iliac joint is too deep

and encased in bone for good x-ray pictures of this region to be possible.

ULTRASOUND SCANNING

Ultrasound is most useful to diagnose lesions of the soft tissues of the back such as desmitis (strain) of the supraspinous ligament. However, although ultrasound cannot penetrate



bone, it gives an accurate picture of the surface of bone and so can also be very useful to diagnose facet joint arthritis and abnormal, strained attachments of ligaments onto bone (enthesiopathy). The latter can occur in the attachments of the supraspinous ligament onto the summits of the dorsal spinous processes. The ultrasound image above shows the skin at the top followed by a darker line of sub-cutaneous tissue with the lighter coloured supraspinous ligament next. The bright white curve is the top of one of the dorsal spinous processes.

REGIONAL ANAESTHESIA

Injection of local anaesthetic into a region is useful to diagnose pain in that region. This technique is often used in the sacro-iliac region and in the interspinous space between the dorsal spinous processes of the vertebrae as a diagnostic tool to confirm the significance of lesions seen on x-ray or ultrasound.



TREATMENT OF BACK PAIN

The success of a medical treatment programme for back pain in the horse depends crucially on addressing several of the factors that affect the posture of the horse and its way of going, not just on pain relieving treatments or injections. If one treatment is carried out alone the rate of success is much reduced. Because of this it is crucial that treatment be undertaken by a team of people working together—a multidisciplinary approach. Communication and cooperation between vet, physiotherapist, farrier, saddle fitter and rider/owner is essential.

VETERINARY AND PHYSIOTHERAPY ASPECTS

The treatments that the vets can administer are intended to provide temporary relief of pain to allow a course of rehabilitation exercise that changes the horse's posture and way of going. A course of laser therapy administered by the physiotherapist also acts in this way. Horses with back pain tend to

develop a way of going that allows them to cope with chronic pain. Often this involves the horse using its forelimbs to pull itself along rather than using the power of its hind end. They tend to dip the back and develop a 'lordotic' posture.



The muscles of the back and hindlimbs waste away through under-use. Once pain relief has been given Clare usually designs a course of rehabilitation exercise to increase the strength of the abdominal muscles (core muscle stability), increase the muscle support around the sacro-iliac region and improve the contribution of the hindlimbs to the power of the gait.

The pain relieving techniques that we can administer usually involve injection of anti-inflammatory drugs into or around the sites of pain. A new drug (Tildren) that helps to relieve bone pain can also be useful in the treatment of kissing spines.

SURGERY

There are also surgical techniques for the treatment of kissing spines. Essentially these involve removal of alternate dorsal spinous processes to create spaces at the sites where they are too close together. Good results are claimed for this surgery. However there are also reports that horses that have undergone this surgery may have some instability at the sites where the spinous processes have been removed and that this may result in arthritis of the vertebral facet joints later. There can also be immediate post-surgical complications such as wound breakdown and damage to the spinal nerves that exit the spinal canal between each pair of vertebrae. We have had good results with medical treatment of this condition and would tend to consider the surgery only in cases where medical treatment has failed.

FARRIERY ASPECTS

An important part of the treatment of back conditions is the restoration of good posture to the horse so that it can use itself in the correct way. An important part of this is to provide good foot balance all round, particularly in the hind feet. Many of the horses we see with chronic back pain have collapsed heels and reverse rotation of the pedal bones in the hind feet. These conditions tend to make them stand under behind. Correction of these conditions is very important to the success of treatment of back pain in the horse.

SADDLE FITTING

Once we have treated a horse with back pain, ensuring that the saddle is of a good fit is essential. It goes without saying that if we put a saddle that rubs or pinches into a back where there is a medical problem it will not be long before the horse starts to resent exercise again. Consequently ongoing checking of the saddle by a good saddle fitter is essential.

Treatment of back pain requires attention to a number of different factors and a multidisciplinary approach. However, most of the conditions causing pain in the horses back can be managed by medical treatment and it is often possible to relieve pain and allow the horse and rider to perform successfully again without the need to resort to surgery.

Tony Kaye

GIVING FOALS THE BEST START

Foals are born practically without any immunity against infection and disease. Immunity is provided by the mare in the form of immunoglobulins found in colostrum. Colostrum is the first milk and should be grey to yellow in colour, thick and sticky.

Until 12 hours following birth, the foal's intestinal tract is adapted to be able to absorb proteins, including immunoglobulins, non-selectively from colostrum. Proteins, including immunoglobulins, are large molecules which would be digested and broken down in the gut before being absorbed in the older foal and adult. The absorption of colostrum by the foal and also the production by the mare decrease rapidly from birth to 12 hours and therefore the earlier the foal nurses and receives good quality colostrum, the better. The ideal situation is for the foal to have a good feed within 2 hours of birth and should have ingested 1 litre of good quality colostrum by 6 hours.

Failure of passive transfer of immunity is the most important underlying factor in most cases of neonatal septicaemia and bacterial infections. It is therefore the most important cause of death in neonatal foals.

If a foal does not suckle successfully within 2 hours of birth, intervention is necessary. Either the mare needs to be held and the foal guided to the udder and aided in nursing or the mare needs to be milked out and colostrum given to the foal via stomach tube.

Some mares, especially maiden mares, do not produce enough colostrum, or colostrum of poor quality. Some mares may start to drip colostrum from the udder before or immediately following delivery. It is easy to underestimate the amount of colostrum lost in these instances and it is useful to strip and store the colostrum from the mare (freeze it if the mare drips before giving birth—but do not thaw in the microwave as this



will damage the immunoglobulins) and give it to the foal via stomach tube.

If a mare dies or is unable to allow the foal to nurse, colostrum either from a donor or a commercial form should be found and given to the foal either with a bottle or via stomach tube.

If there is any doubt regarding the colostrum intake of a foal it should be tested for immunoglobulin (IgG) levels. This is done by taking a blood

sample from the foal and either submitting it to a laboratory or using a snap test which we can bring with us to get an instant result. Obviously this needs to be performed by a vet and can be done when the foal has its routine examination in the first 24 hours of life. A blood IgG level of 800mg/dl or greater shows that adequate passive transfer has occurred and no further action is needed. A blood IgG level of 400mg/dl or less indicates failure of passive transfer and demonstrates that the foal is dangerously susceptible to infection. There are no clinical signs to indicate failure of passive transfer until an infection occurs. Foals with low IgG levels appear clinically normal which is why it is important to test any foal whose colostrum intake is unknown or if the mare's colostrum is of questionable quality or quantity. Once an infection has set up shop, it can be difficult and usually very expensive to treat successfully. A blood IgG level between 400 and 800mg/dl falls in a grey area. It is not ideal but this level of IgG may be enough to protect the foal if it is in a clean environment. Foals born in a stud situation or in a yard with a constantly changing population of horses will not have enough protection in this instance and intervention is required.

The treatment of failure of passive transfer depends of the age of the foal. Foals less than 12 hours old when tested require immediate oral supplementation with 3-4 litres of colostrum either from their dam, a donor or a commercially available preparation. Colostrum should be divided into 3 or 4 doses given at hourly intervals. We can now provide frozen hyper-immune serum in a syringe which can be given orally. This is especially useful for foals who are feeding well but still have poor passive transfer of immunity, for example if the mare's colostrum is not of a good quality. Young foals should be tested again at 24 hours of age to ensure that this treatment has been successful.

If the foal is more than 24 hours old, the gut will have 'closed' and the absorption of large molecules such as immunoglobulins will no longer be possible. Feeding these foals colostrum orally will be ineffective. These foals require a plasma transfusion. Plasma packs commercially produced for this purpose are widely available but expensive. However, this expense is nothing compared to the amount which may be spent treating a foal with septicaemia or septic arthritis. Another option is to collect blood from the mare or a donor (a young, large gelding kept in the same environment as the mare) separate the red blood cells from the plasma and transfuse the plasma into the foal. The mare or donor need to be cross-matched and often 2-4 litres of plasma is required which equates to 2.7—5.4 litres of whole blood being collected from the mare or donor!

Regardless of the method used to treat failure of passive transfer, the foal should always be tested after treatment to ensure the IgG level has reached 800mg/dl.

It should also be noted that if the mare is foal away from her normal environment (i.e. at stud), she should be moved to her foaling environment at least 1 month before foaling. This allows the mare to develop antibodies against infections that are present in the new environment which she may not have encountered before in order to provide the best immunological protection for the foal.