

If Only They Could Talk



Our regular focus on equine health. This month vet **JOHN MARTIN** discusses the diagnosis of lameness.

THE most common problem encountered by any vet working with athletic horses is lameness. Over the past decade I have written numerous articles on all manner of conditions which can cause lameness in the Flat racehorse, but have never discussed exactly how we arrive at each diagnosis. In this article I will explain our approach to each lame horse and the various procedures and tools that we use to achieve a diagnosis.

The first step when presented with a lame horse is a thorough clinical examination. This will begin with a walk and then a trot up to establish what leg, or sometimes legs, the horse is lame on and assign a grade to the lameness. We use a scale of 1-5 to grade lameness: 1 being sound at walk and a lameness only just detectable at trot, while 5 is a non weight-bearing lameness.

At this stage I will also conduct a quick review of the horse's exercise history, as certain conditions are more likely to occur at different stages in the horse's training regime. Once you have established what leg the horse is lame on and assigned a grade the next step is to perform a thorough examination of the affected leg. It is important to have a consistent and methodical approach, examining each area and structure in order so that nothing significant is overlooked.

The most common cause of lameness across all horses, regardless of age, level of exercise or discipline, is an abscess or bruising in the foot. I start the examination by feeling the hoof wall for heat and then feel for increased pulse to the foot which may indicate an issue in this area. If there is a suspicion of a foot lameness, I will at this stage apply a hoof tester, a tool which applies pressure to specific areas of the sole to check for pain or sensitivity.

After this I move up the leg, palpating the pastern and fetlock joint to check for any heat, swelling or increase in joint fluid

which may indicate an issue. The next area to examine is the cannon where there are several important structures to consider.

Firstly, there is the cannon bone itself and the two smaller splint bones attached medially and laterally. Along the back of the cannon bone there are the vital soft tissue structures of the superficial and deep digital flexor tendons, the accessory ligament of the deep digital flexor tendon and the suspensory ligament. When examining this area each structure should be palpated individually while looking for any heat, increase in size or resentment to palpation.

At this stage, the exam alters depending on whether you are dealing with a forelimb or hindlimb lameness. In the forelimb the next area to examine is the knee. The equine knee is made up of seven small bones which create three individual joints, and of these the middle and upper knee joints are the most likely to cause a lameness. Much like with the fetlock, you are looking for heat or an increase in joint fluid. Most forelimb lameness in the Flat racehorse is caused by issues from the knee down but to complete the examination I feel over the forearm and shoulder region looking any abnormalities in the normal anatomy.

When examining above the cannon region in the hindlimb the next area to examine is the hock. The hock joint is made up of 10 small bones creating four individual joints, but of these you can only appreciate the large upper hock joint (tarsocrural joint) clinically. The lower hock joints are generally more likely to cause a lameness, but these are small, low-motion joints and it is rare that you will appreciate a clinical abnormality.

Above the hock is the long bone of the tibia which is a common area for stress injuries, particularly in young Flat horse, although it is rare to note anything on clinical exam. Next is the stifle joint, which is the equivalent of the human knee



John applies the hoof tester

and is formed by the large bones of the tibia and femur and the smaller patella. As with the other joints lower in the limb, you are looking for heat or an increase of fluid within the joint. The final area to examine on the hindlimb is the musculature covering the pelvis and lower back. This is a common area for fractures in Flat racehorses, and tense muscles and resentment to palpation can indicate a problem in this area.

Following the physical examination, I will frequently perform a flexion test on the affected leg. A flexion test is performed by lifting and holding the leg in a flexed position for 60 seconds and then have the horse trotted up immediately. The aim of this procedure is to see if the flexion alters the lameness as holding the leg in this position stresses the joints and may highlight issues which are not otherwise readily apparent.

Nerve Blocks

Sometimes the clinical exam alone will be sufficient to localise the problem area, but quite often it will be either inconclusive or reveal no obvious cause for the lameness. In those cases the next step is to perform nerve blocks.

Nerve blocks are performed by injecting

local anaesthetic around the nerves in a horse's limb to desensitise the area below. When performing a nerve block exam, you start by desensitising the foot with a palmar digital nerve block. If the horse comes sound following this block, then you know the source of lameness is in the foot.

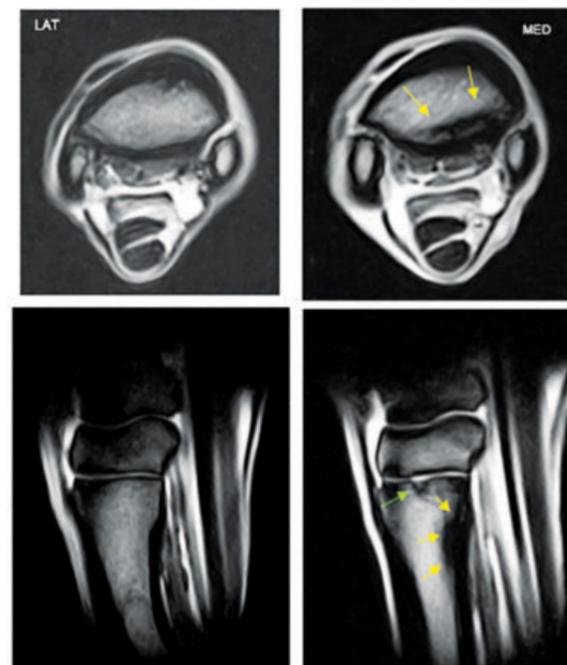
If there is no improvement to the palmar digital nerve block, you know the foot is not a problem and move up to the level of the pastern by performing an abaxial sesamoid nerve block. If the horse comes sound following this nerve block, then the source of lameness is above the foot and below the fetlock.

If there is no improvement you move up the leg repeating the process until you desensitise the affected area. If you suspect a joint is the source of lameness, then the joint can be desensitised directly by an injection of local anaesthetic which can be more specific than blocking a region of the leg.

Imaging

Once you have localised the problem to a specific area, the next step is perform imaging of that area. For first-opinion vets the standard imaging modalities used are radiography and ultrasound. Here at Johnston Racing we are proud to offer the latest in digital radiography and mobile ultrasound technology. Sometimes a series of radiographs may be required to identify the problem and we will commonly take images of the same area over a period of a few weeks to monitor changes in the bone.

One such example is highlighted in the images below. This horse presented lame on his right foreleg after cantering exercise. Based on the clinical examination we



suspected the fetlock was the source of the lameness, but initial imaging of the joint was unremarkable. He was dropped back to walker exercise and came sound after one week.

The x-rays were repeated of the joint which now showed a very small area of decreased bone density, so based on that he did not resume full work. The final image is taken three weeks after the initial presentation and although the horse was sound, this quite clearly shows a fracture in the lateral condyle of the cannon bone.

Referral

In some cases, even after going through the process outlined above you will still fail to reach a conclusive diagnosis. For these horses we will look to the option of referral and we are very fortunate to have a close working relationship with the team of experts at Newmarket Equine Hospital. The most common reason for referral is to make use of the advanced imaging services

of MRI or nuclear scintigraphy provided at the hospital.

MRI (Magnetic Resonance Imaging) is a complex imaging technique where the horse's limb is placed in a strong magnetic field and pulsed radiowaves are applied. Computer software then converts the returning signals into detailed images. MRI images will give an extra level of detail on bone and soft tissue structures which cannot be achieved with the standard imaging modalities.

The advantages of MRI can be seen in the images on the left. This horse presented lame on his right foreleg and clinical examination failed to reveal a cause for the lameness.

Following a series of nerve blocks we localised the source of lameness to his upper cannon region, but radiographs and scans of the area were unremarkable. He was referred for an MRI examination and this highlighted a fracture in the upper cannon.

Nuclear scintigraphy involves the injection of a radioactive substance which is taken up in greater quantities in areas where a disease process is present. Gamma cameras are then passed over the body to capture images of these 'hot spots' or areas of pathology. Nuclear scintigraphy is a useful tool to localise the source of lameness, particularly in areas which cannot be nerve-blocked and are difficult to image with radiography or ultrasound, such as the upper limb and pelvis.

■ **At Johnston Racing the cost of all lameness investigations and any subsequent treatments are covered in the daily training rate, regardless of whether it is a simple foot abscess or a more complex lameness requiring referral and advanced imaging.**

