

NUCLEAR SCINTIGRAPHY REFERRALS

Our Diagnostic Centre welcomes referrals for nuclear scintigraphy. There are several areas of lameness investigation in which scintigraphy is particularly useful and there are other areas where it is often unrewarding, as outlined below.

1. SCINTIGRAPHY AS A USEFUL DIAGNOSTIC AID

Positive nerve block, negative radiography

In these cases, the referring veterinary surgeon has already carried out detailed clinical examinations and nerve blocks and has localised the lameness to one site, but been unable to define abnormality on subsequent radiographic examination. As the site of the lameness is known, it is often possible to carry out both the soft tissue phase and bone phase scans. The soft tissue phase is extremely short-lived and there is only time to examine one anatomical site. Therefore we reserve soft tissue phase scans for cases where the site of lameness has been localised prior to referral.

Negative nerve blocks

There are some cases where every conceivable nerve block has been carried out without affecting the degree of lameness and therefore the site cannot be confirmed. In the hind limb this often means that the cause of lameness is proximal to the tibial and perineal block site, or that one of the nerve blocks has not 'taken' during an examination. Even in the most experienced hands, nerve blocks can occasionally be extremely misleading, and it is not uncommon for 'false negative' results to be revealed by a bone scan.

Multi-leg lameness

Horses which show marked lameness both in front and behind can be frustrating as time constrains often dictate the need to carry out nerve blocks in one limb, before those in the other lame leg have worn off. In some of these cases a 'survey' bone scan can be helpful in establishing a list of priorities to rule in or out by detailed intra-articular blocks.

Sudden poor performance

Whilst many of these cases are unrewarding scintigraphically, some cases each year turn up the most bizarre findings which do seem to be genuinely linked to a sudden onset of sub-optimal performance. We have found rib fractures, vertebral articular facet fractures and apparent discospondylitis in some of these horses.

2. CASES WHICH ARE OFTEN NOT REWARDING WHEN EXAMINED WITH SCINTIGRAPHY

Horses which are bucking or behaving badly when ridden

Extremely rarely do we find anything of significance in the neck or spine of these horses. However, it may be of comfort to owners to know for certain that there is no bone abnormality in the spinal column and so a precautionary scan may be helpful to them.

Very low grade subtle lameness

These cases are rarely linked to acute bone injury and often show little or nothing on scintigraphic examination. Even marked arthritic changes in joints can be scintigraphically 'silent' if chronic in nature. The subtle interplay of disuse following lameness, leading to reduced bone activity, can play a part in some of these cases and may mask the origin of the problem.

3. SPECIALISED SCINTIGRAPHIC EXAMINATIONS

In human medicine, many different marker chemicals are linked to the technetium molecule and are used to map out different organ systems. Although the indications for their use in the horse are not as common, e.g. because cardiac disease is not a significant problem in the young athlete, there are indications for some of these more 'exotic' markers.

Brain scans

Space-occupying lesions of the brain can be beautifully defined using a brain scan. We have had two cases of this type in the last twelve months which were very rewarding, diagnostically. Although the treatment options in these cases were clearly limited, at least diagnostic confirmation could be made, allowing the appropriate steps to be taken.

White cell scans

These can be very useful in the investigation of horses with recurrent pyrexia of unknown origin, or in which sepsis is proving difficult to differentiate from neoplasia, for instance within the chest.

Vascular system scans

Scintigraphic examinations can also be employed in assessing vascular perfusion by using straight unlabelled pertechnate which acts as a vascular system marker. This can be used in the investigation of aortic thrombosis and of perfusion injuries, for instance monitoring perfusion of distal limbs in which significant trauma has occurred and is compromising blood flow.

LOGISTICS

For all scintigraphic examinations we must inject the horse with a radiolabelled isotope a number of hours before examination and for this reason we ask cases to arrive at the Hospital no later than 9am.

In order to satisfy the Ionising Radiation Regulations for exposure to the public, we have to retain the horse with us, under controlled conditions, for six 'half lives'. In effect, this means that horses are not able to leave the Hospital until 4pm the day, following examinations. This should be explained to clients in advance.

Although a detailed history of the horse is sometimes not essential to carry out the scintigraphic examination, it is extremely helpful in formulating the subsequent work-up the following day. For this reason we ask that all bone scan referrals arrive with either a detailed history from the referring clinician or a contact phone number which we can use to obtain the details of previous investigations and treatments on the day of admission.

It is important that regional analgesia has not been carried out on the horse for at least five days prior to referral. Diagnostic nerve blocks result in temporary asymmetry of perfusion of the limbs and this can confuse our interpretation of the scan results.

COSTS

Our Scintigraphic suite is an expensive facility to run. We purchase radiolabelled isotopes from a local hospital and they are delivered by special taxi. The scan itself occupies three members of staff for at least an hour. The servicing costs on the camera and computer are approximately £10,000 per year.

We are pleased to give detailed quotations in advance if costs are an important factor.