MVS EQUINE HOSPITAL
ROBIN DUKE OF BEDFORD SCINTIGRAPHY UNIT

We would like to thank you for your support of the Scintigraphy unit over the preceding 15 months. We are pleased to report numbers through the unit have been excellent and as a result we are able to maintain our pricing structure for the remainder of this year ($1550 plus GST plus minimum two nights agistment).

We would also like to take this opportunity to review the indications for scintigraphic examination as like any imaging modality case selection is important in getting the best and most meaningful results for your clients.

The unit continues to be available on a referral basis and all results are reported to the referring veterinarian directly. Booking and client information sheets are available on our website www.matamatavets.co.nz.

LAMENESS DIAGNOSIS, CONDYLAR DISEASE AND STRESS FRACTURES

INDICATIONS FOR BONE SCINTIGRAPHY

Nuclear Scintigraphic Imaging is an established diagnostic tool that provides the examining vet with physiological information regarding the horse's anatomy and pathology.

As a tool, Scintigraphy provides a complementary diagnostic process to work alongside the more familiar mainstream diagnostic imaging methods such as x-ray, ultrasound and regional analgesia.

SCINTIGRAPHY IS USED FOR:

- Lameness
- Negative radiographs
- Upper limb or pelvic lameness
- Sore back
- Multiple lesions/multi-factorial lameness's
- Lesion localization and extent
- To evaluate healing
- Assess muscle injury
- Fractious horses unsuitable for nerve block examination
How does it work?
Technetium 99m is the most common radioisotope used in equine nuclear medicine imaging. It produces gamma rays with an energy level of 140 keV, which minimizes scatter, and has a half-life of 6 hours facilitating early and safe disposal. Diphosphonate salt is labelled with Technetium 99m to produce the radiopharmaceutical which is injected into the horse. Diphosphonate salts are used as they selectively localise in bone by binding to the hydroxyapatite. Its uptake therefore is relative to the osteoblastic activity or metabolism of the bone and the blood flow to the bone in a specific area.

What does it tell us?

Enthesitis uptake
Several patterns of Increased Radiopharmaceutical Uptake (IRU) appear to be associated with the attachment of soft tissue structures to bone. The most classic example is injury to the origin of the suspensory ligament (OSL), but includes other conditions such as collateral ligament damage, strain to the insertion of the deep digital flexor tendon, navicular bone remodeling and avulsion of the muscles of the third trochanter of the femur.

Subchondral bone disease
Racehorses undergo tremendous changes in the subchondral bone of their carpal (knee) and metacarpophalangeal (fetlock) joints during training. Diseases in these joints can range in severity from simple fragmentation to complete fracture. In addition, intense subchondral bone sclerosis and subsequent joint damage (osteoarthritis) are common. In fact these injuries account for the majority of wastage and poor performance in athletic horses. Recent studies using Scintigraphy and clinical and pathological findings support the concept of a continuum of adaptive and non-adaptive responses of bone in these horses. It is believed what happens in the joint is that the underlying bone becomes stiff (densification) due to the high loads experienced during training and as a result the overlying cartilage collapses. These types of lesions are progressive and inoperable and result in significant osteoarthritides, despite supportive therapy. The challenge is in detecting these injuries at an early stage to allow their correct management. Scintigraphy is essential in achieving this.

Stress fractures
Stress fractures appear as a localised crack within the bone. Stress fractures have the potential to enlarge and become a complete fracture if exercise continues. Many complete fractures that result from stress fracture propagation are not repairable and require the humane destruction of the horse. Stress fractures are significant injuries and their accurate and early diagnosis is desirable to avoid such a potentially fatal event. Stress fractures are typically the result of the repetitive force of galloping. They can, however, in rare cases developed without going faster than a trot. Stress fractures generally cause lameness although horses may not become lame until the crack is creating instability in the affected bone. In some cases they exhibit intermittent signs of lameness. It is not uncomon for a trainer or groom to notice just a few bad steps or poor performance and present the horse for examination solely for that reason. With rest these horses often resolve their lameness rapidly. This does not mean, however, that the stress fracture has healed! The cannon bone is the most commonly affected site in training thoroughbreds but stress fractures are seen in a variety of other sites including the humerus, Tibia, scapula, pelvis and spinal vertebrae. The gold standard diagnostic method for stress fractures is Scintigraphy. Scintigraphy is an extremely sensitive imaging modality for identifying stress fractures and is able to show up stress fractures that radiographs cannot demonstrate. Early identification of stress fractures will reduce their potential for catastrophic consequences and racehorse wastage due to poor performance. Because of its sensitivity it also allows monitoring of the healing process so that horses may be returned to training at the correct time.
Case 5
4 yr old TB with history of intermittent forelimb lameness. Negative to intra-articular analgesia of fetlock, intercarpal and radio-carpal joints and no radiographic changes. Scintigraphy shows subchondral bone disease of third carpal bones in both left and right carpi.

Case 6
6 yr old TB horse with reduced racing performance. Scintigraphic examination confirmed subchondral bone disease in both hind fetlocks allowing appropriate medication and management to enable return to performance. No associated radiographic findings.

SUMMARY
As a profession it must be our goal to research, devise and advise regarding factors that may be employed to reduce the incidence and severity of injury and poor performance in horses. Scintigraphy makes it possible to make an accurate diagnosis and give effective treatment. The challenge is in proving to our clients the benefits for horse welfare, lost training days and associated costs, and minimising the wastage of potentially great athletes that can be managed appropriately. Unfortunately wherever there is a problem with a horse there is an alternative view on what is required to fix it, and the opinion that the horse ‘just isn’t good enough’. There is need for a greater understanding and awareness of the problems faced by our equine athletes so that there is a willingness to diagnose and properly treat injuries by employing veterinary science rather than guesswork.

We look forward to continuing to offer this service in the upper North Island for the benefit of equine veterinarians, their clients and most importantly their patients.

If you would like to discuss any cases prior to referral please do not hesitate to contact any one of our senior team of equine clinicians.

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