Lameness is extremely common in the athletic horse. It is one of the most common reasons why owners seek veterinary assistance and an experienced practitioner has likely performed hundreds if not thousands of lameness examinations in their career. Information on the subject is plentiful and abounds the equine veterinary literature. Despite this collective knowledge pool, lameness continues to be a difficult task for the equine practitioner.

Lameness is defined as abnormal or asymmetrical gait. It is a clinical sign, not a disease per se. It is a manifestation of pain, mechanical dysfunction or neuromuscular deficit causing alteration of gait, i.e. the horse limps. In certain conditions, characteristic gait abnormalities are pathognomonic and therefore recognition and location of the problem is straightforward. For example, a horse standing with its hindlimb locked in extension and fetlock caudally placed and flexed is the distinctive stance of upward fixation of the patella (“locked stifle”). Unfortunately, most causes of lameness do not exhibit characteristic gait abnormalities; which makes assessment and diagnosis a real challenge.

Clinical Examination

Evaluation of the lame horse is centered around gait assessment. Currently, there are numerous kinematic systems which objectively measure gait mechanics; however, subjective observation, i.e. watching the horse in motion is standard of practice. Subjective detection of lameness requires keen visual acuity of gait alterations such as changes in foot flight patterns, head/neck nod, pelvic hike/drop, changes in stride length, degree of fetlock drop, and/or shifts of body masses. While it is easy to recognize when a horse is severely and unilaterally lame; it is not always straightforward and there is low agreement between clinicians when lameness is not obvious. This is especially true for inexperienced clinicians and subtle hindlimb lameness.

Bilateral or multiple limb lameness further complicates the examination. For example, horses with equally sore front feet may exhibit symmetrical gait abnormalities and appear to be “sound” in a straight line. Concurrent front and hind limb lameness can also be challenging. Horses with a pelvic hike may also exhibit a head nod, and vice versa. In these horses, distinction between primary and compensatory ‘false’ lameness is not easy. The “law of sides” would suggest that horses with ipsilateral concurrent front and hindlimb lameness are predominantly lame in the hind end. In the riding horse, the interaction between the horse, saddle, and rider further complicates lameness evaluation. The presence of lameness can be related to the rider’s skill level and specific...
rider movements.\textsuperscript{5} Even what the rider feels astride the horse can be confusing. Decreased thoracolumbar flexibility is commonly attributed to back pain; however, limb lameness also causes back stiffness.\textsuperscript{6}

Responses to common provocation tests such as hoof tester application, focal digital compression of focal, and limb flexions are frequently used to localize the source of pain; however, they are notoriously unreliable. Testing is difficult to reproduce with consistency, variable techniques are used, and false positives are common. Many factors such as individual horse responses to pain and interpretation of pain can be confounding. Most lame horses are “positive” to limb flexion tests\textsuperscript{7}; however, flexion tests often do not accurately predict the underlying source of pain.\textsuperscript{8}

Diagnostics

Diagnostic analgesia is the best way to authenticate the source of pain; however, techniques have limitations and can be misinterpreted. Complete resolution of lameness (100% sound) is the goal; however, in many horses this is never achieved. It is also important to recognize that the intended region to desensitize may differ from what structures are actually desensitized. This may be due to inadvertent penetration of a synovial structure during perineural injections and/or incorrect placement of anesthetic solution. Adequate patient restraint and a solid working knowledge of neuroanatomy can minimize but not completely abolish these complications. Even with good technique, anesthetization of adjacent structures occurs after intra-articular analgesia due to diffusion of anesthetic solution across anatomical borders and/or blockade of peripheral nerves that course through or near joint outpouchings. For example, intra-articular anesthesia of the distal interphalangeal joint improves pain not only in the joint but also the navicular bursa, the navicular bone and associated soft tissue structures, and the toe region of the sole.\textsuperscript{9} Diffusion also occurs after perineural injections with significant proximal dissemination occurring within 10 minutes after injections.\textsuperscript{10} This rapid proximal distribution may also contribute to desensitization of unintentional structures.

Imaging is the next diagnostic tool. Radiographic evaluation remains readily available and mainstay of initial screening for bony abnormalities. However, artifacts, superimposition of bony structures, “active bony lesions”, and poor technique complicate evaluation. Osseous abnormalities should be correlated with abnormalities and the absence of abnormalities does not negate bone pathology. Ultrasonographic evaluation also has its pitfalls. Diagnostic value can be dependent on operator skill and can be complicated by anatomical variations between horses. Older horses often have abnormalities which should also be correlated with clinical examination findings. Nuclear scintigraphy can be extremely helpful in identifying stress-related bone injury typified by focal increased radiopharmaceutical uptake (IRU). IRU predominately reflects increased osteoblastic activity due to increased bone turnover and therefore can also be used to
ascertain the current status of known radiographic abnormalities and/or pursue diagnosis in horses with negative or equivocal radiographs. However, scintigraphy can also produce false-negative results and bone pathology cannot be ruled out in horses that lack IRU. Advanced imaging such as CT and MRI are increasingly available and greatly enhance examination of bone and soft tissue structures. As with other imaging modalities, obvious abnormalities in the region of interest can be diagnostic but subtle abnormalities should be correlated with clinical assessment.

References