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Coxofemoral and Pelvic Considerations in Hind Leg Lameness

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Coxofemoral and pelvic lameness in the equine athlete can be a diagnostic and treatment dilemma for the veterinarian. These areas are not necessarily easy to evaluate from a physical palpation or diagnostic imaging standpoint. Acute injury or fractures tend to be more easily diagnosed, but many of the conditions affecting this region may have an insidious onset and result in reduced performance concerns well before an actual lameness is appreciated. Common complaints are the lack of propulsion, poor engagement of the hindquarters, reluctance on turns, back stiffness, lack of power on turns, muscle soreness, short/stiff gaits and various degrees of lameness. The practitioner is always challenged to assess whether or not the clinical findings of these areas are primary concerns or compensatory activity related to other musculoskeletal issues.

Coxofemoral Region

Problems of this area can present as a subtle gait abnormality to a severe lameness based on the etiology, chronicity and the structures involved. Tissues involved can include the muscles and bursal structures around the region, the soft tissues of the joint, the joint surfaces and the bony components of the acetabulum and femur. The clinical presentation can vary widely with chronicity typically displaying some form of gait abnormality or lameness, but often the horse will present with lateral rotation of the leg and some form of muscle enlargement (acute) or atrophy (chronic) through the gluteal region.

Trochanteric bursitis of the accessory gluteal muscle (whirl bone) is a condition of inflammation that generally occurs with explosive propulsive exercise such as breaking from the gate in racehorses or with the jumping motion in some jumping horse disciplines. It is characterized by a weakened gait of propulsion and palpable soreness over the region of the greater trochanter of the femur. It is often bilateral in nature. The use of ultrasound can visualize increased fluid in the bursa, varied enlargement of tendinous structures of the muscle or, in the chronic case, enthesopathies off the greater trochanter. Nuclear scintigraphic findings can be diffuse or focal in this area. Treatment with local injections of corticosteroids or homeopathics and a graduated return to exercise for a period of time usually resolves the condition. Topical medications and other adjunctive therapies (cold laser, therapeutic ultrasound, electromagnetic) are often utilized.

Coxofemoral arthropathies can also present as an acute or chronic problem. The acute lameness of the coxofemoral joint can vary widely in severity and is usually associated with some trauma or fall that can stretch the soft tissues of the joint capsule or the combined ligaments of the femoral head. These horses often present with lateral rotation and the leg abducted from the body. If the affected leg is pulled toward midline (adducted) and rotated medially under the abdomen, from the opposite side of the horse, pain generally worsens. The conventional upper leg flexion test will usually worsen the lameness, especially if the leg is adducted. These horses can develop significant muscle atrophy in the coxofemoral region over a short period (3-4
weeks), depending on the severity of lameness. Less severe injuries may progress into a chronic condition that then presents with some underdeveloped musculature. Injury of the joint region can progress into an osteoarthritic condition that may show the spectrum of a lowered performance ability, to low grade gait abnormality, to chronic lameness. Intra-articular coxofemoral joint anesthesia under ultrasound guidance can be effective for isolating lameness to the area. Ultrasonographic examination may pick up increased fluid or thickened capsule at the joint in acute problems and evidence of bony remodeling with osteophytes in the chronic condition. Radiographic evaluation, done either standing or under general anesthesia, can be diagnostic for fractures and osteoarthritic conditions. Scintigraphic examination can be a useful diagnostic procedure for acute and chronic problems. Arthroscopy of the coxofemoral joint may be useful for diagnostic, treatment and prognostic purposes. Direct treatment of the coxofemoral joint is best done with ultrasound guidance and the administration of corticosteroids, hyaluronan, polysulphated glycosaminoglycans, autologous regenerative components or a combination thereof. Extracorporeal shock wave therapy (ESWT) has been clinically effective for soft tissue and bony conditions of the area. In the case of ongoing osteoarthritis, oral and/or injectable joint supplementation may provide some benefit. Systemic non-steroidal anti-inflammatories (NSAIDs) for acute and chronic conditions have their role in the overall treatment plan. Exercise management and performance expectations have to be considered and adjusted when dealing with specific conditions of the region.

Fractures of the coxofemoral region usually involve the acetabulum or the head of the femur and involve the joint and associated ligaments. These are usually a result of trauma from a fall on a hard surface. There can be compression of the femoral head into the acetabular fossa resulting in fracture of the underlying pelvis. Fragmentation of the acetabular margin/rim and associated damage or rupture of the ligament of the head of the femur usually occurs with the leg being twisted abnormally under the body during a fall. Salter-Harris fractures of the femoral head are more common in young horses as a result of trauma and falls. These horses are very lame and any manipulation of the proximal limb results in severe discomfort. Radiographic and ultrasonographic examination is usually adequate to delineate the fracture. Rectal palpation or transrectal ultrasound of the axial surface of the acetabulum may detect an irregular bony surface. Stress fractures or some non-displaced fractures of the area may be best identified using nuclear scintigraphy. There is a poor prognosis for fractures of this region if the intent is a performance horse. Most horses will develop significant osteoarthritis and persistent lameness. Non-displaced stress fractures are the exception and many horses will resume sufficient activity to perform if there is not cartilage damage of the joint. Fractures of the greater trochanter and third trochanter can result from trauma and generally carry a favorable prognosis.

Sacrotuber and Pelvis

Problems associated with this region present a wide array of nonspecific clinical complaints from riders, trainers and owners. Often horses have lost their drive from the hindquarters, have chronic muscle soreness, weakness over their toplines, asymmetric pelvic conformation and may display some weak bucking or kicking out when ridden. Reluctance for lateral work, attitudinal changes toward training, taking a long time to warm up, stiff gaits, lead change problems, abnormal movement that is more apparent under saddle and difficulty for the farrier are other histories that may indicate a sacroiliac or pelvic abnormality. The sacroiliac ligaments (dorsal and ventral) and joints are under high stresses during performance and prone to acute injury or
chronic repetitive insult. Sacroiliac desmopathy as a result of distraction to the area has been appreciated with ultrasonographic examination. Osteoarthritis of the sacroiliac joint (predominantly the caudomedial aspect) has been indicated to be the most prevalent finding in horses with chronic sacroiliac pain. Pelvic trauma can be a common cause of problems in young and mature horses. Stress fractures of the pelvis occur in consistent locations in the performing horse (caudal border of the ilium) and can contribute to sacroiliac joint inflammation due to the location.

The diagnosis of sacroiliac injury can be difficult and is often a diagnosis of exclusion. Physical examination usually will indicate some muscle soreness to palpation over the lower back and croup region that is nonspecific. Pressure directed ventrally over the individual tuber sacrale or on the midline may give an indication of discomfort to the area based on the horse’s reaction. Firm pressure directed toward midline (away from the examiner) at the tuber sacrale while concurrently applying pressure (toward the examiner) at the caudal sacrum may induce a painful response that could indicate either bony or ligamentous problems. Flexion tests of the hind legs will rarely result in a distinct sustained lameness, but instead the horse may display an axial postural change in gait or often the hind legs will track to one side of the front legs. Observation of the horse when ridden can be useful in evaluating gait changes and addressing the rider’s concerns with performance. The injection of local anesthetics in this region can be problematic and nonspecific due to major nerves in the area, diffusion of anesthetic solution and the broad surface area of the sacroiliac joints and ligaments. Nuclear scintigraphy can be an important diagnostic tool and care should be taken in acquiring images of the region. Ultrasonographic examination of dorsal short sacroiliac ligaments, a portion of the dorsal long sacroiliac ligaments and the caudomedial aspect of the sacroiliac joint can be performed externally. Transrectal ultrasound can evaluate portions of the bony margin of the ventral sacroiliac joint and the ventral sacroiliac ligaments. Radiographic examination of the area requires general anesthesia. Thermography may be a useful diagnostic tool in the hands of an experienced operator.

Treatment of sacroiliac problems involves a combination of local targeted injections, systemic medications, adjunctive therapies and exercise management changes. Ultrasound guided injections of the cranial and caudal aspects of the sacroiliac joint with corticosteroids and/or homeopathic medications can be employed. Specific desmopathies of the sacroiliac ligaments may be injected with ultrasound guidance utilizing sclerosing agents or homeopathic medications. Systemic NSAIDs and/or medication for relaxation of muscles may aid to reduce pain in the area. Chiropractic, acupuncture, body massage techniques and shock wave therapy have been utilized to facilitate recovery from sacroiliac pain and then used regularly to minimize return of pain. Exercise management can play an important role in minimizing pain and allowing the horse to perform adequately. Freedom of movement and extended hours of turnout can pay big dividends in allowing the horse to stretch the pelvis and reduce muscle spasms. Exercise under tack without a rider and with minimal collection on a lunge line may be beneficial in some instances. Long warm up and cool down periods, as well as varying duration and intensity of movements within mounted training sessions can affect the comfort of the horse. Cross training, trail riding, water treadmills, vibrating stall floors may fit into a program of management.

Pelvic fractures have been well documented to affect performance from subtle gait changes to catastrophic lameness. Fractures have been noted in all bones that make up the pelvis and
external forces tend to cause fairly consistent patterns of fracture. Poor performance and subtle gait abnormalities can be seen with stress fractures of the ilium due to its close association with the sacroiliac joint or with fractures of the sacrum. Distinct and variable lameness occurs with fractures of the ilial wing, tuber coxae, pubis, ischium and acetabulum based on the location and combination of sites. Radiographic and ultrasonographic examination (external and transrectal) can delineate the extent of most fractures. Nuclear scintigraphy is excellent for stress fracture detection and to assess healing of fractures. Treatment of most pelvic fractures is usually relegated to stall confinement and restricted exercise for an appropriate period of time for the bone to regain strength. Some fractures require that the horse be tethered to prevent lying down or getting up which might displace a fracture. Systemic NSAIDs may be utilized. Dietary supplements for bone health and to aid remodeling have been given, but unproven, in many instances. Some systemic medications to modify bone remodeling have been employed. Many fractures of the external aspects of the pelvis (tuber sacrale, tuber coxae, tuber ischium) will result in chronic conformational deformities, but will not functionally limit the horse in competition.

Coxofemoral and pelvic region reduced performance and lameness concerns require an ordered, diligent and often, time-consuming approach to diagnostics and treatments. These problems involve a cooperative effort between the veterinarian and caregivers of the horse. There is a wide variety of treatments that can be directed locally or systemically, and frequently require ongoing attention to the concern as the horse performs. Many of these cases require multiple evaluations and coordination of exercise management programs following treatments. Future improved scientific understanding of the pathophysiology and the optimum rehabilitation course of these conditions should allow veterinarians to best treat and help manage these concerns.

References