Common Lameness in the Cutting and Reining Horse

Bradley R. Jackman, DVM, MS, Diplomate ACVS

Author's address: Pioneer Equine Hospital, Inc., 11501 Pioneer Avenue, Oakdale, CA 95361.

1. Introduction

The cutting and reining horse industry is growing rapidly, with enthusiasts ranging from the absentee horse owner to the full-time professional. Owners can be involved in small local weekend shows or national events with over one million dollars in prize money. As this industry has grown, so has the competitive nature of the owners and the ability of the horses.

Cutting and reining horses are primarily Quarter Horses and Paints. These horses are bred with an emphasis on small stature (14–15 hands), agility, and the mental capacity to perform under pressure. During individual events, the horses have to be under complete control while performing quick stops and high-torque turns (Figs. 1 and 2). Additionally, most of these horses begin training as late yearlings and early two-year-olds, with the goal that they will compete in fall and winter competitions as three-year-olds. This small stature, agility, and athletic use predispose to certain stresses and injuries.

Due to the increasing popularity and nationwide growth of the cutting and reining industry, it is imperative for equine practitioners to become familiar with the diagnosis and treatment options of injuries common to these horses.

2. Forelimb Lameness

Forelimb lameness problems can be grouped into two different types: concussion and fatigue. To achieve the athletic ability needed to be competitive in today's industry, breeding programs for these horses are very regimented and follow successful bloodlines. This has enabled the horses to become extremely agile and quick, but other characteristics, such as small stature and small foot size, have also been inherited. Lameness from concussion is related to the small feet of these horses as well as to the work required. Fatigue plays a role because these horses are required to be calm and completely in control when performing. Therefore, they often need to be galloped for extended periods of time prior to entering the show ring.

3. Palmar Heel Pain/Navicular Syndrome

As mentioned, cutting and reining horses experience extensive and prolonged training at a young age and often exhibit lameness, which can be alleviated with analgesia of the palmar digital nerves. Analgesia of the distal interphalangeal joint is often useful in further localizing the lameness; it has been suggested, however, that the specificity of this block is questionable and that it can desensitize the sole when large volumes of anesthetic are used.[1]

NOTES

Fig. 1. Reining horses must perform and excel at high-speed stops.

Fig. 2. Quick high-torque turns are necessary in cutting horses.

After the lameness has been localized, radiographs are made of the foot. The radiographs are carefully examined for abnormalities as well as for imbalance and angular deformities of the foot. Erosion of the flexor cortex, cystic-type lesions, and medullary sclerosis of the navicular bone are more severe lesions that may warrant a lesser prognosis. If significant radiographic abnormalities exist, a diagnosis of navicular syndrome is made.

The cornerstone of initial therapy is appropriate consistent shoeing. It is imperative that the foot be balanced and at an angle appropriate for the horse. Effort must be made to hasten breakover by shortening and rolling the toe and providing adequate heel support. The interval between shoeings is usually 5–6 weeks maximum. Additionally, oral medications such as isoxsuprine hydrochloride and aspirin are used to enhance blood flow to the foot. If the lameness is severe and/or there is evidence of coffin joint inflammation, intra-articular injection of the distal interphalangeal joint with hyaluronic acid and a corticosteroid (e.g., 6 mg triamcinolone) is performed. In more severe or nonresponsive cases, palmar digital neurectomy may be required to maintain athletic function.

4. Suspensory Ligament Desmitis

Inflammation and injury of the suspensory ligament is a common source of forelimb lameness in the cutting and reining horse. Severity can vary from mild pain on palpation to acute and relatively severe lameness. Because these horses must have a quiet and calm demeanor while performing, most of them have to be galloped prior to performing at their most demanding level. In addition to fatigue, other predisposing factors are improper shoeing (long toes, uneven feet, improper angles, lack of heel support), hind limb soreness, and poor ground conditions.

Injuries to the suspensory ligament usually occur at its proximal origin and, to a lesser degree, at its distal branches. Proximal suspensory desmitis is a common cause of lameness in cutting and reining horses. These horses usually exhibit lameness that is 1 or 2 grades more severe when they are circled with the affected limb on the outside of the circle (e.g., counterclockwise with right forelimb lameness). Sequential injections of local anesthesia are used to localize the lameness to the affected region. The proximal suspensory region can be desensitized with local infusion of anesthetic around the suspensory ligament or by perineural anesthetic injection around the lateral palmar nerve at the level of the middle carpal joint just distal to the accessory carpal bone. If local infiltration is used, ultrasound examination is often postponed for one day to minimize possible distortion from the local anesthetic injection.

After the lameness has been localized, the affected region is radiographed to determine if proximal metacarpal or fetlock abnormalities are present. To characterize the damage within the suspensory ligament, an ultrasonographic examination of the ligament is necessary. Fiber pattern, ligament size, and percentage of damaged tissue should be assessed. Additionally, an ultrasound of the opposite limb should be taken as a comparison. Ultrasonographic findings do not always coincide with the degree of lameness. Some horses have less echogenic areas in the proximal dorsal suspensory ligament that are normal and can be determined only by contralateral limb ultrasound examination.

The treatment for suspensory ligament desmitis is rest, corrective shoeing, systemic nonsteroidal antiinflammatory medications, and, occasionally, local injection of the proximal suspensory lesion. The duration of rest is determined by the severity of ultrasonographic abnormalities, degree of lameness, and subsequent ultrasound examinations, which monitor healing. In most cases, an initial 60 days of stall rest is recommended, with prescribed hand walking beginning 2 weeks after examination. The amount of hand walking is slowly increased while the horse is confined to a stall. At 60 days, the horse is reexamined and an ultrasound is made. Further rest and exercise regimens are recommended at that time. Corrective shoeing involves keeping the toes short, maintaining an appropriate angle, and, usually, the application of an egg bar shoe to facilitate fetlock support. In situations where lameness is not severe and there are no ultrasonographic abnormalities, local injection of the proximal suspensory lesion may be performed. Most often, a corticosteroid is used in conjunction with polysulfated glycosaminoglycan.[a] Occasionally, Sarapin[b] is added as well. In cases where the lameness and lesion are severe or where there is a slow or poor response to conventional therapy, bone marrow aspirated from the sternum is often injected in the affected proximal suspensory ligament of these horses.[2]

Frequently in cutting and reining horses, there is palpable pain in the proximal suspensory region and a slightly shortened gait but no definitive lameness. These horses are probably suffering from hock soreness caused by using their front ends more extensively than normal. The suspensory desmitis in these horses usually does not require direct treatment and the problem can be alleviated with correction of the hock soreness.

The prognosis with suspensory desmitis is favorable and generally predictable. However, a horse with moderate to severe lesions is more predisposed to recurring injury. Several steps can be taken to prevent further injury after healing has occurred. Proper conditioning is necessary to reduce the risk of fatigue. Appropriate shoeing is necessary to avoid long toes and improper angles. We often keep these horses in egg bar shoes for their entire athletic careers. Potentially the most important preventative measure is to keep the horses as comfortable as possible and to keep them working off

Fig. 3. The hindlimbs in cutting and reining horses undergo frequent and excessive stress when training and performing.

their hind ends to prevent excessive strain on the front limbs.

5. Hindlimb Lameness

Cutting and reining horses place a great deal of stress on the hindlimbs (Fig. 3). These horses have been genetically selected for their ability to stop suddenly and change directions quickly while staying balanced. To perform this task, these horses exhibit the conformation and willingness to move with their hindlimbs underneath themselves. Moreover, they have to undergo extensive training at a young age to become proficient and consistent in these maneuvers. This repetitive stress predisposes the equine athlete to injuries of the hocks and stifles.

When evaluating a horse for hindlimb lameness, it is important to perform a thorough and systematic palpation of the horse. Specific areas to examine closely are the forelimb suspensory ligaments, the back and lumbar musculature, and any effusion or swelling in the hindlimbs.

6. Inflammation/Arthritis of the Distal Tarsal Joints (Distal Tarsitis)

Lameness associated with the distal intertarsal and tarsometatarsal joints (distal tarsal joints) is the most common reason for a reduction in performance in cutting and reining horses. Anatomically, the distal intertarsal and tarsometatarsal joints communicate in only 7–38% of horses; the distal tarsal joints very rarely communicate with the proximal intertarsal or tibiotarsal joints.[3–5] The distal tarsal joints are low-motion joints that sustain repetitive torque force in these horses. Therefore, it is not generally a question if these joints will become inflamed but when they will become affected. The degree of soreness related to these joints can vary from severe and acute lameness to a reduction in performance without notable lameness. A trainer often will suspect distal tarsal inflammation because of reduced performance of a horse prior to obvious lameness being noticed. Common complaints from cutting trainers with horses with inflamed distal tarsal joints are that the horse won't hold the ground or a cow, the horse is late making a turn on a cow, or the horse is backing off the cow and unwilling to get low to the ground. Reining trainers will complain of horses that are not stopping well, seem uncomfortable on tight turns, or are having difficulty with lead changes.

Cutting and reining horses with distal tarsal inflammation often palpate sore in the lumbar region. In more chronic and severe cases, there may be palpable thickening around the distal medial aspect of the tarsus. Horses with distal tarsitis are often affected bilaterally, with one limb more severely affected. The gait of affected horses is relatively characteristic in most mild to moderate cases of inflammation. The hindlimb will have a slightly

shorter stride. The arc of flight is usually medially under the body with a quick lateral outward movement of the foot before it is placed on the ground. An upper hindlimb flexion test will exacerbate the shortening of stride and abnormal gait. In more severe cases, definitive lameness can be present and usually will be unilateral. In these horses, the flexion test will be correspondingly more severe.

A tentative diagnosis of distal tarsitis is frequently made when there are a compatible history and clinical signs. If there is any question as to the etiology of the lameness, intra-articular anesthesia is performed. Because the distal intertarsal and tarsometatarsal joints communicate in only a small percentage of horses, anesthesia of both joints is recommended. If a proximal suspensory injury is suspected, care must be taken to use a smaller volume of anesthesia in the tarsometatarsal joint. Sometimes it may be beneficial to perform only distal intertarsal joint analgesia initially in an effort to differentiate distal tarsitis from suspensory desmitis.

After distal tarsal lameness has been diagnosed, radiographs are made to determine if arthritic changes are present. All four radiographic views of the tarsus are necessary to detect subtle changes. Most young horses with distal tarsitis will not have radiographic abnormalities of the distal tarsal joints. If arthritic changes are present, they can be variable, with slight narrowing of the joints, lysis and bony proliferation, and even ankylosis of the joints. Infrequently, yearlings and two-year-olds will exhibit significant lameness and have extensive lysis and proliferation of the distal joints. This condition has been termed juvenile arthritis and is most likely a form of osteochondrosis with delayed ossification of the tarsal cuboidal bones.

Future training and competitions of the horse often determine the treatment of distal tarsitis. If the horse is young and lacks radiographic changes, rest and anti-inflammatory medication is indicated. Nonsteroidal anti-inflammatory medication is given for 5–7 days and, frequently, a course of intravenous hyaluronate sodium[c] is instituted. However, these horses usually are in the midst of training or showing and their owners or trainers would prefer to avoid time off. In these situations, the most effective and reliable way to alleviate distal tarsal inflammation is intra-articular injection of the joints with hyaluronic acid and corticosteroids. It is imperative to inject both the distal intertarsal and tarsometatarsal joints because they may not communicate. The distal intertarsal joint is entered from the medial aspect of the joint just distal to the cunean tendon in a palpable depression.[6] The tarsometatarsal joint is injected at the plantarlateral aspect of the joint just proximal to the head of the fourth metatarsal bone.[6] Both joints can be effectively injected by a 23-gauge, 1-inch needle. If the economics of the owner allow, these horses will also benefit from concurrent use of intravenous hyaluronate sodium[c] and/or intramuscular polysulfated glycosaminoglycan.[a] After injection, the horse is allowed only light exercise for 4 days and is administered systemic nonsteroidal anti-inflammatory medications for 3–5 days.

The prognosis for managing distal tarsitis with intra-articular injections is good. Rarely in chronic conditions there may be a point in time when the response to intra-articular injections is diminished. Radiographs of the tarsus should be obtained to determine if the joint is nearing ankylosis. Turn out and temporary discontinuance of training and showing may be required. If radiographs show a lack of significant arthritis, a procedure to stimulate ankylosis of the joints may be indicated. There are two techniques to stimulate ankylosis: surgical drilling across the distal tarsal joint spaces[7] and injection of sodium monoiodoacetate (MIA).[8] Both techniques have mixed results and it is best to allow horses to ankylose the joints on their own. In young horses with juvenile arthritis, the response to intra-articular injection frequently is insufficient and transient. Surgical drilling to hasten the ankylosis process is occasionally undertaken in these horses in an attempt to reach important futurities.

7. Stifle Lameness

Lameness associated with the stifle joints in cutting and reining horses can be traumatic or developmental. Trauma can vary from mild inflammation to major damage of the soft tissue and cartilage associated with the joint. Osteochondrosis of the femoropatellar and medial femorotibial joints is a developmental condition that often occurs in these athletes. Horses with stifle lameness are usually more lame than if the lameness is associated with the hocks and, occasionally, the horse may be lame both in the hocks and the stifle. There is generally palpable pain in the lumbar musculature and frequently there is effusion of the medial femorotibial or femoropatellar joint. Horses with stifle lameness exhibit a shorter cranial phase of stride that is especially evident at a gallop or canter, most notably when the affected leg is on the outside of a lunged or round pen circle. There is usually a hip rise on the affected leg because of the shortened stride and reluctance to fully flex the leg. A positive response to upper hindlimb flexion is evidenced with further shortening of stride and more significant hip rise.

Lameness is localized to the stifle with the use of intra-articular anesthesia. Usually, I initially block only the medial femorotibial joint by placing 15 ml mepivacaine into the joint between the medial patellar ligament and the medial collateral ligament. This improves most stifle lameness because this is the joint that sustains the most stress. If necessary, the femoropatellar and the lateral femorotibial joints can be subsequently anesthetized.

After lameness has been attributed to the stifle, the joint is radiographed. A complete stifle series includes lateral projection, caudal–cranial projection, and caudolateral–craniomedial oblique projec-

tion. Ultrasound of the stifle to visualize the cranial cruciate ligament, the cranial aspect of the meniscus, and the collateral ligaments has been described and may be useful in determining the extent of the injury in select cases.[9]

8. Traumatic Stifle Conditions

As young cutting and reining horses go through their training, considerable stress is placed on their stifles. Traumatic injuries can vary from mild inflammation to career-ending soft tissue disruption. Commonly, these horses will present with mild palpable medial femorotibial effusion in conjunction with distal tarsal inflammation. Radiographs will be normal and no detectable soft tissue injury will be evident. In these cases, injecting the distal tarsal joints with short-term systemic nonsteroidal anti-inflammatory therapy and intravenous hyaluronate sodium[c] therapy may be all that is required. Occasionally, injecting the medial femorotibial joint with hyaluronic acid and a short-acting corticosteroid are necessary for aggressive reduction of inflammation to allow training and showing to continue.

In more severe traumatic injuries, rest is required. These horses require strict stall confinement, systemic anti-inflammatories, intramuscular polysulfated glycosaminoglycan,[a] and re-examination at a later date. The prognosis is guarded at best and depends on the subsequent development of arthritis.

9. Developmental Stifle Conditions

In cutting and reining horses, osteochondrosis of the medial femoral condyle is much more frequent than it is in the femoropatellar joint. Condyle defects may be found in sound horses during a prepurchase exam, but this discussion will be related to lame horses with this condition. Radiographic abnormalities can vary from a flattening and underlying lucency of the distal medial femoral condyle to a large cyst formation within the condyle. The caudal–cranial and caudolateral–craniomedial views need to be of good quality to determine the extent of the defect.

The therapeutic recommendation for distal medial femoral condyle osteochondrosis is controversial. Possible treatments include rest, intra-articular injection, surgery, or change of use. Commonly, cystic lesions will lead to secondary arthritis. Therefore, we usually intervene in an attempt to maintain athletic use. If lameness is not severe and the lesions are small, intra-articular injection of the medial femorotibial joint with hyaluronic acid and corticosteroid is often beneficial in alleviating the lameness and allowing the horse to remain in work. If lameness is more severe and/or the cystic lesion is large with a large communication with the joint, intra-articular injection is often used in conjunction with confinement and rest. When a horse responds poorly to more conservative therapy, surgical intervention may be warranted. Cystic medial femoral condyle lesions are treated with arthroscopic surgery of the joint, which consists of curettage and debridement of the affected subchondral bone and articular cartilage. The prognosis with surgery is guarded for return to athletic use. In an effort to increase the success of surgery, recent research has been directed toward improving the healing of the defect.[10,11] At this time, these methods are mostly experimental and further research and clinical trials are necessary.

10. Summary

Cutting and reining horses are exceptionally agile athletes that sustain athletic injuries. The recent popularity of these sports has dramatically increased the competition and participation in these events. As the competition has been enhanced, so has the breeding and training of the horses because it takes an exceptional athlete to be competitive in the industry today. This increased athletic ability and rigorous training predisposes the cutting and reining horse to athletic injury.

References and Footnotes

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[a]Adequan i.m., Luitpold Pharmaceutical Inc., Animal Health Division, Shirley, NY 11967.
[b]Sarapin, High Chemical Co., Levittown, PA 19056.
[c]Legend, Bayer Corp., Agriculture Division, Animal Health, Shawnee Mission, KS 66201.