A 4-year-old racing Thoroughbred filly presented with a 1-month history of left hindlimb lameness. The filly was evaluated by the referring veterinarian at the initial onset of lameness, which developed acutely after exercise. The clinical examination revealed mild joint effusion of the left stifle and left hindlimb lameness (grade 2/5) that was not exacerbated by flexion. The lameness significantly improved with diagnostic anesthesia of the left medial femorotibial joint. Radiography revealed no osseous abnormalities. The joint was injected with corticosteroids, and a rest period was prescribed. The owners attempted to resume the filly’s race training; however, the lameness persisted, so they brought the filly to our clinic.

Physical Examination
At presentation, approximately 45 days after the treatment and rest period, the filly’s vital signs were within normal limits. There was moderate effusion of the left femorotibial joint but no external evidence of trauma to the left hindlimb. The filly was evaluated at a walk and a trot in a straight line on hard ground. At the walk, grade 1/5 left-hindlimb lameness was detected. When trotted, the filly exhibited grade 3/5 left-hindlimb lameness. The lameness was exacerbated by flexion. Diagnostic anesthesia was not performed at this time.

Diagnostic Imaging
Because radiographic findings were within normal limits at the initial examination, the right and left stifles were evaluated via ultrasonography to visualize soft tissue and bony structures.

Ultrasonographic examination of the left stifle revealed a marked increase of fluid in the medial femorotibial joint with extensive debris throughout the joint compartment. There was extensive synovial proliferation at the joint capsule attachment, and the joint capsule was moderately thickened (FIGURE 1). A linear anechoic region was identified in the medial meniscus, beginning at the cranial margin of the medial collateral ligament, continuing through the cranial horn, and ending immediately adjacent to the transition into the medial cranial tibial meniscus.

Digital imaging has revolutionized how veterinarians evaluate musculoskeletal problems in horses. While it has become much easier to obtain images, veterinarians are still faced with the challenge of interpreting the findings properly. Imaging Is Believing is designed to help equine practitioners meet this challenge and understand all the intricacies of digital imaging.
cal ligament. The medial meniscus extended beyond the margins of the tibia and femur, indicating partial rupture. Imaging of the medial meniscus with the limb in a non–weight-bearing position increased the length and width of the linear anechoic region at the axial tip of the meniscus (Figure 2). In addition, small defects were identified in the femoral and tibial surfaces of the meniscus. The defects corresponded with the osteophytosis on the femur and tibia (Figure 3). Moderate periarticular osteophyte formation at the distal medial femur and proximal medial tibia was also noted.

These findings on ultrasonographic examination were consistent with a horizontal tear of the cranial horn of the medial meniscus. The meniscal defects in the femoral and tibial surfaces indicated margin tears that were most likely associated with periarticular osteophyte formation on the femur and tibia and partial extrusion of the meniscus. There was evidence of moderate to severe chronic synovitis of the medial femorotibial joint.

**Treatment**

Restricted exercise, systemic antiinflammatory therapy using an NSAID (phenylbutazone: 2 to 4 mg/kg PO q24h as needed), and further local treatment of the joint were recommended. Surgical exploration was not pursued due to the poor prognosis for return to racing. The filly was retired and turned out in a small paddock and will become a broodmare. Because

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**Critical Point**

Imaging of the medial meniscus with the limb in a non–weight-bearing position increased the length and width of the linear anechoic region at the axial tip of the meniscus. In addition, small defects were identified in the femoral and tibial surfaces of the meniscus.
the filly was comfortable at a walk, no further treatment was pursued.

**Discussion**

In horses, the stifle is complex, the largest joint, and a common site of lesions that result in hindlimb lameness. Because of the intricate anatomy of the stifle, it can be challenging for equine practitioners to diagnose stifle injury. Radiography has been the most commonly used imaging modality to evaluate the stifle. Although adequate for diagnosis of certain bony abnormalities, radiography of the stifle provides minimal information about the joint’s soft tissue structures, including the medial meniscus. A thorough diagnostic examination, including evaluation of bony and soft tissue structures via ultrasonography, can improve the likelihood of a correct diagnosis, especially if meniscal injury is suspected.

The medial and lateral menisci of the stifle are fibrocartilaginous structures positioned between the tibia and femur. The menisci are not uniform in their anatomic structure; they are striated throughout. Thus, when imaging the menisci, it is important to obtain both weight-bearing and non-weight-bearing images to differentiate lesions from the normal anatomic appearance. The concave shape of the proximal surfaces of the menisci follows the contour of the femoral condyles, providing smooth articulation and shock absorption between the femur and tibia. Each meniscus is attached to the proximal aspect of the tibia by cranial and caudal ligaments. Injury to the soft tissues of the stifle, specifically the medial meniscus, should be considered in cases of hindlimb lameness. The degree of lameness associated with these injuries can initially be moderate to severe but may improve over time. Joint effusion and a positive response to flexion of the joint may be present. Diagnostic anesthesia of one or more of the joint pouches usually improves the lameness. Radiographic evidence of arthrosis affecting the medial aspect of the joint often accompanies medial meniscal injury and should lead to further evaluation of the soft tissue structures of the joint. However, absence of radiographic findings should not rule out meniscal injury because radiographic changes may not be present in acute or mild cases of meniscal injury. In this filly’s case, the clinical presentation and lack of bony abnormalities on radiographs were consistent with soft tissue injury of the stifle. However, a conclusive diagnosis was determined by ultrasonographic evaluation of the joint. Complete ultrasonographic examination of the stifle is readily accomplished with standard ultrasound equipment used by equine practitioners, such as a 10- to 12-MHz linear or an 8-MHz curvilinear ultrasound transducer.
Without ultrasonography as a diagnostic option for evaluation of the stifle, exploratory arthroscopy is often the only way to evaluate the joint if radiographic findings are within normal limits. In this case, arthroscopy was not needed to confirm the diagnosis or provide additional prognostic information because horizontal tears of this nature carry a poor prognosis for return to soundness. In cases in which ultrasonography does not reveal evidence of meniscal injury or injury to other readily visible soft tissue structures, exploratory arthroscopy is indicated. Even in cases in which ultrasonographic examination reveals evidence of meniscal damage, arthroscopy may be indicated to further clarify the extent of the lesion, provide useful prognostic information, and allow surgical debridement, if possible. The major limitation of arthroscopy is that exposure of the stifle is limited, thereby preventing complete evaluation of the joint. In the medial aspect of the joint, the cranial tibial meniscal ligament and the cranial-most aspect of the cranial horn of the meniscus are often the only areas that can be seen via arthroscopy. Tears in the caudal aspect of the meniscus require ultrasonographic evaluation for diagnosis. Thus, arthroscopy and ultrasonography are often used in conjunction to evaluate the structures of the stifle.

Radiography is often the initial diagnostic modality of choice to evaluate a horse’s stifle. Radiographs can be used to identify bony abnormalities and can lead to suspicion of soft tissue injury. However, bony changes may not be present in acute or mild injury. Ultrasonography is a more sensitive method to detect bony changes and is the only modality readily available to evaluate the soft tissue structures of the stifle. Therefore, in cases of suspected meniscal injury or other soft tissue injury in the stifle, ultrasonography is a readily available noninvasive screening tool that can be used before arthroscopy to aid in diagnosis and prognosis.

A thorough diagnostic examination, including evaluation of bony and soft tissue structures via ultrasonography, can improve the likelihood of a correct diagnosis, especially if meniscal injury is suspected.

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References