

Navicular Syndrome

Dr. Ella Pittman

Navicular syndrome, sometimes also called navicular disease, entails the degeneration of the navicular bone and the surrounding soft tissue structures. The navicular bone is a baby carrot sized and shaped bone tucked behind your horse's coffin bone within the hoof. The deep digital flexor tendon (DDFT) courses over the navicular bone to insert on the caudal (back) portion of the coffin bone. In between the navicular bone and the DDFT sits the navicular bursa, a synovial "cushion" that allows the tendon to glide smoothly over the flexor surface of the navicular bone. Navicular syndrome/disease used to encompass any lameness in the foot that could not be attributed to something definitive, like an abscess or laminitis. Now with more advanced imaging modalities, including digital x-ray and MRI, navicular syndrome is defined by specific degenerative changes to the navicular bone and the deep digital flexor tendon.

Pathogenesis

The exact pathophysiology of navicular syndrome is unknown. Multiple factors are believed to be involved. Distal limb conformation, and the resulting biomechanics, play a large role. A "broken back" hoof-pastern axis, underrun heels, and long toes can put excess pressure on the navicular bone, causing a low level of damage, which over time leads to degeneration. Certain breeds such as warmbloods, Quarter Horses, and Thoroughbreds, are predisposed to developing navicular syndrome. Horses tend to be 8-10 years old at onset of clinical signs.

Clinical Signs

Classic navicular syndrome presents as an intermittent, mild forelimb lameness. When the palmar digital nerve in the lame foot is blocked with local anesthetic, the lameness resolves but a new mild lameness appears on the other front foot. A palmar digital block is then performed on the other front foot. If that foot then blocks out, navicular syndrome is the tentative diagnosis. Sometimes, affected horses are positive to hoof testers along their heels. Additional diagnostics (see below) are required to confirm a diagnosis and to make the best treatment plan. Certainly, treatment (also see below) can be diagnostic and therapeutic as well.

Diagnosis

Veterinarians will take two specific x-ray reviews to evaluate the navicular bone. The first view is called a 60-degree dorsopalmar view, in which the x-ray beam shoots from the coronary band at the front of the foot toward the heel. The second view is called a navicular skyline. The x-ray beam is directed from just above the heel bulbs toward the toe. Your veterinarian will look for three characteristic changes: loss of corticomedullary distinction (loss of distinct outer and inner layers of bone), irregularities to the flexor

surface (loss of smooth bone surface where the DDFT courses over the navicular bone) and increased synovial invaginations (sometimes called lollipop lesions, loss of architecture of the inner portion of the bone). Radiographs, however, do not always correlate to the severity of clinical signs. MRI is the gold standard in diagnosing navicular syndrome. An advantage of MRI over radiographs is that an MRI will show both the changes to the navicular bone and the extent of damage to the DDFT and the navicular bursa.

Treatment

Treatment for navicular syndrome generally starts with shoeing changes. The goal is to provide additional heel support and/or raise the heel with egg bar shoes or wedges. This decreases some of the force on the navicular area. Sometimes pads will also be applied to decrease the concussion on the entire foot. Coffin joint and navicular bursa injections with steroids and hyaluronic acid can also help horses with navicular syndrome. Most horses will benefit from a course of non-steroidal anti-inflammatory medications such as Bute®, Banamine®, or Equioxx®. Another treatment option is bisphosphonates. Bisphosphonates, including Tildren® and OsPhos® inhibit the cells that break down bone, called osteoclasts. This helps prevent additional bone destruction. Bisphosphonates, however, cannot reverse the damage already done.

Prognosis

Response to treatment depends on the individual horse. A carefully designed treatment plan and good communication between you (or whoever rides your horse), your veterinarian and your farrier can help prolong your horse's athletic career. Lower intensity jobs, such as light trail riding and no jumping, will minimize the pounding on your horse's navicular region. Because it is a degenerative condition, some horses become refractory, or non-responsive, to treatment over time.

My horse of thirteen years has navicular syndrome. His diagnosis was the reason I became a veterinarian! I competed on the A circuit with him for four years after his initial diagnosis. He then retired from competition but he and I found a new love of jumping our local hunt club's natural fences. When he developed a DDFT injury along his pastern, I turned him out in a field for three years. He's now enjoying life as a lower-level dressage horse with wedge shoes and the occasional dose of Bute as his only maintenance. At times, managing his front feet has been frustrating and not inexpensive. But he has a job he enjoys and people who adore him. Navicular syndrome doesn't have to mean the end of a productive life. With good management, patience, and reasonable expectations, in most cases you and your horse can still share many hours together in the saddle.