What (and Where) is the Navicular Bone?

Equine researchers and veterinarians speculate that approximately 90% of lameness in horses stems from the foot and that one of the most common causes of foot pain is navicular disease. This painful condition in the back of the foot can stem from the navicular bone, bursa, or associated soft tissue structures.3 In general, the navicular bone is a small, cartilage-covered, boat-shaped bone located on the palmar (bottom) aspect of the foot. It is connected to the bottom of the coffin bone by several ligaments, such as the impar (distal sesamoidean) and collateral sesamoidean ligaments, which help support the navicular bone. The "Face" refers to the top of the navicular bone, and the "Face" of Navicular syndrome is typically characterized by pain or lameness in the back of the foot. This can stem from the navicular bone, bursa, or associated soft tissue structures.4

Clinical Signs

Horses with navicular disease often place their weight on the toes while walking, which is thought to minimize pressure on the painful heel area. As a result, a navicular horse's gait is typically quite rough. When standing, affected horses shift weight off the heel with each step, attempting to place as much pressure as possible on the toe to avoid the pain in the back of the foot.5

Clinical signs include:

- Affected horses are often lame in both front feet.
- Lameness typically develops slowly over time and becomes worse after the horse is exercised.
- Horses often place their weight on the toes, while walking to avoid pressure on the painful heel area.
- Tenderness on palpation of the navicular bursa or proximal navicular bone.
- Limited range of motion in the hoof joint.
- In some cases, navicular syndrome may be asymptomatic, and horses may appear sound at rest but become lame upon exercise.

Addressing Navicular Disease

Veterinarians also recommend various medical, surgical, and alternative/phytotherapeutic approaches to help manage the horse's condition. Without a cure, outcome typically will be dictated by the horse's use and conformation. Veterinarians, farriers, and owners working together, however, might be able to manage or maintain many horses successfully. Aggressive treatment early in the disease process can help improve the horse's outcome. Aggressive treatment early in the disease process can improve the horse's outcome. Aggressive treatment early in the disease process can improve the horse's outcome.

Medical Management

Veterinarians and researchers have proposed a number of surgical options, but these are typically reserved for cases that fail to respond to conservative management. When a horse is determined to have navicular disease, veterinarians may recommend the following medical treatments:

- Administration of oral isoxsuprine hydrochloride to dilate blood vessels, inhibit platelet aggregation, and increase blood flow to bone
- Administration of an FDA
- Anti-inflammatory drugs for pain/discomfort
- Steroidal anti-inflammatory drugs
- Complementary therapies for managing navicular pain, including:
  - Controlled exercise, and corrective trimming and shoeing by a knowledgeable farrier in accordance with veterinarian recommendations
  - Synovial proliferation and excessive fluid in the navicular bursa;
  - Adhesions between the DDFT and the impar ligament or suspensory ligament
  - Bone loss or thinning of the distal margins of the navicular bone;
  - Erosion of the flexor surface of the navicular bone;
  - Enlarged synovial invaginations (pockets) in the navicular bone;
  - Adhesions between the navicular bone and the DDFT or navicular bursa;
  - Synovial resorption of bone mineral and decrease abnormal bone metabolism;
  - Synovial fluid;
  - Sympathetic nerve block;
  - Pharyngeal stimulation, soft tissue massage, and acupuncture

Surgical Management

Surgical options for managing navicular disease include:

- Local or general anesthesia
- Synovectomy or synovial fluid aspiration (to reduce inflammation and fluid accumulation in the joint) may be performed
- Collateral ligament lateral release (CLAR) surgery
- Navicular bursoscopy
- Osteotomy of the navicular bone (removal of a small portion of the navicular bone and soft tissue attachments)
- Distal eminence corrective surgery
- Semitendinosus tendon transfer
- Distal palmar/medial sesamoidean ligament reconstruction
- Fusiform osteotomy
- Distal desmotomy
- Sympathetic denervation

Prognosis

The prognosis of navicular disease depends on the severity of the condition, the horse's age, and the treatment options available. Prognosis is guarded in cases of severe disease, and horses may require long-term management and regular veterinary check-ups. In horses with early diagnosis and aggressive treatment, prognosis may be better. In horses with early diagnosis and aggressive treatment, prognosis may be better. In horses with early diagnosis and aggressive treatment, prognosis may be better. In horses with early diagnosis and aggressive treatment, prognosis may be better.

References