



**Massey University**

# Veterinary Teaching Hospital

## NAVICULAR SYNDROME

Navicular 'disease' is really a group of related conditions affecting the navicular bone and associated structures in the foot. There are several possible causes of pain in and around the navicular bone.

### Anatomy of the navicular region

The navicular bone is a small flattened bone, which lies across the back of the coffin joint. It attaches to the pedal bone via a short strong ligament (the impar ligament) and to the pastern joint by 'suspensory' ligaments. The deep digital flexor tendon runs over the lower surface of the navicular bone, which acts somewhat like a 'pulley' and between these lies a small pocket of fluid, the navicular bursa, which acts like a 'cushion' between the tendon and its 'pulley'.

### What causes navicular disease?

At present, the exact primary cause of Navicular Syndrome is not known. Damage to the navicular bone may occur due to interference with blood supply or trauma to the bone. Damage can occur to the deep flexor tendon, navicular bursa, or navicular ligaments all resulting in pain and lameness.

### What are the symptoms?

Navicular disease affects the front feet of horses (rarely ponies) causing a low grade bilateral lameness, which usually progresses slowly. The lameness might only occur from time to time or when the horse is exercised on hard ground or in a small circle. In some cases, one foot is affected more than the other causing an obvious lameness. Affected horses may stand with the more painful foot in front of the other (pointing).

### How is navicular disease diagnosed?

Diagnosis is based on a combination of history, symptoms, nerve blocks and radiography. A history of intermittent low grade or recurrent lameness is suggestive of navicular disease. Affected horses often appear to place the toe down first, as if trying not to put weight on their heels, and the lameness is worse on the inside leg on a circle. Injection of local anaesthetic (nerve block) around the nerves to the back half of the foot and/or into the navicular bursa will improve or alleviate the lameness associated with navicular disease. Some cases also improve when the coffin joint (P2/P3, distal phalangeal or DIP joint) is blocked. Radiographs (x-ray pictures) may reveal damage to the navicular bone but bone changes can be difficult to interpret, as there are differing opinions on what is 'normal'. Navicular syndrome can exist without demonstrable radiographic abnormality.

### What treatments are available?

Navicular disease can be treated but rarely cured. Corrective trimming and shoeing is important to ensure level foot fall and foot balance. Often a rolled toe egg bar shoe is used to encourage early break over at the toe and good heel support. Medication such as phenylbutazone will elevate pain in many cases and enable work to be resumed. Long term treatment with substances such as isoxsuprine and aspirin may improve blood supply to the navicular bone and improve the condition of the bone. Warfarin used to be a popular treatment. It 'thins' the blood and seems to help some horses although its use can predispose to excessive bleeding after injury.

Long term desensitisation of the back of the foot can be achieved by performing a neurectomy to cut the heel nerves. This treatment should only be considered as a last resort and then only in full recognition of the implications. Post operative complications are common and include rupture of the deep flexor tendon, painful inflammation of the cut nerve endings (neuromas) and damage to the foot which goes unnoticed by horse and owner. Treatment options can be discussed in detail with your veterinary surgeon.

### **Can navicular disease be prevented?**

Horses with all foot shapes can develop navicular disease. Maintaining good foot balance and heel support can help to prevent many foot lamenesses. However not enough is known about the exact cause of navicular disease for prevention to be guaranteed.