

Case Study – Deep digital flexor tendon (DDFT) injury in the foot.

This horse was examined for a moderate intermittent left fore lameness of several months duration.

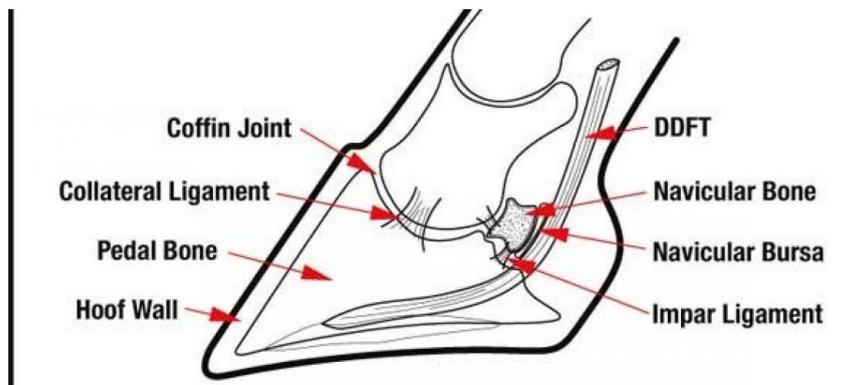
The lameness was eliminated following a palmar digital (PD) nerve block. The PD nerve block desensitizes the heel/navicular region and is sometimes referred to as a heel block.

X-rays of the foot showed a defect in the navicular bone.



Defect in middle of navicular bone

Due to an obvious lesion seen on x-rays, ultrasound was carried out. In the navicular region, there are important and commonly injured soft tissue structures in close proximity to the navicular bone. The bone and soft tissue structures are called the navicular or podotrochlear apparatus. The DDFT passes behind the navicular bone and the navicular bursa. The navicular bursa is a fluid filled sac that permits gliding of the DDFT over the navicular bone.



Anatomy of the navicular apparatus

Ultrasound was performed using a small microconvex probe. This probe allows for focal and deep penetration of the ultrasound beam and permits visualisation of most of the navicular region and is different from the regular tendon probe used to perform ultrasound on tendons. The horse's foot is rested on the vet's knee and a longitudinal image is obtained by directing the probe between the heel bulbs towards the navicular region.



Linear probe

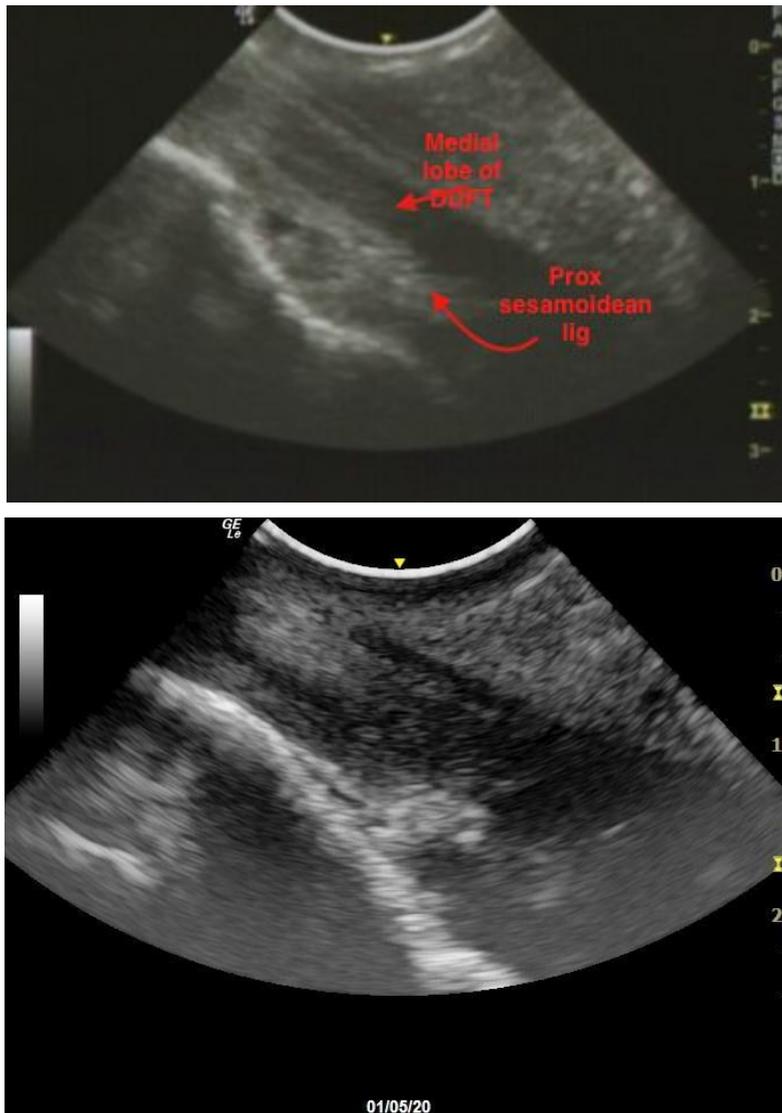


Microconvex probe

By using ultrasound, many structures can be assessed including

- The surface or cortex of the majority of the navicular bone.
- Several of the ligaments of the navicular bone.
- The two lobes of the DDFT
- Ligaments of the digital sheath
- Navicular bursa

In this case, ultrasound showed scar tissue in one lobe of the DDFT. The scar tissue was causing lysis or erosion of the navicular bone hence the change seen on x-rays. This indicated that the horse was recovering from an injury to his DDFT.



The top picture shows a normal tendon.
 Note the scar tissue in the DDFT in the bottom photo.

In horses with a persistent lameness that is unresponsive to medication and rest, MRI and CT remain the gold standard. Due to the hoof wall and sole, ultrasound has limitations. However ultrasound can be a quick, safe and cost effective way of assessing a variety of commonly affected soft tissue structures in the hoof.

Usually the horse will have remedial farriery, which may involve slight elevation of the heel to reduce tension on the DDFT. The navicular bursa may also be medicated with corticosteroid prior to returning to work. This will help reduce inflammation and therefore pain.