If Only They Could Talk

Our regular focus on equine health. This month resident vet JOHN MARTIN takes a look at fractures in horses' feet.

MOST fractures associated with the racehorse involve the bones which form the fetlock joint, the lower cannon and the pastern bone, or the small bones in the knee.

However fractures of the bones in the foot are seen occasionally in the young racehorse. These fractures can be initially difficult to diagnose and carry a very different prognosis depending on the bone affected.

Within the hoof there are two main bones, the pedal bone and the smaller navicular bone. The pedal bone is the large bone that attaches to the hoof wall and provides strength and stability. The navicular bone meanwhile is a small bone, which lies behind the pedal bone.

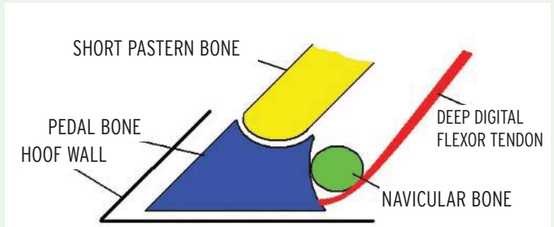


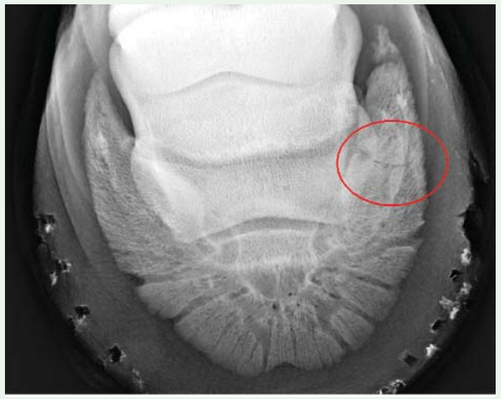
Diagram of the anatomy of the equine foot

A large tendon called the deep digital flexor tendon runs over the surface of the navicular bone and attaches onto the pedal bone allowing for flexion of the lower leg. The small navicular bone thereby acts as a fulcrum for the deep digital flexor tendon.

Fractures of the Pedal Bone

The main causes of pedal bone fractures in the racehorse differ between the forelimb and the hind limb. In the forelimb the main cause of pedal bone fracture is excessive forces applied unevenly to the foot. Such conditions may be encountered when horses travel at high speeds on a hard uneven surface. In the hind limb the main cause of fracture is direct trauma from a horse kicking a solid object such as the stable wall. The pedal bone will generally either fracture through the centre of the bone or in one of the outer "wings", with the later being the most common.

Occasionally small chip fractures are seen at the edge of the bone. The severity and prognosis of the fracture depends on whether it extends into the coffin joint, which is formed by the pedal bone and the short pastern bone.



X-ray showing a fracture in the wing of the pedal bone

Fractures, which extend into the coffin joint, tend to be more serious for two reasons. Firstly, as the horse bears weight through the coffin joint there will be some movement of the fractured bone therefore taking more time to heal. Also if the fracture involves the joint surface it will lead to arthritis.

Bar shoe with side clips fitted to help a fractured pedal bone

Horses with pedal bone fractures will be very lame on the affected leg. The horse will have a strong pulse to its foot, its hoof wall will be hot and there will be a response when hoof testers are applied. This can often make a correct diagnosis difficult initially as these symptoms are the same as those seen when a horse has an abscess in its foot.

Definitive diagnosis of a fracture in the pedal bone is achieved by obtaining an x-ray of the foot. The fracture line may not be visible straight away but after a few days as healing begins the bone around the fracture becomes less dense and hence the fracture will be visible on x-ray.

The most common treatment for a horse with a pedal bone fracture is to fit a bar shoe with side clips. This prevents expansion of the hoof wall and heels and thereby compresses the pedal bone-facilitating repair of the fracture.

The horse will also remain on box rest for a significant period. Unlike fractures of other bones where their repair can be monitored by x-ray this is not the case with the pedal bone. The fracture heels by fibrous tissue, which is less dense than bone and hence does not show up on x-ray.

X-ray of a fractured navicular bone

Since vets cannot rely on x-rays to determine how successfully the fracture is healing we instead rely on the horse to lets us know. We achieve this by slowly reintroducing him to work and closely monitoring his soundness as the work increases.

The prognosis for return to racing following a pedal bone fracture is generally good.

Fractures of the Navicular Bone

As mentioned above the navicular bone is a small bone, which sits at the back of the pedal bone within the hoof. It acts as a fulcrum for the large deep digital flexor tendon and as the coffin joint flexes this tendon glides over the surface of the navicular bone.

Fractures of the navicular bone occur as a result of trauma, in the hind limb this is generally caused by the horse kicking a solid object. Horses with a fractured navicular bone will have a sudden onset of severe lameness and show the same symptoms as a horse with a fractured pedal bone.

Fractures of the navicular bone however are a far less common injury in the racehorse.

Treatment is also similar to that described for a fractured pedal bone. The horse will require a long period of box rest. Bar shoes will also be fitted to give as much support as possible to the heel thereby relieving pressure on the navicular bone.

Healing of the navicular bone is poor and the prognosis for a return to racing is poor following a fracture.

Here at MJR we have the facilities onsite to accurately diagnose these fractures should they occur to a horse in training. The vets will then work alongside the team of farriers to treat the injury. These costs are included in the MJR daily training fees. ■

MJR'S TEAM OF RESIDENT VETS

James Tate BVMS MRCVS

HERE at Mark Johnston Racing we are proud to offer owners the services of not one, but two resident vets to ensure that every horse of every owner gets the very best of care around the clock. And of course, all veterinary costs are covered in our all-inclusive daily rate of training fees. Our vets also provide fascinating features each month for the Klarion on various aspects of equine health.

James Tate (left) was born in Harrogate, north Yorkshire, to a family steeped in racing, his father being trainer Tom Tate, while his mother Hazel is the sister of legendary trainer Michael Dickinson.

And his wife Lucinda is the daughter of retired trainer Len Lungo. James qualified as a veterinary surgeon at Glasgow University and worked in a mixed practice in Cumbria before joining MJR as senior resident vet in March 2006.

John Martin (right) is from County Laois in Ireland, where he was raised on a farm and from a young age had ambitions to be a vet.

He trained in Dublin and after graduating worked at a veterinary hospital before moving to England to join a practice in Louth, Lincolnshire. He joined us here at Kingsley House at the start of 2010.

John Martin MVB MRCVS