



## ***Pain in the...Foot?***

Navicular disease (**ND**), now more frequently referred to as Navicular Syndrome (**NS**), is the technical term for horses with caudal heel pain. NS is now known to have several etiologies, some genetic and some environmental, and despite our best efforts, can remain a diagnostic and management challenge in many cases.

The standard approach to lameness diagnosis involves a thorough physical exam including analyzing the horse's movement free, in a straight line, on the lunge and possibly under saddle. Flexion tests are used to see the horse's response to stress of a certain joint(s) and may give us further insight into the location of the problem. Peripheral nerve and/or joint blocks (with a novacaine-like substance to numb specific areas) are done systematically to localize the painful area(s). Radiographs, ultrasound and other diagnostic tools are used to confirm the location, quantify the extent of the damage/problem, formulate a treatment plan and give a prognosis for the identified issue.

NS which involves pathology of the navicular bone (**NB**) is typically diagnosed on radiographs as remodeling along the NB's palmar (back) surface which often causes a secondary deep digital flexor (**DDF**) tendonitis; as loss of cortical bone ('capsule' of the bone) density; or holes apparent as 'lollipops' in the medullary cavity ('core' of the bone). These horses are typically lame on both front limbs, although they present with a primary lameness in one or the other. Conditions in which the lameness is caused by palmar NB roughening can sometimes be diagnosed with a coffin joint block (being careful not to confuse coffin joint pain with pain in the navicular area) and treated with joint injections of a steroid, hyaluronic acid or a combination of the two. In Europe, a human drug called *Tildren* has been used to affect bone remodeling in these cases. The early research is not definitive and the drug is very new here in the US. Stay tuned for details! Unfortunately, cases of NS which have a component of NB pathology with secondary DDF tendonitis are difficult cases to manage and are often progressively degenerative.

A primary DDF tendonitis may be caused by an injury and the horse is typically only sore on a single front limb. After determining whether or not radiographic changes are significant, an experienced ultrasonographer should be able to detect the presence of DDF damage in the pastern and foot to give a definitive diagnosis. In cases of tendon and ligament damage, there are now procedures available to inject bone marrow, growth factors or collagen matrix to aid in healing. The veterinary community is divided on these therapies and more controlled research needs to be done.

Impar ligament (structures which hold the NB in the hoof capsule) damage in the foot is also recognized as a component of NS. We began recognizing this as a source of foot pain when the gold standard diagnostic for any hoof/foot related lameness, an **MRI**

(Magnetic Resonance Imaging), came on the scene. This test can definitively rule in or out disease of the deep digital flexor tendon; show bone structure and quality; and define the integrity of the impar ligaments. The original work has come from Washington State University and is being continued at a few other universities and larger clinics throughout the US. In cases with impar ligament damage, the long term results have been disappointing. Farriery and rest are the most crucial factors, but generally these horses are poor responders to therapy and time.

Severe bruising of the heel area, with or without an abscess, is often a common culprit of foot pain. In the absence of a definitive diagnosis from the above mentioned diagnostic procedures, time may prove this to be the case.

All 4 of these syndromes will often present similarly and follow the same blocking pattern, thus confusing the issue and costing the client more in diagnostics. Working from a definitive diagnosis is a crucial factor in these cases. The diagnosis will give us key insight into the original cause of the problem/injury and more importantly, the preferred course of action and prognosis.

A neurectomy (transection of the palmar digital nerves in the pastern) is a surgical procedure which can be employed in any of the above cases. Long term results vary due to individual physiology and surgical technique. This procedure is also not without ethical considerations. Shock wave therapy is also being used in some cases of foot pain with variable results. In these cases, the modality seems to be numbing pain by its action on nerves and not inducing any true healing. There will be much more research to come on this subject.

Navicular disease or associated syndromes can also occur in the hind limbs; however, this is much less common and only a few papers have been published on the subject.

All cases of foot pain should be addressed in concert with the veterinarian, farrier and owner/trainer. Some cases will be disappointing regardless of what we do. Unless we are talking specifically about bruising or a primary DDF tendonitis, NS lameness cases are not horses we heal: They are horses we treat palliatively and likely will change their job description. Farriery is of the utmost importance in these cases. A balanced foot which is allowed to grow and maintain natural heel is the place to start. It is always great when these horses are comfortable going barefoot. The discussions then come into play when deciding whether or not to use heel elevation, bar shoes, padding or a combination of all. Many NS cases have an acute phase and DDF component which require rest and where a bar shoe or heel elevation may be beneficial. Using these shoes as a long term solution can be difficult as the horse begins to contract the heel, both from the physiology of disease and the pressure from the shoe. This leads to a vicious cycle. Personally, I have had the most luck with horses in the acute phase or still being competed in well fit steel shoes with pour in padding, such as Equithane wrapped up around the heels. I also do not think this method is a long term solution. A talented and attentive farrier is your best asset in these cases.

With a decrease in work load or change in job description; attention to farriery and footing; and local or systemic treatments, many NS horses can continue to be useful and even competitive.