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Management of Chronic Laminitis

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Our present understanding of laminitis is that there is failure of the lamellar attachment between the distal phalanx and hoof wall. This initiates a sequence of events ranging from no permanent structural damage, to loss of the hoof capsule. Affected individuals are often plagued with chronic pain and suffering, chronic hoof abscessation, or abnormal hoof wall development with recurring bouts of pain. Irrespective of the initiating cause, there appears to be some overlap in the pathogenesis of the syndrome as the end result is loss of mechanical support due to laminar detachment. Imposed biomechanical load on this compromised junction causes further lamellar disruption and results in additional physical separation and displacement of the coffin bone from the hoof wall.

Understanding the pathophysiology of laminitis is important to the understanding of the disease, however, it provides only a small piece of the puzzle when managing a clinical case. Accurate assessment of the whole patient with consideration for signalment, occupation, and owner expectations should be considered in every case when attempting to provide appropriate treatment as well as prognosticate. One must ascertain if the horse does actually have laminitis and, attempt to determine the underlying cause. It cannot be over emphasized that this is a dynamic disease that progresses at variable rates. Clinical laminitis is appropriately referred to as a syndrome because of the differing presentations and stages. Managing an unstable acute sinker is vastly different than a horse with a chronic stable laminitis that is able to perform athletically.

The physical evaluation, and in particular, detailed evaluation of the feet is mandatory. Assessment of the quality and integrity of the feet, intensity of digital pulse, and temperature should be made. The coronary band should be assessed for the presence of edema (swelling), depressed areas (sinking), or palpably tender areas (possible abscess or separation of hoof wall). The shape and position of the sole is observed for the degree of concavity or protrusion, soft spots, or excessive thinning. The size, shape, and integrity of the feet are especially important when designing a podiatry program for the horse and for monitoring change associated with progression of the disease.

There are three vital pieces of information to obtain when evaluating a patient and formulating a diagnostic, therapeutic, and prognostic plan: determine the reason and source of pain, the location of pain, and the degree of instability within the foot. It may take several visits and serial evaluations spread over days to weeks to accurately make this assessment. Ultimately, one hopes to determine if the horse can continue to generate a viable and functional hoof capsule which is presumably correlated with the integrity of the germinal layers.

The most important determinant of long term outcome in the acute active laminitic patient, and one of the most difficult to determine, is the degree of instability between the coffin bone and hoof wall. At present we have few if any means to make this assessment beyond serial radiographs and clinical evaluation and, in some situations, the venographic study.
Foot manipulations for laminitis receive tremendous attention however are controversial. One must keep in mind that there are no controlled studies documenting the efficacy of any podiatry procedures. Techniques appear to change almost yearly and for the most part are based on an “idea”. Thus, as with systemic medications, podiatry remains anecdotal and is based on stage of the disease, clinical experience, and response of the patient.

Although there are inherent limitations such as having a small area to work with, there are principles that should be adhered to prevent further damage to the foot. In general, goals of foot therapy include relieving pain within the foot and providing support to structurally stable areas of the foot in order to prevent further tissue damage. The basic principle of using the “good area” of the foot is safe so long as it is not over used. There are no quick fix shoes that consistently work on horses with laminitis and in most instances of acute laminitis shoes provide little to no benefit and may cause more damage. One can achieve adequate uniform support with suitable bedding that will conform to the soles of the feet. Application of a heavily padded foot pack, Styrofoam, impression material, or commercially available boots with soft weight bearing surface will accomplish this purpose also. Once a chronic state is reached and the foot is stable, shoes will provide protection and allow a broader range of corrective changes to the foot. Changes made to the foot are somewhat limited and include the length, angle, break-over, balance, and focally loading or unloading specific regions. These procedures may help stabilize the foot, reduce loading on painful areas, and facilitate revascularization and foot growth.