Chronic Laminitis: Considerations for the Owner and Prevention of Misunderstandings

William Moyer, DVM; Jim Schumacher, DVM, MRCVS; and John Schumacher, DVM

Laminitis, as recently defined by Pollitt, is failure of the attachment between the distal phalanx and the inner aspect of the hoof wall. The extent of damage to the attachment varies from insignificant and temporary to severe and permanent, and varies between affected horses and between feet. Although a plethora of treatments exists, solid scientific evidence of efficacy of any treatment is lacking. Before attempting to treat and manage a horse with chronic laminitis, the practitioner should make the client aware of this fact. Authors’ addresses: Department of Large Animal Medicine and Surgery, College of Veterinary Medicine, Texas A&M University, College Station, TX 77843 (Moyer); and Department of Large Animal Medicine and Surgery, College of Veterinary Medicine, Auburn University, Auburn University, AL 36849-5522 (Schumacher and Schumacher). © 2000 AAEP.

1. Introduction
A multitude of techniques are used to treat horses affected with chronic laminitis, ranging from the most basic (e.g., attempts at controlling pain coupled with minimal trimming and shoeing) to the more complicated (e.g., including application of manufactured or hand-crafted corrective shoes and frog supports; and surgical interventions, including hoof-wall resection, deep digital flexor tenotomy, and application of transfixation devices to eliminate weight-bearing on the foot). It is difficult to identify or list all the various medications, types of shoes and foot coverings, hoof repair materials and their applications, hoof-wall modifications, and surgical procedures that have been used to treat horses with chronic laminitis. One can confidently state, however, without fear of contradiction, that controlled studies comparing efficacy of all these techniques to one another simply do not exist, and therefore, practitioners, clients, and other involved or potentially involved parties (e.g., insurance companies) must make decisions concerning treatment based on their and other’s experience.

2. Methods
We believe, based on our experience, that most of the techniques described for treating horses with chronic laminitis are, at times, useful, but that no single treatment has been shown to be better than another. Because the intricacies of laminitis vary between horses, ideal treatment, if it was known, would most probably vary between horses. In addition to determining the best therapeutic management of a horse with chronic laminitis, two important questions should be considered: How does one help the client understand the many problems associated with chronic laminitis, and what are the ethical issues regarding the welfare of the horse? Most horses with chronic laminitis have persistent pain, lameness, positional changes of the distal phalanx, and all have structural changes within the hoof capsule. The most difficult horses to manage usually have one or more of the following problems: significant rotation or “sinking” (i.e., distal displacement of the distal phalanx within the hoof capsule); penetration of the solar corium by the distal phalanx causing septic osteitis of the distal phalanx; and contracture of the joints of the distal aspect of the limb. The initial insult to the supporting structures of the foot may be of such magnitude that effective healing is not possible. Depending on circumstances, the treatment of choice may be humane destruction, regardless of the therapeutic measures and quality of care available, or when therapeutic measures are initiated in the course of the disease.

Our ability and that of our colleagues to accurately predict the outcome of any horse with laminitis is questionable. Horses with acute laminitis have an enormously wide variation of signs of pain and damage within the hoof capsule. The clinical signs and degree of pain do not always correlate with the degree of damage and thus the outcome of the affected horse is difficult to predict. For exam-
ple, a horse with a thick sole and long hoof wall that has 10 degrees of rotation of the distal phalanx may be more comfortable and have a better outcome than a flat-footed, thin-soled, Thoroughbred race horse with 3 degrees of rotation, simply because of the relative distance between the distal phalanx and the weight-bearing surface of the sole. The owner and other involved parties must be made aware that the severity of clinical signs shown by horses with laminitis may not be directly related to outcome, so that they do not have unrealistic expectations.

3. Client Education
We suggest that as soon as possible after diagnosing laminitis and assessing the horse, the clinician discuss the following points with the client so that misunderstandings may be prevented:

- Explain that the exact cause of laminitis is often difficult to determine. The cause may be easily determined if the horse is obviously sick but difficult or impossible to deduce if the horse has been otherwise normal and has had no obvious change in management. Speculation as to the cause, by the clinician involved, may be regarded as fact by the owner and may inadvertently cause blame to be misdirected. This is particularly important if a horse develops laminitis following administration of a drug, such as an anthelminthic or corticosteroid, for example. Speculation that the medication may have caused the disease can easily be perceived as fact by the client.

- Explain that the mechanism and pathophysiology of this disease are not fully understood but are being intensely investigated.

- Explain that by the time an affected horse shows clinical signs of laminitis (e.g., lameness and other signs of pain), structural changes and vascular damage within the foot have already occurred; therefore, the clinician is attempting to treat the horse for a problem that already has a major “head start.” After the “die has been cast,” damage is often so extensive that any reasonable repair is not possible.

- Explain that regardless of how an affected horse appears when first examined, the final outcome cannot be accurately predicted, and that the outcome could be a chronically lame horse or a horse that deserves to be destroyed humanely.

- Explain that if a case becomes complicated and chronic, the horse will probably require special management for the rest of its life (i.e., veterinary care, corrective farriery, and special environmental considerations).

- Explain that even with a good to excellent initial outcome, further incidences of laminitis, other foot problems (e.g., recurring subsolar abscesses, hoof wall separations, abnormal growth, etc.), and lameness are likely to occur.

Horses that appear to be sound often have some permanent lamellar damage, and thus are at risk of developing laminitis and related problems.

- Explain that if the horse already has one or more of the above complications, successful management requires some form of daily, and at times demanding, work.

- Explain that, depending on the complications that have occurred, medical management, regular assessment by stable personnel, and farriery costs are very much a part of the possible solution, and that these costs can be substantial.

- **Explain that controlled studies to indicate what is the best management regimen for their horse do not exist.**

- Explain that treatment of a chronically affected horse can only be considered to be an attempt to allow the horse to exist with permanent structural damage. Treatment may diminish and control pain and prevent further structural damage. The owner or agent should be made aware that the feet will likely never return to a fully structurally normal state, even if the feet are functionally normal.

- Explain that any therapeutic regimen has some risks beyond simple failure to improve the situation.

- Explain to the owner that if the affected horse is insured it is their (the owner or the owner’s agent) responsibility to immediately report the occurrence to their insurance carrier.

These points generally have to be re-explained periodically during the course of treatment of a chronically affected horse. The more information that one can provide initially, the less heartache and confusion there is for all concerned as the case progresses. We find that providing a handout that covers the above points is useful. It is prudent to point out that printed information should include only factual information. Always be aware that any printed information can be used in litigation. Educating the client is key to being able to communicate the ramifications and difficulties of managing a horse affected by a complicated disease, such as laminitis.

4. Therapeutic Regimens for Chronic Laminitis
The client should be informed that not only do therapeutic regimens vary, so also does the ability of practitioners to implement or provide these regimens. Most of the complicated cases require teamwork between the practitioner and an experienced farrier. Some of the techniques, corrective shoeing, for example, often require significant expertise that goes beyond simply fabricating a shoe. In our experience, the situation can easily be made worse, and therefore understanding one’s own limitations is important. In our opinion, it is best to “keep it
simple” if one’s experience is limited, and access to experienced help is difficult. Two procedures, which are both logical and unlikely to make the situation worse, can be employed (but should not be construed as our endorsement of their efficacy). These procedures consist of squaring the toe of the hoof and taping industrial styrofoam to the bearing surface of the feet. The foam can be changed when it becomes crushed, but surprisingly, it can often be left in place for days. The foam often provides greater comfort and may provide the examiner with clues about the possible effect that shoes with a significantly raised heel and flexible sole support might have, for example. Although these simple procedures may not be sufficient treatment for some horses, they are unlikely to cause more damage.

Treatment by dorsal hoof wall resection, in our opinion, is not as popular as it once was. The aftercare is substantial and costly, and the results, anecdotally, have not always met expectations. The technique does, however, have legitimate indications. If the wall of the toe is significantly separated to allow deposition of foreign material and introduction of infection, resecting the dorsal hoof wall may be necessary to allow local treatment of the underlying tissue. Reduction of the lamellar wedge (i.e., hypertrophied laminae) may help to correct deviation of the hoof wall as the wall grows to cover exposed lamina. After resection is performed, the exposed area must be protected from the environment.

Septic osteitis of the distal phalanx, a complication of chronic laminitis, occurs when the distal phalanx penetrates the sole. Antimicrobial therapy alone is seldom successful, and the diseased bone must be curetted to resolve the infection. Deep digital flexor tenotomy may also be a useful adjunct to curettage. Both these procedures can be accomplished using either regional or general anesthesia. Aftercare for one or both of these procedures is required.

Deep digital flexor tenotomy, in our experience, can be a useful technique if the distal phalanx has rotated substantially and/or pedal bone penetration exists. This surgery is not always helpful, and the question as to when deep flexor tenotomy should be performed in the chronology of the case has not been answered. Though unproven, logic suggests that this technique is a valid consideration for horses that show radiographic evidence of progressive rotation and that have not responded to other means of treatment. Unfortunately, the success of tenectomy cannot be predicted, and the only way to determine its therapeutic effect is to perform the surgery. It is important to explain to the owner that the surgery damages the tendon and carries with it some risk, and that one tissue is being damaged in hopes of aiding another. Do not assume that owners or their agents understand this concept. This information is best stated in writing, and informed consent should be obtained before surgery is performed.

A myriad of handmade or commercially available shoes have been applied to treat horses with chronic laminitis. It has been our experience that no one design has been consistently superior to another. Thus it is prudent to indicate to the client, at the onset, that a design selected, perhaps based on experience, may be ineffective in aiding the horse, and thus the appliance may have to be changed or discarded. This simple initial declaration may well help to ease the frustration of having used an expensive appliance that does not work.

5. Ethical Issues
One of the important issues that should emerge is that of the humane aspect of prolonging the chronically and severely painful life of a horse. A basic question that should be asked of the owner or the agents of the owner is, “Is this horse being kept alive for its sake or that of the owner?” Clearly, the need for euthanasia is often a subjective judgment, and the decision to euthanize the horse should be unanimous among all parties involved. We believe that keeping a chronically suffering horse alive, either for the sake of the owner or for its potential monetary value, is unethical and opposed to the guidelines for euthanasia that were approved by the American Association of Equine Practitioners’ Executive Board, April, 1960, reapproved in 1980 and 2000.

6. Summary
Horses affected with chronic laminitis are often difficult to manage under the best of circumstances. Unfortunately, there are no controlled studies that answer the question concerning which types of therapy result in optimal recovery. We believe that most of the proposed therapeutic regimens have value, but we are not aware of any procedure or therapy that is clearly superior to others. We strongly believe that educating the owner and their agents about the uncertainty involved in treating affected horses is a necessary part of the total therapy. We also believe that it is unethical for veterinarians and farriers to indicate to owners that had someone instituted a particular therapy at a particular time in the course of the disease that the horse could have had a better outcome. There is absolutely no scientific information available to make such a damning statement, which provides a wonderful medium for litigation and loss of respect by the public for the profession’s ability to provide honest and optimal health care.

References