Understanding Laminitis
Laminitis, the painful foot malady that cut short the life of 2006 Kentucky Derby-winner Barbaro, is among the oldest and most common medical problems associated with horses. No cure yet exists for the condition, but we are committed to continuing the fight to discover one. Penn Vet has long been a leader in the fight against laminitis, and this year will host the fourth International Equine Conference on Laminitis and Diseases of the Foot, generously funded by Mr. and Mrs. John K. Castle. For more information, please see www.laminitisconference.com.

The loss of Barbaro to laminitis raised the visibility of this painful and little understood condition. Dr. James Orsini, associate professor of surgery at New Bolton Center’s George D. Widener Hospital answers some basic questions about this deadly inflammation.

Q. What is laminitis?
A. Laminitis is a painful inflammation of the lamellar tissue, the strong connecting tissue that attaches or bonds the pedal bone and the inner hoof wall together. Laminitis is very serious and can be life threatening due to the chronic and unrelenting pain associated with the loss of support and tearing of the tissue in the hoof. The front hooves are most commonly affected, although the hind feet are sometimes affected.

Q. What are the causes of laminitis?
A. Laminitis has many causes, including: 1) Severe colic, a disease/condition of the intestines, one of the more common causes for laminitis. Research supports a belief that “laminitis trigger factors” shower the lamellar tissue, causing an inflammatory/enzymatic condition and failure of the bond between the hoof wall and pedal bone; 2) Endocrine diseases such as Cushing’s Disease and Equine Metabolic Syndrome; 3) Prolonged and excessive weight bearing by one or more limbs; 4) Retained placenta; 5) Systemic diseases such as pneumonia and diarrhea result in a showering of the body with bacteria and can lead to a toxin release termed endotoxemia and end with laminitis; 6) Repeat trauma/injury to the horse’s feet when running on a hard surface with poorly protected feet; and 7) Carbohydrate overload: if a horse eats too much grain or grass, resulting digestion problems can lead to restricted circulation that ultimately results in laminitis. The bottom line is the equine digit is capable of sustaining tremendous loading and weight bearing even at speeds of up to 40 miles per hour, but under certain conditions weakening of the bond between the hoof wall and pedal bone can cause rapid failure of this magnificent structure.

Q. What are the signs of laminitis?
A. Signs of laminitis include:
1. Increased temperature of the wall, sole, and/or coronary band of the foot.
2. A pounding pulse in the digital palmar artery. (The pulse is very faint or undetectable in a cold horse, readily evident after hard exercise.)
3. Walking very tenderly, as if walking on egg shells.
4. The horse standing in a “founder stance” (the horse will attempt to decrease the load on the affected feet. If it has laminitis in the front hooves, it will bring its hind legs underneath its body and put its forelegs out in front).

Q. What is the standard treatment for laminitis?
A. The treatments can be quite varied depending on the underlying cause. Generally clinicians treat the primary disease that led to laminitis, which in many cases will minimize progression of the disease. For example, if the primary cause is diarrhea the diarrhea is treated and if it is due to excessive weight bearing on one limb, the goal is to improve the weight distribution as soon as possible in the other leg. With laminitis, treat the pain, support the foot and reduce the inflammation using anti-inflammatory drugs. In many cases, cold therapy (also called cryotherapy) or ice therapy has been effective. The study for new and better treatments is ongoing.

Q. How can a shoe help in the prevention or treatment of laminitis?
A. The shoe distributes the weight of the limb over a larger surface area and moves the breakover point further back on the foot, thus reducing the stress on the lamellar tissue along the front of the foot while consistently supporting the sole of the foot. With the advent of glue-on shoes, we have a uniform adherence of the shoe to the hoof wall, and therefore can reduce stress concentration on any one part of the hoof wall.

Q. What is the difference between acute and chronic laminitis?
A. In acute laminitis, there is no radiographic evidence of separation of the hoof wall and pedal bone. In chronic laminitis, radiographs or x-rays reveal a change in the position of the pedal bone and hoof wall which equals separation or loss of the bond between the hoof wall and pedal bone.

Q. What is the success rate for laminitis treatments?
A. The success rate varies widely and depends on many factors, such as the rapidity of onset and degree of separation of the hoof wall and pedal bone, weight of the horse (many ponies can have repeat episodes of laminitis and live a good quality of life just because they are lighter weight), control and treatment of the underlying cause for the laminitis in the first place and overall general health of the individual horse. The good news is that our success rate in treating laminitis continues to improve every year because veterinarians, farriers, horse owners, trainers and other health care providers better understand the disease and how to treat it.

For more information on laminitis, please see http://www.vet.upenn.edu/laminitis/. If you would like to help Penn Vet fight laminitis, please consider giving online at http://www.vet.upenn.edu/giving/laminitis-fund_shoe.htm or by calling 610-925-6180.