

Laminitis

Laminitis is when the sensitive laminae in a horse's foot become inflamed

Overview

Laminitis is an inflammation of the sensitive laminae that connect the horse's hoof to the coffin bone (third phalanx or pedal bone). Laminitis can occur severely and acutely, and it can be a one-time occurrence or a chronic/recurrent problem. The front feet are more commonly affected than the hind feet, although all four feet can be affected at once, or even just a single foot.

The inflammation results in a weakening of the connection between the laminae of the hoof, which causes a painful separation between the two structures. In severe cases the coffin bone might rotate (the toe or tip of the coffin bone will move down due to tension applied by the deep digital flexor tendon) or the whole coffin bone can sink toward the ground. These changes can be so profound that the coffin bone can ultimately penetrate the sole of the foot.

Laminitis can be caused by excessive feed intake (e.g., pasture-associated laminitis or excessive concentrate ingestion), circulation of toxins such as endotoxin in the bloodstream of ill horses (e.g., diarrhea, colic, retained placenta), trauma (e.g., road founder), excessive weight bearing (e.g., supporting limb laminitis in a horse that is non-weight bearing in the contralateral limb), or following corticosteroid administration. Horses with equine metabolic syndrome (EMS) and equine Cushing's disease (pituitary pars intermedia dysfunction) also can be predisposed to laminitis.

Clinical Signs

The most common clinical signs associated with severe, acute laminitis are reluctance or inability to move, an increased respiratory rate, a glazed, painful expression,



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standing with the hind feet under the body and forefeet camped out, bounding digital arterial pulses, and feet that are hot to the touch. In horses with all four feet affected the horse might be recumbent and refuse to stand, and if standing, will present with all four feet under the center of his body.

In horses in which the coffin bone(s) have already sunk, there might be a depressed area immediately above the coronary band. Blood might ooze from this region.

In mild and chronic cases the clinical signs are generally more subtle. The horse might be lame, shift weight from foot to another or lift the feet alternately, have a reluctance to stand on a hard surface, and have warm feet and increased digital pulses at the heels.

Diagnosis

Diagnosing laminitis is not usually problematic in severe, acute, or chronic/recurrent cases. Milder cases can be challenging as they can simply present as a generic lameness rather than a medical emergency. A complete history, physical examination, lameness examination (including palpation

and the use of hoof testers), potentially diagnostic anesthesia (e.g., a palmar digital nerve or heel block), and X rays of the feet all can be employed to diagnose laminitis and determine its severity.

Treatment

Acute laminitis is a medical emergency. Affected horses should not be forced to move. If the horse is able to walk, slowly lead the horse into a deeply bedded stall. Call your veterinarian and do not feed or medicate the horse while you are waiting for the veterinarian to arrive. If the horse is on pasture and unable to ambulate, spread a deep pile of shavings around the horse and try to have the horse step into them. Do not let the horse graze.

Once your veterinarian has diagnosed laminitis, he or she can administer one or more medications to treat the laminitis and the underlying condition. Drugs such as flunixin meglumine (banamine) or phenylbutazone (bute) are non-steroidal anti-inflammatory drugs that will help relieve the inflammation of the laminae and provide pain relief for the horse. Dimethylsulfoxide (DMSO) is another anti-inflammatory drug that can be administered either by nasogastric tube or intravenously. Acepromazine, lidocaine, topical nitroglycerin (and a variety of other drugs) have also been advocated to dilate the blood vessels in the foot; however, there is inconsistent data to support the efficacy of these drugs in the treatment of laminitis.

An additional simple and effective means of decreasing inflammation in the foot is by icing. Icing the feet, which causes hypothermia, is more effective in prevention than treatment once signs of laminitis are present. The feet can be iced for up to 72

hours during an acute laminitic episode. This can be achieved by wrapping the hoof in ice-filled plastic bags or having the horse stand in ice-filled buckets. After 72 hours, icing is no longer recommended (due to softening of the foot and other complications).

Corrective shoeing to support the frog is another important step in the treatment of laminitis. There are multiple ways of supporting the foot, such as pads, impression materials (e.g., two-part putty), and special shoes. Selection will depend on the horse, veterinarian, and farrier.

For chronic cases treatment typically focuses on shoeing. Many options exist, and not all chronic cases will respond to the same solution. Some examples of potentially appropriate products for treatment or comfort include a wooden clog shoe, gel boots, or a number of handmade shoes.

Prognosis

The prognosis is highly variable and dependant on such factors as duration, severity, number of affected feet, and underlying cause. A key component in determining prognosis of affected horses is

serial X ray imaging of the feet (i.e., once weekly for four weeks) to evaluate if any displacement, sinking, or rotation of the coffin bone has occurred.

Prevention

Not all cases of laminitis can be prevented, but many can by following simple management rules:

- Maintain an appropriate body condition, particularly in ponies;
- Restrict intake of lush grass (e.g., in the spring);
- Minimize or eliminate concentrates from the diet (if possible);
- Store concentrates in an area that even horses that have escaped from pastures cannot gain access to;
- Do not administer pharmaceutical drugs without first consulting with a veterinarian, and;
- Provide regular foot care (i.e., corrective trimming and/or shoeing) by a professional farrier.

Once a horse has foundered, it is always at risk for future episodes. Appropriate management of these horses to prevent future episodes is imperative. ◀

FAST FACTS

- Laminitis is an inflammation of the sensitive laminae that bind the horse's hoof to the coffin bone.
- Underlying causes include excessive feed intake, circulating toxins in ill horses, trauma, excessive weight bearing, corticosteroid administration, equine metabolic syndrome, and equine Cushing's disease.
- Classic clinical signs include reluctance to move, recumbency, abnormal stance, bounding digital arterial pulses, and hot feet.
- Diagnosis is usually based on clinical signs and X ray findings.
- Immediate treatment is essential and includes addressing the underlying condition, administration of anti-inflammatory drugs and pain relievers, ice, and corrective shoeing.
- Prognosis is highly variable.
- Most cases of laminitis are preventable, and recovered horses are always at risk for future episodes.

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