

Healing Hoof Abscesses

by: Chad Mendell, TheHorse.com Managing Editor September 01 2007, Article # 10476

One day your horse is perfectly sound, the next he's acting as if he's got a nail in his foot. As you wait for the veterinarian to arrive, you envision worst-case scenarios. The diagnosis? An abscess.

The good news is abscesses are easily treated if caught early. If you detect them promptly, there's a good chance the horse will recover completely within 48 hours. However, veterinarians and farriers are rethinking one age-old treatment method. Podiatry experts such as Stephen O'Grady, DVM, MRCVS, owner of Northern Virginia Equine in Marshall, Va., say continuously soaking the foot until the abscess "pops" might be causing more damage than benefit. Instead, experts suggest a combination of poultices and soak bandages that localize treatment to the affected area.

But before you can set about treating an abscess, it helps to understand the cause.

The Basics

Hoof abscesses are internal infections with the additional detriments of the horse having to continuously bear weight on the affected area and the abscess being locked behind a solid wall of hoof.

Subsolar abscesses typically cause mild to severe pain, often to the point that the horse is unwilling to bear weight on the affected limb. O'Grady says abscesses are common in all types of horses, but heavy, small-hoofed horses are at greatest risk because of the weight-to-hoof-surface-area ratio is greater for these horses.

Tracy Turner, DVM, MS, Dipl. ACVS, a private practitioner with Anoka Equine in Elk River, Minn., says abscesses are caused by bacteria invading the hoof either by way of a puncture wound or separations between the live sole and horny sole. Debris then invades the foot.

"As the animal bears weight, foreign matter will migrate through the fissure until it reaches the subsolar or submural tissue (in the laminar tissue)," he says. "Once inside the hoof capsule, the defense mechanism within the dermal tissue recognizes the matter as foreign and sets off a reaction. The bacteria contained within the debris invade the dermal tissue, which leads to inflammation. The bacteria continue to grow and cause neutrophils (white blood cells) to migrate into the area."

Enzymes released from the bacteria and the invading white cells destroy the surrounding tissue, creating the gray/black pus generally associated with hoof abscesses.

O'Grady continues, "The inflamed area is quickly walled off with a thin layer of fibrous tissue to form an abscess. The inflammation and the pressure from the accumulation of the exudate exerted on the surrounding tissue leads to the clinical signs associated with a hoof abscess."

For the most part, shoeing horses is a painless process for the horse. However, if your farrier says he "quicked" your horse or that that animal has a "hot nail," this means that he accidentally misplaced a nail into the laminar corium (the living tissue immediately beneath the hoof wall). There usually is a trace of blood where the nail exits the hoof wall. Bleeding is one of the body's defense mechanisms to dilute or eliminate bacterial contamination.

"Another scenario that occurs frequently is that while the farrier is driving a nail, the horse shows pain, indicating the nail is invading sensitive tissue," O'Grady explains. "The farrier will then remove the nail, place in another spot/direction, and again drive it into the foot."

"When a nail enters dermal tissue (even if removed), it can seed the area with organisms and lead to an abscess," he says. "If the nail entered the foot inside the sole-wall junction, the owner should be alerted and the horse could be placed on a broad-spectrum antibiotic for three to five days as a prophylactic measure."

A nail doesn't actually have to pierce the dermal tissue layer in order to cause problems. Over several weeks, concussion and movement of the foot can cause a nail placed on the edge of the sensitive tissue (a "close nail") to cause damage. It can take seven to 14 days before you see lameness.

"Most of these lamenesses are acute-onset severe lameness, Grade 4 to 5 out of 5 lame," Turner explains. "This means the horse can barely walk on the leg and is frequently thought to be fractured. A strong digital pulse is usually apparent and is strongest on the side of the abscess."

If the abscess is long-standing, there might be soft tissue swelling in the pastern or above the fetlock on the side of the limb corresponding to the side of the foot where the abscess is located, says O'Grady.

How-To Tip: Creating a Duct Tape Boot



Overlap three to four strips of duct tape, sticky side down, across your thigh, then put an equal number of strips the opposite direction. Place the bandaging material over the hoof abscess and use your duct tape (sticky side to bandaging material) to secure the bandaging material to the foot. Fold tape edges up over the hoof to hold the bandage in place and secure with duct tape around the top edges.

Megan Arszman photos

Veterinarians and farriers use hoof testers to help diagnose hoof abscesses. Turner says hoof tester examination often shows pain over the entire sole, but there will be one area that is the most painful.

"Paring the sole with a hoof knife will usually show a black spot in the sole, which I think represents the track the bacteria made into the hoof," says Turner. "This track is followed to the abscess."

Treatment

Early detection minimizes the amount of physical damage. However, if the abscess is left unattended, the infection will follow the route of least resistance. This could simply be the entry point, but more often it will travel up the hoof wall and out the coronary band, destroying sensitive structures within the foot as it moves along.

Turner says once he finds the abscess, he prefers to create a small hole and drain the abscess from the sole (use gravity to empty the abscess). "I know people who soak them till they break at the coronary band or on occasion use nerve blocks to allow the horse to walk on it until it pops at the coronary band," Turner says, "but I always like to find the abscess itself and make it drain out from the bottom. I think this method reduces recurrence."

O'Grady agrees: "The most important aspect of treating a subsolar/submural abscess is to establish drainage. The opening should be of sufficient size to allow drainage, but not so extensive as to create further damage. The point of entry may not always be visible, as some areas of the foot, such as the white line, are somewhat elastic and wounds in this area tend to close."

Drainage preferably is done at the onset of lameness before the infection ruptures at the coronet. The horse should show marked improvement within 24 hours.

Forget the foot bath, encourages O'Grady. "As far back as I can remember, soaking the equine foot has played a major role in the treatment of common foot ailments such as abscesses, puncture wounds, corns, foot bruising, and laminitis," he says. "Over the years, I have questioned the therapeutic value of this practice. The principle indication for soaking feet is to soften hard hooves so that it is easier to pare the sole to expose and drain an abscess."

O'Grady says there's no question excessive moisture damages hoof wall. "The more the foot is soaked, the more the hoof softens," he says. "The wall begins to flake and separate, and the loss of integrity allows it to expand or bend outward. At the same time, the white line width increases and the sole begins to drop and becomes closer to the ground. As the softening process continues, the horse begins to walk on the sole, creating another source of discomfort."

O'Grady says many experts believe soaking damages the foot's protective barrier (periole) and widens the sole-wall junction, which allows more microorganisms to penetrate and further damage the wall. "The softened hoof wall does not hold nails well, so it is difficult to replace or maintain a shoe on a chronically soaked foot," O'Grady says.

Instead of soaking the hoof, use a poultice bandage (such as Animalintex) or drawing agent (such as Epsom salts). There are kits with all the bandaging materials fitted for the horse's foot (such as HOOFix), or you can make one yourself (see page 72).

"Following the poultice or foot soak bandage, the hoof is kept bandaged with an antiseptic such as Betadine solution/ointment or 2% iodine until all drainage has ceased and the wound is dry," says O'Grady. "At this point, the opening is filled with Keratex Hoof Putty, which keeps the affected area clean and prevents the accumulation of debris within the wound. The shoe is replaced when the horse is sound."

The horse owner also should review a horse's tetanus immunization status.

Prevention

Prevention centers on building a strong sole-wall (white line) junction, explains O'Grady. One way to do this is to keep your horse on a regular farrier schedule.

"Excessive toe length increases the bending force exerted on the toe, leading to a widening and weakening of the white line," O'Grady says. "Other conditions that cause mechanical breaks or weakness in the continuity of the white line are hoof distortions (long toe combined with underrun heels, excessive toe length, heels too high or club foot, sheared heels), hoof wall separations (white line disease, seedy toe), and chronic laminitis. Excessive moisture or dryness may also contribute to weakness in the white line."

O'Grady offers farriers a few basic principles to create a strong foot and strengthen the white line: "First, create a good heel base where the bars are preserved and the heels are trimmed to the base of the frog, or as far back as possible. This increase in ground surface allows a substantial amount of weight bearing to occur in the palmar (rear) portion of the foot. Sole is only removed adjacent to the white line to identify excess hoof wall to be removed. It is not necessary to concave the sole as this occurs naturally. The toe is trimmed appropriately and backed up from the dorsal surface (front) of the hoof wall such that a line drawn (horizontally) across the widest part of the foot will be in the middle of the foot. This assures that there is no excessive toe length. In some cases, fitting the shoes hot may be helpful to seal the sole wall junction."

The use of hoof hardeners (such as Keratex) and bedding the horse on shavings or sawdust can also help harden the feet in wet conditions or when the horse is being bathed frequently, O'Grady says. During dry weather, a hoof dressing such as a combination of cod liver oil and pine tar (mixed in a ratio of 3:1) painted on the entire foot can help to soften the hoof capsule.

Take-Home Message

A hoof abscess can sneak up on you in a hurry, but with proper care and attention, you can minimize the damage and your horse's downtime. If you suspect your horse has an abscess, work with your veterinarian and farrier to resolve it quickly.