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### This common, smelly hoof disease can affect any horse

**T**hrush is a common anaerobic bacterial infection of the horse's hoof tissue characterized by a black, necrotic (dead), foul-smelling material. This condition typically affects the central or collateral sulci (the grooves adjacent to and in the middle of the hoof's triangle-shaped frog), but in severe cases thrush can also invade the white line, sole, and sensitive layers of the foot, potentially resulting in permanent lameness.

Veterinarians often isolate the bacterium *Fusobacterium necrophorum* from affected horses; however, other anaerobic bacteria and fungi (those that grow in environments with little to no oxygen) are also potential culprits.<sup>1</sup>

In general, contributing factors are those that disrupt the horse's innate hoof cleaning mechanism. In the normal foot, as the horse bears weight on the limb, the third phalanx (coffin bone) descends, causing the sole to flatten. The coffin joint descends as the navicular bone gives in a distopalmar direction (from the coffin bone toward the ground), pushing against the navicular bursa and the deep flexor tendon, causing the frog to expand as it approaches the ground surface. This continuous change in structure prevents the accumulation of material in the bottom of the foot that can lead to thrush.

Impairment of this hoof cleaning mechanism appears to be the outstanding cause of thrush, as thrush is seen in a large percentage of inactive horses that live in stalls.<sup>2</sup> When horses are confined to a stall or paddock, they are often not able to "self-clean" their hooves. Possible reasons

that horses' hooves can become infected include:

- ◆ Abnormal hoof growth;
- ◆ Inappropriate or lack of trimming or shoeing;
- ◆ Poor diet;
- ◆ Lack of use/insufficient exercise;
- ◆ Chronic lameness issues; and
- ◆ Poor circulation to the frog.

Horses with deep sulci (clefts in the foot), such as draft breeds, or narrow or contracted heels also appear to be at increased risk for thrush.<sup>1,3</sup> The common belief that thrush is a disease of dirty, unhealthy horses or unkempt living conditions is simply an old wives' tale. Any horse can get thrush.

#### CLINICAL SIGNS

Classic clinical signs of thrush include a thick, black, puttylike, malodorous degenerative material on and in the frog and the collateral and central sulci.

Most horses with mild cases of thrush are not lame, but if the infection is severe and invades the sensitive layers of the foot, then cleaning and manipulating the frog can elicit a painful response.<sup>3</sup>

#### DIAGNOSIS

Diagnosing thrush is usually straightforward, based on envi-



Cleaning dirt and debris out of your horse's hooves daily can help thwart thrush.

ronmental conditions and clinical signs such as black debris/discharge, offensive odor, and frog loss. Culturing the foot to determine which disease-causing microorganism is specifically responsible for the infection is not typically rewarding, because the results are usually nonspecific. In addition, culture results will rarely (only in extreme cases) change the treatment.

#### TREATMENT

Successful management of thrush is a multi-step process<sup>1,2,3</sup> that involves:

- ◆ Trimming away the dead, infected tissue (contact your farrier for help if you are not comfortable performing this technique).
- ◆ Stimulating the frog through regular exercise.
- ◆ Identifying and correcting the underlying cause(s) of the infection. This will necessitate

working with your veterinarian and farrier.

- ◆ Picking, cleaning, and medicating the affected foot/feet at least daily.

To clean the foot, place your horse in a clean, dry area of the barn, or place a sheet of plywood on the ground or floor to create a clean working space. Pick the foot and ensure it is as dry as possible before medicating. The foot can, on occasion, be scrubbed gently with water and a stiff brush; however, do not over-washing the foot.

A variety of medicated thrush products are commercially available in several forms, including liquid and aerosol. For best results, follow the package instructions for application. Most require daily use in horses with active thrush infections.

Some horse owners have their own tried-and-true home remedies such as sugardine, a com-

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bination of sugar and Betadine (povidone-iodine) scrub. Other owners apply bleach and hydrogen peroxide; however, most veterinarians don't endorse these products, because they can damage healthy tissue and prolong healing time. Either treat affected feet with the desired medication and keep the foot clean and dry afterward, or pack the feet with medicated-soaked gauze squares for one to three days.

Alternately, you can soak the feet in medicine either in a bucket or a special medicine boot (available at local tack shops or online). An alternative to "wet" therapies is the "dry" approach to thrush treatment, designed to adhere to the wet places (produced by the bacteria that cause thrush) to resolve the infection. Apply these dry application products to the foot once daily.

For more severe cases and for horses that do not appear to be responding to treatment, work with your veterinarian and farrier to find a treatment management solution that works for your horse. Severe cases could benefit from the administration of systemic antibiotics and, depending on the damage to the hoof and heel, corrective trimming and shoeing could be warranted.<sup>1</sup>

### PROGNOSIS

Uncomplicated cases of thrush diagnosed early in the course of disease should resolve fully with appropriate treatment and elimination of underlying causes.

If you treat the thrush without determining and remedying its cause, recurrent bouts of infection are likely to occur. Complicated cases in which



Living in wet climates can predispose horses to thrush.

the infection has invaded the deeper tissues of the foot require veterinary attention, take longer to resolve, and could result in permanent lameness.

### PREVENTION

Thrush can occur in virtually any horse, regardless of the cleanliness of his living conditions.<sup>1,3</sup> Picking, cleaning, and inspecting each foot every day is imperative to thrush prevention. Work with your veterinarian and farrier to ensure your horse's entire foot, including the frog, is healthy.

Good daily management and regular turnout/exercise to promote natural hoof "cleaning" will help prevent most, if not all, cases of thrush. Avoid overaggressive hoof pick use so you don't traumatize the frog and sulci.

### References

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