



Vet Notes

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White line disease

As the name suggests, this condition affects the white line of the exterior part of the hoof, or capsule. This is the non-pigmented area where the bottom of the foot and the wall of the hoof come together. The white line may appear dark when affected by this condition. The tissue deteriorates on the soles of the hoof, leading to a gradual separation of the layers of the hoof wall. White line disease may also be called seedy toe. If the necrotic process of the white line continues unaddressed, entire segments of hoof wall can become destabilized and hollow.

This separation of the hoof wall results in an increase in tension and mechanical loss of support. This can cause inflammation in the deeper layers of the hoof in severe cases, leading to discomfort for the horse. This causes the lameness which may be associated with the disease once a sufficient area of hoof wall has been affected. However, this process is different from laminitis, or founder, in that the area of the foot that is separating in white line disease involves the hoof wall rather than the deeper layer of sensitive laminae within the hoof.

Risk factors

Factors that increase a horse's risk of developing white line disease include growth of poor-quality tissue within the hoof, which is more easily inhabited by bacteria and fungi. The types of bacteria and fungi that are typically found in hooves affect by this disease normally would not be able to thrive and cause disease in a healthy hoof, and are considered opportunistic. White line disease is more common in warm and humid climates, such as Florida. Increased tension or stress on the hoof wall, particularly in horses that have hooves with long toes and a poor hoof conformation, also lead to increased risk for white line disease.

White line disease tends to be more common in horses that wear shoes, especially with longer waiting time between trimming and shoeing. Adequate hoof hygiene, including frequent hoof picking and being bedded on clean material is important prevention. Horses that are stalled on flax based bedding, and white hooves are also associated with increased risk of development of the disease. Toxic levels of selenium, a trace mineral, may also predispose horses to development of white line disease. However, this is uncommon in Florida due to a deficiency of the mineral in hay and grass that is available in the region.

Clinical signs

Horses that are affected by white line disease may show no obvious signs of being affected by the disease, with no noticeable lameness. However, the damaged hoof wall may cause discomfort in more severe cases resulting in lameness. The condition may be noticed during a routine hoof trim by the farrier, who may see a small area of powdery tissue where the hoof wall and sole of the foot meet. However, deterioration of the deeper tissue may be difficult to detect on visual inspection. Horses may display hoof pain when hoof testers are applied by a veterinarian placing pressure on the hoof. As the disease continues, the separation of the hoof wall becomes more evident. A powdery white-gray material consisting of dead hoof tissue and debris will also become more visible when looking at the bottom of the hoof. In some cases, wet black drainage may also be present from the bottom of the hoof. The defect in the hoof wall will travel up from the bottom of the foot if left untreated.

Diagnostics

Diagnosis of white line disease can be made on examination of the hoof by a veterinarian. Radiographs, or x-rays, may be useful depending on the case to rule out other conditions including chronic laminitis (founder). In both chronic laminitis cases and white line disease, a line of gas may be seen on radiographs travelling up along the hoof wall and separating the exterior wall of the hoof from the rest of the foot. However, in white line disease this line can be seen extending to the ground surface of the foot. Growing a bacterial or fungal culture from a sample of tissue affected by white line disease is usually not useful in identifying the disease or for determining treatment of the condition.

Treatment

Once white line disease is suspected or diagnosed, treatment must be started. The part of the hoof with the defect must be relieved from bearing the weight of the horse, to protect it from continued damage. In hooves with shoes on, risk of further damage to the interior tissues of the hoof increases the longer the shoe is left in place and the longer the toe grows. Normal placement of nails for shoes is also compromised by the disease, preventing the solid attachment of shoes. Nails must be placed higher than normal, and any nail holes should be sealed with treatments to prevent growth of bacteria and fungi.

A resection, or removal of a portion of the hoof wall may be a necessary component of the complete removal of diseased tissue. If extensive hoof wall removal is performed, corrective shoeing may be necessary to help take the weight of the horse away from that section of the foot. Regular and repeated removal of the diseased tissue should be performed, as well as shoeing at four-week intervals. The horse must be maintained on stall rest with no exercise until the hoof wall grows back.

Stall hygiene is a critical component of treatment and prevention, and the hoof must be kept dry. Topical solutions may be applied following hoof wall resections. In addition, treatment for the bacteria and fungi should be applied to the hoof. These include the same solutions used to treat thrush such as iodine, formalin, or copper sulfate.

Outcome

Most horses generally do well if the white line disease is addressed promptly and thoroughly with removal of diseased tissue and special shoes if needed. However, treatment may take a considerable amount of time, and require the horse to remain on stall rest for an extended period of time. A critical part of the success of the treatment is the removal of affected tissue, so continued follow up veterinary care is essential.

References

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Originally from Oregon, she attended Harvard University for undergrad where she majored in Latin American Studies with a minor in Global Health and was a member of the varsity swim team. Before attending veterinary school she worked for an Arabian showing and breeding farm, and as a veterinary assistant. Mackenzie has an interest in surgery, emergency medicine, and sports medicine/rehabilitation. Outside of work, she enjoys spending time with family and friends, cooking, and staying active.