Photosensitization in Horses

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A recent inquiry about a skin condition in a paint mare prompted me to review the management of this condition commonly observed in horses.

Photosensitization is a potentially serious skin condition characterized by sunburned, crusty skin that can die and slough away. It is usually caused by a reaction to something the horse has eaten, but the skin problem doesn’t appear until the horse is exposed to sunlight. Three factors contribute to the development of photosensitization:

- Presence of a photoactivating substance in the skin
- Exposure to UV light, and
- Lack of skin pigment, which enables more light to penetrate the skin

Two types of photosensitization are commonly observed in horses. Primary photosensitization occurs when a photosensitizing agent, usually a plant or drug, that after being ingested or injected travels to the skin. Examples of plants that cause primary photosensitization include St. Jon’s Wort, buckwheat, burr trefoil and perennial rye grass. Commonly used drugs that can cause primary photosensitization include the antibiotics trimethoprim sulfa and tetracyclines.

To prevent photosensitization from these causes, access to the plants containing these compounds should be prevented or antibiotics discontinued. Occasionally, horses consuming alfalfa will develop photosensitization, although the reason is unknown. The case that spurred this inquiry was apparently of this type.

Secondary photosensitization is a result of liver impairment and is the most frequent form seen in horses. Forage plants are green because of the compound chlorophyll. After ingestion, chlorophyll is converted to a photodynamic agent called phylloerythrin, which is normally excreted from the body through the bile ducts in the liver. In an animal with a liver impairment that disrupts this process, the phylloerythrin is not properly excreted and accumulates in the circulation.

Certain plants cause liver damage, impairing the organ’s ability to excrete phylloerythrin. In horses, some of the plants that can affect the liver include alsike clover and red clover. A horse pasture containing large amounts of clover can be problematic, depending on the amount eaten and various environmental factors. The actual toxic principle associated with clover is unknown, making management recommendations difficult. Molds are typically found on clovers and it is thought this may be the inciting toxin.
When the two situations occur together, a primary photosensitizing agent along with the ingestion of a legume that can cause liver impairment, the combination is particularly problematic.

Skin lesions are usually the first sign of photosensitization. The eyes can also be affected giving the appearance of being sunburned or tearing. Some of the lesions can be severe enough to look like lacerations or injuries. The skin is red, swollen and blistered. When the blisters break, the areas can ooze and become secondarily infected, creating pus. Often the skin will become crusty and may ultimately peel and slough. The skin lesions are usually on the face and muzzle, but can be more widespread in lighter-skinned horses.

The problem is seen most commonly in the summer when sunlight is most intense and in pastured horses consuming green plants. Investigation of the diet usually reveals clover and/or alfalfa in the forage.

Diagnosis is typically made by clinical signs and in association with clover and alfalfa with the added history of antibiotic treatment. A definitive diagnosis is made by skin biopsy. Blood tests to evaluate liver disease are indicated.

Whether it is primary or secondary photosensitization, it’s important to prevent exposure to the sun. Diet changes to eliminate any legume forage, whether grazing or hay, are essential.

Basic supportive care includes bathing and cleaning of the lesions with the application of topical antibiotic or antiseptic ointments. If the lesions are deep enough, systemic antibiotics might be required.

Removal from the sun should provide immediate relief. Exposure to the sun causes a chemical reaction in the skin, which can be painful. Affected horses can be turned out at night and housed out of direct sunlight during the day. Recovery can be a prolonged process depending on the extent of skin damage and loss.

Many horses with light skin can get sunburned. If your horse develops severe skin lesions after exposure to the sun, seek advice from your veterinarian to determine the cause.