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Pinch and punch skin grafts start with the veterinarian taking multiple small pieces of skin and hair from a donor site and transferring them to the wound bed.

COURTESY DR. LINDA DAHLGREN

# Skin Health

BY NANCY LOVING, DVM, AND ERIN RYDER

## Dermatology Discussions

Stephen White, DVM, Dipl. ACVD, a professor in the Department of Medicine and Epidemiology at the University of California, Davis, School of Veterinary Medicine, and Anthony Yu, DVM, MS, Dipl. ACVD, associate professor of dermatology at the University of Guelph's Ontario Veterinary College, presented a whirlwind tour of just about every skin disease known in the horse.

Skin ailments were broken down into classifications of pruritic (itching), nodular, or crusting lesions. The variety of problems discussed included common equine skin diseases like sarcoids, insect hypersensitivity, hives, allergies, photosensitivity, skin cancer, and a variety of fungal and bacterial infections.

Pertaining to the topic of the pruritic horse, one bacterial infection they discussed is currently of great concern due to emerging implications in public human health—*Staphylococcus* species. A greater prevalence of methicillin-resistant *S. aureus* (MRSA) poses a potential threat to humans that have close contact with infected horses. MRSA has been identified as colonizing "normal" horses and humans, yet it can be devastating if clinical infection occurs.

When skin appears to have a variable scaling and non-scaling pattern, it was suggested that a fair presumptive diagnosis could be a bacterial infection. Rain scald (caused by *Dermatophilus* bacteria) is a common bacterial skin infection in humid climates. In the presence of environmental moisture, areas of skin trauma are susceptible to infection from bacteria-contaminated crusts dropped from an infected carrier horse.

Other equine skin diseases that might initially create itching include fungal infections (dermatophytosis) such as those organisms that cause ringworm. Previous treatment strategies have used tamed iodine shampoos, but the experts suggested that chlorhexidine (disinfectant and topical anti-infective agent) shampoo products are more effective. One type of yeast, *Malassezia spp.*, is known to cause rubbing of the tail and abdomen in mares infected between the mammary glands.

The most common itching problem in horses is related to insect hypersensitivity, particularly to *Culicoides* gnats. Horses react to the proteins in the gnats' saliva, the bites themselves, or to the inhaled desiccated (dried) insects. Other flies can cause bites that itch, but these *Culicoides* gnats seem to incite the most profound itching response, with horses mutilating their tails, manes, and torsos in attempts to relieve their misery. Barns and fences also suffer from their rubbing efforts. *Culicoides* sensitivity problems are typically seasonal, and certain breeds (like Icelandic ponies) seem to be predisposed. Stabling near standing water increases the risk. It is best to house sensitive horses at the top of a hill, away from wet, low-lying areas where these insects breed. There is also some speculation that vaccines might stimulate the ever-vigilant immune system and create a hyperreactive response to many allergens like mold spores, insect bites, etc.

The next topic along the tour focused on nodular skin diseases. These have multiple causes, ranging from bacterial infections such as sporotrichosis (a chronic fungal infection caused by *Sporothix schencki* and pigeon fever abscesses), to ulcerated or nodular summer sores from *Habronema* fly larvae (which develop in housefly and stable fly maggots living in manure and become infective when the fly larvae pupate and are carried by adult flies onto horses' open wounds), to neoplasias such as melanoma, mast cell tumors, or sarcoids.

Sarcoids are reported in 35-90% of skin neoplasms, and although these are nonmalignant, they are a cosmetic nuisance and can potentially interfere with tack and equipment. Sarcoids are commonly found in thin-skinned areas, especially in locations of previous wounds or continual contact irritation by tack. Different parts of the world have varying distributions of sarcoid lesions. For example, horses in warmer climates tend to have more sarcoids on the legs, while horses in colder climes tend to develop more lesions on the trunk. There is speculation that this might be due to insect feeding patterns related to different distributions of insects around the world.

The third group of skin diseases covered in-depth included crusting and ulcerated lesions, such as sarcoidosis (inflammation that causes tiny lumps of cells in various body organs) caused by an abnormal reaction to an infectious or non-infectious antigen. Another skin problem that creates crusting lesions arises from an autoimmune response known as pemphigus.

In the final section of the dermatology tour, hereditary skin diseases were discussed, including HERDA (hereditary equine regional dermal asthenia, formerly called hyperelastosis cutis, which causes affected horses' skin to be fragile and tear very easily) in horses with specific Quarter Horse lineage, and chronic lymphedema (lymphatic fluid buildup in soft tissues of the body) in draft horses.

## Skin Grafts Made Simple

Pinch and punch grafts aren't the most attractive option for closing slow-healing wounds, but they are a viable option for quickly closing these types of injuries. The procedures are quick and simple, according to Linda Dahlgren, DVM, PhD, Dipl. ACVS, assistant professor of Large Animal Clinical Sciences at the Virginia-Maryland Regional College of Veterinary Medicine in Blacksburg, Va.

"The goal here is not necessarily to have the most cosmetic outcome, but to have a functional outcome," Dahlgren said. "If cosmetics is the goal, then there are other types of grafts we should consider, but that's a whole different ball game in terms of ease of procedure."

Dahlgren performs pinch/punch grafts by taking multiple small pieces of skin and hair—rather than sheets of skin as in customary skin grafts—from a donor site (preferably an inconspicuous area, such as under the mane) and transferring them into the wound bed.

COURTESY DR. LINDA DAHLGREN

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The procedure is ideal for moderate to small open wounds that will otherwise take a long time to heal on their own, or wounds that have become static and need a "jump-start" back into the healing process.

Dahlgren said wound beds that are not healthy enough to support split-thickness mesh grafts (grafts that use one large sheet of donor skin) can be successfully pinch/punch grafted. The procedure can be performed on a standing horse, and the majority of the grafts will be secure to the wound within nine days.

The acceptance rate for pinch/punch grafts is 75-90% according to Dahlgren.

"Everybody should be doing these," Dahlgren said. "They really can't go wrong."

## Intratumoral Chemotherapy Helpful in Preventing Recurrence of Sarcoids

Veterinarians have attacked sarcoids with everything from scalpels to lasers, and cryotherapy to caustic chemicals. But chemotherapy administered intratumorally could be a viable new option in removing and preventing future outbreaks of the nasty nodules, according to Alain Théon, DVM, MS, of the University of California, Davis.

Théon reported this method prevented sarcoid recurrence in 97% of the 378 horses treated with it from 1996 through 2004. Théon injected cisplatin, a chemotherapy drug, directly into the tumor. He said this route maximizes the dose within the tumor, eliminating systemic exposure and toxicity.

Overall, the cure rate (sarcoid removal and lack of recurrence) using cisplatin alone was 93%. Cisplatin used concurrently with surgical removal prevented recurrence in 97% of cases. In tumors up to 10cm in diameter, the control rate was 92% up to three years following treatment. Of the 378 horses treated, 18 had tumors recur.

Known side effects of treatment include tenderness in the treated area and some edema (fluid swelling). Théon said other disadvantages of the treatment include the potential health risk cisplatin poses to humans, as it is a known carcinogen.

Théon strongly advocated the use of full chemotherapy precautions in handling, mixing, and treating horses with the drug. He also suggested that practitioners not familiar with chemotherapy precautions meet with a human oncologist prior to using cisplatin on horses. The horse's owner is also required to wear gloves when handling the horse for three days following treatment.