

# Zinc-Responsive Dermatitis

*In its early stages, this chronic skin disease is easily mistaken for other skin problems*

If you've ever had a dog with a chronic skin disorder, you know how frustrating it can be. It's even more difficult when you've done everything your veterinarian said but still no progress. Granted, some chronic skin diseases can be difficult to manage, but when there's no improvement you may start to wonder if we missed something or even if the diagnosis is correct. That's perfectly understandable, and your veterinarian feels the same way.

Zinc-responsive dermatosis (ZRD) is a dermatologic disorder that can resemble other things when it first starts, and it is rare enough that it may not be on your veterinarian's radar right out of the gate. It is mostly seen in Siberian Huskies and Alaskan Malamutes, with Boston Terriers, Bull Terriers, Pharaoh Hounds, and Samoyeds occasionally affected. But any dog fed the wrong food can get it.

In its early stages, ZRD may be mistaken as mange, fungal infection, or bacterial folliculitis (either primary or secondary to allergies). As ZRD progresses, the lesions can mimic those of autoimmune skin diseases like pemphigus and cutaneous lupus.

## The Cause: Zinc Absorption

"Some dogs capable of absorbing zinc from the gut and on nutritionally balanced and complete diets still suffer



ZRD lesions may be red, sometimes itchy, with hair loss and scaly crusts.

from ZRD," says William Miller, VMD, board-certified veterinary dermatologist and Cornell professor emeritus of medicine. "It is theorized that affected individuals have higher physiologic requirements for zinc or have some partial zinc absorption blockade."

Zinc is a mineral important for many cellular functions, especially in rapidly dividing cells like those found in the skin. It's therefore no wonder that when zinc levels are insufficient, for whatever reason, the skin might suffer.

ZRD is believed to be an inherited problem in Huskies and Malamutes, but it can occur in any dog fed a poorly balanced diet. It's more than just diets deficient in zinc that cause ZRD, however. Diets and drinking water containing too much calcium, iron, or copper, as well as diets high in whole grains, seeds, nuts, and/or legumes can cause ZRD by interfering with zinc absorption from the gut.

## ZRD Symptoms

"ZRD is a seborrheic condition seen in young dogs," says Dr. Miller. Dogs are usually between 1 and 3 years old. The lesions may be red, sometimes itchy, with hair loss and scaly crusts. Typically affected areas include:

- ▶ Bony areas of the face
- ▶ Surrounding the eyeball
- ▶ Elbows
- ▶ Paw pads
- ▶ Ears
- ▶ Lips
- ▶ Bony areas

## Diagnosis

Because ZRD seems to look like other skin conditions, your veterinarian understandably may begin with a skin scraping, cytology, and fungal culture. If these are negative, a biopsy will be required to diagnose the ZRD.

"One of the histologic hallmarks of ZRD is excessive follicular parakeratosis (hair follicles get plugged up with keratin, a natural skin protein). The affected areas are thinly haired or hairless, and the keratin almost forms spires as it exits the hair follicle," says Dr. Miller.

## Treatment

Once it's confirmed the dog is on a well-balanced, nutritionally complete diet, the treatment is oral zinc supplementation for life. While this sounds simple, it isn't.

Oral zinc supplements come in three different forms, each of which contains different percentages of elemental zinc. As such, making sure your dog is receiving the correct dose of zinc can be a mathematical nightmare for the veterinarian.

According to Dr. Miller, most dogs will respond to any of the three different forms of oral zinc. However, zinc in excessive amounts is a gastric irritant. The less well-absorbed forms of zinc require higher dosages, increasing the likelihood of gastrointestinal issues.

Zinc gluconate is the least well absorbed form, with zinc sulfate just a bit better. Zinc methionine is absorbed the best, meaning lower amounts are necessary, and making it the form recommended most often by veterinarians.

Some dogs require additional treatment with prednisone, a corticosteroid, to manage any associated itchiness. Prednisone also helps increase zinc absorption from the gut.

It can take several weeks to months on zinc supplementation for the skin to improve, but the prognosis is generally good, with most cases responding favorably to treatment.

There's a saying in medicine, "When you hear hoof beats, think horse, not zebra," for obvious reasons. However, if your dog is being treated for the most likely or most common disorder without the expected results, it might be time to start thinking zebra. Such is sometimes the case with ZRD in dogs. ■



Although ZRD is most often seen in particular breeds, like Huskies, any dog fed the wrong food also could experience it.