Alopecia X

Alopecia is the medical term for baldness. A particular type of baldness has been described in the double-coated breeds whereby the dog develops symmetrical coat loss on the trunk as well as darkly pigmented skin in the bald areas. This pattern of baldness is commonly called "endocrine alopecia" as it is common in several types of hormone imbalances (in particular, low thyroid function, diabetes, overactive adrenal glands and reproductive tumors).

The condition we call alopecia X, however, is not associated with the hormone imbalances that normally create endocrine alopecia. Its causes remain mysterious; hence the name Alopecia X. Hormonal imbalances, hair growth cycle imbalances, hair follicle problems, and genetic causes are suspected. Given that there are numerous therapies that work for some cases and not for others, and that many of these therapies seem to be in complete opposition, it may be that alopecia X is not one disease but several and we simply do not yet know how to distinguish them.

Photo courtesy of Dr. Carol Foil

Alopecia X goes by many names:

- Black Skin Disease, The Coat Funk, Wooly Syndrome, Post Clipping Alopecia
- Growth Hormone Responsive Alopecia/Dermatosis, GH Deficiency, Hyposomatotropism
- Castration Responsive Alopecia/Dermatosis, Sex Hormone Dermatosis, Estrogen/Testosterone Responsive Dermatosis
- Pseudo-Cushing Syndrome, Adrenal Sex Hormone Alopecia/Disorder, Congenital Adrenal Hyperplasia
- Biopsy Responsive Alopecia
- Mitotane Responsive Dermatosis, Trilostane Responsive Dermatosis, Melatonin Responsive Alopecia
- Follicular Dysplasia of the Siberian Husky, Nordic Breed Follicular Dysplasia, Malamute Coat Funk
- Hair Cycle Arrest

The following is what is currently believed about this confusing condition.

The Typical Patient

The typical Alopecia X patient is a double coated Nordic breed such as an American Eskimo (Spitz), Chow Chow, Pomeranian, Alaskan Malamute, Elkhound, Siberian Husky, Keeshond, Samoyed or similar breed. Poodles have also been over-represented.

Hair loss usually begins in early adulthood, usually by age 3 years, but can start as late as 10 years old. First the long primary hairs go, leaving a fuzzy, puppy-like coat that is dull and dry. Eventually that goes, too. Hair loss starts on areas subject to the most friction, such as the neck (wear the collar is worn) and the tail, and progresses to the entire body

and back of the thighs. Hair often remains on the head and paws. Sometimes, the hair fails to re-grow after clipping. The skin eventually turns black. The bald skin pigments are not itchy, are not inflamed, and usually do not get infected. In some cases, the hair seems somewhat normal until it is clipped by grooming, then it does not grow back.

Some Alopecia X dogs regrow hair after trauma to the skin (including biopsy) and this suggests a local inhibition of the anagen hair stage instead of a systemic hormonal inhibition of hair follicles.

Step One: Diagnostic Testing

Part of the problem is that all hormone-based hair losses can look exactly like this, so some testing is needed to determine which of several conditions are occurring.

Expect your veterinarian to begin with:

- A blood panel and maybe a urinalysis
- Some kind of thyroid hormone and adrenal hormone testing
- A skin biopsy - flame follicles and telogen hair follicles are seen

The purpose of this rather broad testing is to rule out diseases that look like Alopecia X but for which well-defined treatment protocols exist. This means that two conditions must absolutely be ruled out before proceeding with the trial and error process of Alopecia X treatment -- Cushing's disease (overactive adrenal glands) and Hypothyroidism (underactive thyroid gland). There is no specific test to diagnose Alopecia X. It is diagnosed by ruling out all the common causes of this type coat pattern, what is called a "diagnosis of exclusion."

Step Two: Sterilization

Alopecia X seems to be a sex hormone imbalance in at least some cases and didn't earn the name "castration responsive alopecia" for nothing. For this reason, the first step in treatment is to sterilize the patient; unspayed females should be spayed, intact males should be neutered. There are health benefits to sterilization regardless of whether or not there is a hair loss issue, and many animals will grow their hair back (though possibly not permanently) after surgery. This is where we start rather than investing in complex and confusing diagnostics.

This is the same dog as above, after being neutered. Photo courtesy of Dr. Carol Foil.

Step Two for Animals Already Sterilized: Melatonin

What if the pet is already neutered or if several months have gone by after altering and no hair has regrown? The next simple therapy to try is oral melatonin. Melatonin can be obtained in 3 mg tablets at most health food stores or vitamin retail outlets. Approximately 50% of dogs will show some response within 6 to 8 weeks. You give the medication for at least 2 or 3 months before giving up but if hair regrowth occurs, you

continue the medication until hair growth seems to have plateaued. After maximal hair regrowth has been achieved, the dose is gradually tapered down to a weekly dose over several months. Some dogs can ultimately discontinue medication though it is important to realize that if you discontinue the medication and the hair falls out again, the condition may not be responsive to melatonin a second time.

Melatonin has been used as a sleep aide. Some owners find the sedating side effect to be unacceptable. Since melatonin is a nutritional supplement and not a prescription medication, the FDA does not insist on the same quality control it does for drugs. There may be tremendous differences in the amount of melatonin contained in different brands. At the present time the Nature's Bounty® brand is one of the preferred brands. See the separate handout on melatonin for more information on this.

Step Three: Other Treatments

If neither sterilization nor melatonin has been fruitful, and we know the dog does not have Cushing's disease or hypothyroidism, then you should realize that the therapies left to still try have potential harmful side effects. Consider this: Alopecia X is a cosmetic condition. It may make the dog look funny, but it does not cause harm. You will need to weigh the potential side effects of further therapy against the appearance of the pet. That said, there are other therapies that can be attempted.

The University of Tennessee Hormone Profile

One option in the pursuit of effective alopecia X therapy is the adrenal sex hormone panel available at the University of Tennessee. This test is done by drawing a baseline blood panel, administering a pituitary hormone called ACTH, and drawing a second blood sample an hour later to compare. Samples are shipped to Tennessee for evaluation for numerous adrenal sex hormones. The results show not only what hormones respond abnormally but the university will make suggestions as to which therapy might be likely to work. Testing is not inexpensive and results can take several weeks to obtain but may help in selecting what therapy makes sense to try next.

Dermarollers®

Dermarollers®, marketed to combat wrinkle formation in human skin, have been used to promote hair regrowth in 2 Pomeranians. There was 90% hair growth in 12 weeks for these two dogs. Redness and microbruising occurs after treatment, but resolves in a few hours.

Other Alternatives: Trilostane

Trilostane is another medication used in the treatment of Cushing's disease. It has also been successful in treating alopecia X if the adrenal gland overgrowth (hyperplasia) is present. Again, this medication has rare potential to create a dangerous deficiency in adrenal steroids. It is not without risk even though it has been effective in causing hair regrowth in some patients. University of Tennessee testing is usually required prior to Trilostane treatment, to make sure that it is safe.

Growth Hormone and the rest

There was a time when this condition was believed to represent a deficiency of growth hormone. Growth hormone is not effective unless given as an injection. It is a genetically engineered product that is often not commercially available but sometimes may be obtained through academic sources. Administration can cause diabetes, so blood sugars must be monitored. A 6-week course of therapy may produce results that last several years.

There are other drugs that have influence on adrenal hormones and they have been used in the treatment of Alopecia X with mixed results. These other options include: cimetidine, cyclosporine, cyproterone, deslorelin, finasteride, fulvestratn, ketoconazole, leuprolide, medroxyprogesterone acetate, mitotane, and testosterone.

Alopecia X is a frustrating condition and will remain frustrating for years to come. Research is on-going and progress comes gradually.

Recovery of the Hair coat

No matter which treatment (if any) is ultimately successful, it will take several months for the hair coat to re-grow. Each treatment should be tried for at least 3-4 months before proceeding to the next treatment. Once the hair has re-grown, medication dose can be decreased until hair loss or coat quality change is noted again. Sometimes, medications are stopped altogether.

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