

Hair Loss without Inflammation of the Skin in Dogs

(Non-inflammatory Alopecia)

Basics

OVERVIEW

- “Alopecia” is the medical term for hair loss
- Non-inflammatory alopecia is a group of uncommon skin disorders, characterized by hair loss that is associated with an abnormal hair growth/shed cycle
- Hormonal and non-hormonal diseases can be associated with non-inflammatory hair loss (alopecia); diagnosis often requires eliminating the more common causes of hormonal alopecia first
- Alopecia X is a non-inflammatory alopecia related to an abnormal hair growth/shed cycle; it has been called by many names previously, including “growth hormone-responsive alopecia,” “castration-responsive alopecia,” and “adrenal hyperplasia-like syndrome”
- “Estrogen,” “progesterone,” and “estradiol” are female hormones; “testosterone” and “androgen” are male hormones
- An “intact” pet is one that has its hormone-producing reproductive organs an “intact female” has her ovaries and uterus and an “intact male” has his testicles
- A “neutered” pet has had its reproductive organs surgically removed; females commonly are identified as “spayed,” but may be identified as “neutered”; males may be identified as “castrated” or “neutered”



GENETICS

- Breed predilections exist for alopecia X; however, the mode of inheritance is unknown

SIGNALMENT/DESCRIPTION OF PET

Species

- Dogs

Breed Predilections

- Increased levels of estrogen (known as “hyperestrogenism”) in females and increased levels of androgen (known as “hyperandrogenism”) in males—none
- Alopecia X—miniature poodle and plush-coated breeds, such as the Pomeranian, chow chow, Akita, Samoyed, Keeshonden, Alaskan malamute, and Siberian husky

Mean Age and Range

- Increased levels of estrogen (hyperestrogenism) in females and increased levels of androgen (hyperandrogenism) in males—middle-aged to old, intact dogs
- Alopecia X—range, 1–5 years of age; older dogs may develop alopecia X

Predominant Sex

- Increased levels of estrogen (hyperestrogenism)—primarily intact female or male dogs; male dogs due to testicular cancer producing excessive levels of estrogen
- Increased levels of androgen (hyperandrogenism)—primarily intact males
- Alopecia X—neutered or intact dogs of either sex

SIGNS/OBSERVED CHANGES IN THE PET

- Overall change in the hair coat—dry or bleached, because hairs are not being replaced; lack of normal shedding
- Male dogs with increased levels of estrogen (hyperestrogenism) may attract other male dogs
- Hair loss (alopecia)—usually generalized and bilaterally symmetrical; involves the trunk, along the sides of the body (known as “truncal alopecia”) and spares the head and lower legs; hair loss is uncommon in dogs with increased levels of androgens (hyperandrogenism)
- Secondary excessively oily or dry scaling of the skin (known as “seborrhea”); itchiness (known as “pruritus”); skin infection characterized by the presence of pus (known as “pyoderma”); hair follicles filled with oil and skin cells (known as “comedones”); inflammation of the outer ear, characterized by an oily discharge (known as “ceruminous otitis externa”); and darkened skin (known as “hyperpigmentation”)—variable
- Enlargement of nipples, mammary glands, vulva (external genitalia of the female), prepuce (fold of skin that covers the penis) and prepuce dermatitis—may be associated with increased levels of estrogen (hyperestrogenism)
- Abnormal sized testicles—may be associated with increased levels of estrogen (hyperestrogenism) or increased levels of androgen (hyperandrogenism); however, testicles may be normal in size
- Increase in the number of cells in the tail glands (known as “tail gland hyperplasia”) and increase in the number of cells in the perianal gland (known as “perianal gland hyperplasia”) with localized change in color of the skin due to deposits of melanin (known as “macular melanosis”)
- Signs of generalized disease (known as “systemic signs”), not usually present

CAUSES

Skin Disorders due to Increased Levels of Estrogen (Hyperestrogenism)—Females

- Estrogen excess or imbalance owing to a condition characterized by the presence of fluid-filled sacs or cysts in the ovaries (cystic ovaries), ovarian tumors (rare), or excess/overdose of estrogen-containing medications
- Pets with normal serum estrogen concentrations may have an increased number of estrogen receptors in the skin

Skin Disorders due to Increased Levels of Estrogen (Hyperestrogenism)—Male Dogs with Testicular Tumors

- Estrogen excess due to a tumor in the testicles, such as Sertoli cell tumor (most common), seminoma, or interstitial cell tumor (rarely)
- Lack of normal descent of one or both testicles into the scrotum, resulting in the testicle(s) being located in the abdomen or inguinal canal (known as “cryptorchidism”) increases the likelihood that affected pets will develop testicular (example, Sertoli) tumors
- Associated with male pseudohermaphroditism in miniature schnauzers; “pseudohermaphroditism” is a condition where the pet has either ovaries or testicles, but has uncertain (ambiguous) external genitalia

Skin Disorder due to Increased Levels of Androgen (Known as “Hyperandrogenism”) Associated with Testicular Tumors

- Androgen-producing testicular tumors (especially interstitial cell tumors) in intact male dogs

Alopecia X

- Hairs fail to cycle normally; an underlying hormonal cause has not been identified

RISK FACTORS

- Intact male and female dogs are at increased risk for developing testicular tumors and ovarian cysts/tumors, respectively
- Lack of normal descent of one or both testicles into the scrotum, resulting in the testicle(s) being located in the abdomen or inguinal canal (known as “cryptorchidism”) increases the likelihood that affected pets will develop testicular tumors
- Administration of medications containing estrogen, or exposure to a person’s hormone therapy medication
- Alopecia X—breed (miniature poodle and plush-coated breeds, such as the Pomeranian, chow chow, Akita, Samoyed, Keeshonden, Alaskan malamute, and Siberian husky)

Treatment

HEALTH CARE

- Depends on cause of skin disorder
- Discontinue administration of estrogen-containing medications, as directed by your veterinarian, if excessive estrogen is the likely cause of the skin disorder

SURGERY

- Skin biopsy
- Surgical removal of testicles (neuter or castration) of males with lack of normal descent of one or both testicles into the scrotum, resulting in the testicle(s) being located in the abdomen or inguinal canal (cryptorchidism); neuter when young
- Exploratory surgery (known as a “laparotomy”)—diagnosis and treatment (such as surgical removal of the ovaries and uterus [spay or ovariectomy] and surgical removal of testicles located in the abdomen [castration]) for ovarian cysts and tumors, and for males, abdominal testicular tumors
- Alopecia X—surgical removal of reproductive organs (ovariectomy in females and neuter or castration in males) may lead to hair regrowth in some dogs; hair regrowth may take up to 3 months before becoming evident

Medications

- Medications presented in this section are intended to provide general information about possible treatment. The treatment for a particular condition may evolve as medical advances are made; therefore, the medications should not be considered as all inclusive

GENERAL TREATMENT

- Topical (applied to the skin directly) medication to treat seborrhea (known as “antiseborrheic therapy”)—conditions with associated keratinization defects and comedones (in which the hair follicles are filled with oils and debris)
- Antibiotics—to treat associated skin infections

ALOPECIA X

- Melatonin—hair regrowth can take up to 3 months to become evident; this treatment is effective in approximately 40% of affected dogs; should be tried following neutering; once hair growth has occurred, discontinue melatonin treatment
- Other Medications: medroxyprogesterone acetate injections (response rate is 40-50% of cases); mitotane or o,p'-DDD (Lysodren) to stimulate hair regrowth in some dogs; can take up to 3 months for hair regrowth to become evident; Trilostane to stimulate hair regrowth in some dogs; can take up to 3 months for hair regrowth to become evident—your veterinarian will discuss monitoring and side effects for these drugs

Follow-Up Care

PATIENT MONITORING

- Treatment with mitotane or o,p'-DDD (Lysodren)—bloodwork (electrolytes) and adrenocorticotrophic hormone (ACTH)-stimulation testing regularly
- Treatment with trilostane—bloodwork (electrolytes) and ACTH-stimulation testing regularly

POSSIBLE COMPLICATIONS

- Estrogen treatment or excessive estrogen—decreased production of blood cells by the bone marrow (bone-marrow hypoplasia) or lack of production of blood cells (bone-marrow aplasia), which are uncommon; signs of “heat” or “estrus,” which is rare
- Treatment with o,p'-DDD (Lysodren)—potential side effects (such as vomiting, diarrhea, collapse, and inadequate production of steroids by the adrenal glands secondary to medical treatment [known as “iatrogenic hypoadrenocorticism”])

EXPECTED COURSE AND PROGNOSIS

- For cases of females with increased levels of estrogen (hyperestrogenism)—improvement should occur within 3–6 months after surgical removal of the ovaries and uterus (spay or ovariohysterectomy)
- Estrogen- and androgen-secreting tumors—resolution of signs noted within 3–6 months after surgical removal of the ovaries and uterus (spay or ovariohysterectomy) or the testicles (castration), respectively
- Alopecia X—hair regrowth will occur only in some dogs, regardless of treatment; hair loss may recur in spite of continued treatment

Key Points

- Alopecia X is a cosmetic condition, resulting in hair loss only; no cure has been determined to treat the hair loss; hair regrowth will occur only in some dogs regardless of treatment; hair loss may recur months to years later in spite of continued treatment