

Causes of Pigment & Color Changes in the Skin & Coat in Dogs

Drs. Foster & Smith Educational Staff

The skin and coat of a dog may sometimes change color or become lighter or darker. This may be a normal process, or may be due to a serious disease. If the skin or coat has a color other than white, it is said to be 'pigmented.' Colors include brown, black, red, purple, and yellow. If the skin is a darker color than normal, it is said to be 'hyperpigmented.' The table below provides a list of the majority of the conditions, which are associated with pigment change. This extensive listing helps you understand why a quick diagnosis may be difficult to make and various diagnostic tests may need to be performed. The most common conditions causing pigment or color changes are color-coded gray in the table (some may be more common in certain geographical areas).

Condition	Description	Symptoms	Diagnosis	Treatment
<u>Acanthosis nigricans</u>	Inherited form seen in Dachshunds; secondary form caused by friction, hormonal abnormalities, or hypersensitivities	Darkening of the skin; in secondary form see scratching and hair loss	History, physical exam; in secondary form, testing to determine underlying cause	Primary: No treatment; Secondary: treat underlying disease; in some cases, steroids and Vitamin E supplementation
Adrenal sex hormone responsive dermatosis	More common in Pomeranians, Chows, Keeshonden, and Samoyeds	Hair loss starts on neck, tail, and back of thighs and progresses to trunk; dog appears to have a 'puppy coat'; skin darkens	Biopsy; eliminate other causes	Mitotane is optional
Apocrine sweat gland cyst	Common	Single, round, smooth nodules with no hair; may appear bluish; usually filled with a watery liquid; most common on head, neck, and limbs	Physical exam; biopsy	Surgical removal is optional
Basal cell tumors	Cancerous, slow-growing tumor, which rarely metastasizes; seen in older dogs	Single, sometimes fluid-filled nodules, which may ulcerate; usually on the head, neck, and chest; may be hyperpigmented	Biopsy	Surgical removal
<u>Black hair follicular dysplasia/ alopecia/ dystrophy</u>	Rare hereditary disease in dogs with hair of multiple colors; more common in Bearded Collies, Basset Hounds, Salukis, Beagles, Dachshunds, and Pointers	Loss of dark or black hair only; symptoms appear between 3 and 6 weeks of age; sometimes scaling	Clinical signs, biopsy	Shampoos for scaling, if necessary

Bowen's disease	A rare type of squamous cell carcinoma in which multiple lesions develop	Lesions start out as thickened, dark, raised, and well-delineated; progress to ulcers and crusts and bleed easily; lesions found on the head, neck, shoulder, forelegs, mouth, and genital areas	Biopsy	Lesions may come and go and are not always treated; some anti-cancer drugs and radiation have been tried with mixed results
Bruises	Generally the result of trauma; may indicate abnormally low platelets, clotting problems, or hormonal problems	Areas of bluish-black discoloration of the skin	Medical history very important; blood tests, if abnormality expected	None, if the result of trauma; in other cases, treat underlying cause
Castration responsive dermatosis	More common in young unneutered dogs, and in Chows, Samoyeds, Keeshonden, Alaskan Malamutes, Miniature Poodles, and Pomeranians	Symmetrical hair loss in genital area and neck; hair loss may progress onto trunk; skin may appear darker; severe scaling; hair color may fade; coat is similar to a 'puppy coat'	Physical exam and history; eliminate other causes; blood tests for hormone levels	Castration
Chronic irritation/inflammation	Chronic atopy, allergies, bacterial infections	Darkening and sometimes thickening of the skin	History, physical exam; blood tests to rule out other possible causes	Treat/remove underlying cause
Color dilution/mutant alopecia	Hereditary condition affecting dogs with blue (diluted black) or fawn coat colors; more common in Dobermans, Dachshunds, Great Danes, Yorkshire Terriers, Whippets, and Greyhounds	Hair in the blue- and fawn-colored areas starts to thin at around 6 months of age; secondary folliculitis often develops	Breed, history, and coat color	None; avoid excessive grooming or harsh shampoos; protect skin to prevent secondary bacterial infections

Cushing's disease (hyperadrenocorticism)	Caused by an increase in corticosteroids in the body - either due to increased production by the body or as a side effect of high doses or prolonged therapy with corticosteroids	Hair loss, thinning of skin, hyperpigmentation, easy bruising, seborrhea, comedones (black heads), may see calcinosis cutis; lethargy, increased thirst and urination, pot-bellied appearance	Adrenal gland function tests, urinalysis, chemistry panel, CBC	If due to glandular tumors, selegiline, o,p-DDD (Mitotane), or surgical removal of tumor; if due to high steroid doses, withdraw use of steroids slowly
Cyclic (cicatrical) alopecia; seasonal flank alopecia	Growth cycle of hair stops at certain times of the year	Symmetrical hair loss with definite borders; usually on back and flanks; skin may become darker	History, clinical signs, biopsy	None
Demodectic mange (red mange, puppy mange)	Infection with the <i>Demodex</i> mite - occurs when the immune system is deficient	Hair loss, scaliness, redness, pustules, ulcers, sometimes itching, darkening of the skin	Skin scraping and microscopic examination	NO Steroids Amitraz (Mitaban) dips
Epitheliotrophic lymphoma (mycosis fungoides)	Rare cancer of T lymphocytes seen in older dogs	Can take multiple forms: redness with itching and scale; ulcers and loss of pigment; one or more nodules; oral ulcers	Needle or other biopsy	Poor response to treatments, which include chemotherapy, surgical removal, retinoids, fatty acids
Estrogen responsive dermatosis (ovarian imbalance type II)	More common in young spayed dogs, and in Dachshunds and Boxers	Hair loss starting at the genital area and flanks and moving forward; hair color may fade; coat is similar to a 'puppy coat'	Physical exam and history; eliminate other causes; response to therapy	Estrogen replacement therapy; caution - can have severe side effects
Follicular cyst	Most common cyst; may be called 'sebaceous cysts' by some veterinarians	Single round nodules on or underneath the skin; may appear bluish; may contain a thick, yellowish to gray material; usually found on the head, neck, and trunk	Biopsy	Surgical removal optional; do NOT squeeze these cysts, since a severe skin reaction will occur

Follicular dysplasia (non-color linked)	Patchy hair loss of unknown cause seen in the Siberian Husky, Doberman Pinscher, Airedale, Boxer, Staffordshire Bull Terrier, Curly Coated Retriever, Irish Water Spaniel, and Portuguese Water Dog	In Huskies, hair loss on the body, reddish tinge to hair; in Dobermans, hair loss over lumbar area; in Boxers and Terriers, hair loss over lumbar area, skin may be hyperpigmented; in Retrievers and Spaniels, loss of guard hairs on back and trunk and secondary hairs are dull and lighter in color;	Breed, biopsy	None
Growth hormone responsive alopecia	Not well understood; thought to be caused by an enzyme deficiency or decrease of adrenal hormones, which allows certain other hormones to accumulate in the body: more common in Pomeranians, Chow Chows, Keeshonden, Samoyeds, and Poodles	Hair loss on neck, tail, and the back of the thighs; skin darkens; usually starts when dog is less than two years old	Hormonal blood testing	Neuter animal; growth hormone; hormonal supplementation
Hemangiosarcoma	Malignant, invasive tumor more common on sun-damaged skin	Blue to reddish black nodule; usually on chest or abdomen; often ulcerate	Biopsy	Surgical removal; need to remove large area around the tumor; if tumor is on a leg, amputation of the leg is commonly recommended
Hyperestrogenism (ovarian imbalance type I)	Rare disease in which female animals have excess levels of estrogen; can be caused by cancer of the ovaries	Symmetrical loss of hair; hair pulls out easily; darkening of the skin; enlarged nipples and vulva; may rarely see seborrhea and	History, physical exam, rule out other causes of hair loss, measure blood estrogen levels	Spay; look for metastasis to the lungs

		itching		
Hypothyroidism	Decreased production of thyroid hormone; most common hormonal disease affecting the skin in dogs	Hair loss, dry and brittle hair, seborrhea; secondary bacterial and yeast infections; lethargy, obesity, slow heart rate; changes in skin pigmentation may occur	Thyroid gland function tests, chemistry panel, CBC	Lifetime thyroid supplementation
Injection site alopecia	Hair loss at the site of an injection of a medication or vaccine; skin may become thickened; in cats, ulcers may develop	Hair loss occurs several months after injection; area may become hyperpigmented	History and physical examination	None; the condition is permanent
Interstitial cell tumor	Tumor of the testicle; may not cause any skin changes	If skin changes occur, See Seborrhea, loss of hair on the trunk, enlargement of the tail gland and perianal glands; may see increased pigment in the skin	Biopsy	Castration; anti-seborrheic shampoos
Jaundice	Generally results from liver disease	Yellowing of the skin, mucous membranes, and whites of the eyes	Physical exam; blood tests to assess liver function	Treatment of underlying liver disease
Lentigo	Inherited in Pugs	Circular brownish-black areas of coloration	Physical exam; skin biopsy to rule out other causes of hyperpigmentation	None
Malassezia	Usually follows some other underlying disease	Itching, redness, hair loss, greasy scales; if chronic, develop hyperpigmentation	Skin scraping/smear and microscopic examination, culture	Treat underlying disease; oral ketoconazole; miconazole shampoos
Mast cell tumor	Common cancer which is graded from 1-4: Grade 1 is slow-growing tumors, and Grade 4 is rapidly growing	Tumors may be of various sizes, appearances, and numbers	Biopsy to grade the tumors, which determines treatment and prognosis	Depends upon grade; surgical removal, taking large area around tumor; chemotherapy; prednisone; radiation

	malignant tumors with metastases			
Melanoma	Malignant tumor of older dogs	Usually single dark-colored nodule, which often ulcerates	Biopsy	Surgical removal, taking large area around tumor
Nasal depigmentation (Dudley nose)	Previous black nose turns chocolate brown to light pink; more common in Yellow Labs, Golden Retrievers, Poodles, and Dobermans; not associated with a disease process	Progressive fading of color of nose with no other signs such as crusting or ulceration	Physical exam	None
Pemphigus foliaceus	The most common form of pemphigus in the dog; an autoimmune disease; some breeds are at increased risk	Often affects feet and head; starts with pustules and progresses to severe crusting; depigmentation of the nose is common; itching may occur; if footpads and nails affected often see lameness; symptoms wax and wane; severely affected animals may have fever and loss of appetite	History, physical exam, skin scraping, and biopsy	Corticosteroids, other immunosuppressive therapy, gold injections
Red/brown staining of hair	Often caused by body secretions such as tears and saliva from licking	Light colored hair turns a reddish brown	Clinical signs, history	Treat underlying condition
<u>Rocky mountain spotted fever</u>	Caused by an organism spread by ticks; skin lesions are not always present	Fever, loss of appetite, depression, pain in joints, edema, hemorrhages under the skin (appear as bruises), ulceration of mucous membranes and extremities	Special blood tests to detect the organism or antibodies to it; biopsy	Antibiotics and supportive care

Sertoli cell tumor	Tumor of the testicles in middle-aged dogs	Male dogs take on female sexual characteristics; hair loss, increased skin pigment, reddened area on prepuce	Physical exam	Castration
Skin cancer	<i>See specific type, e.g.; Basal cell tumor, Melanoma, Mast cell tumor</i>			
Tail dock neuroma	Nerve regrowth after tail docking causes symptoms	Nodule at site of docking, itching with self-mutilation, hair loss, and hyperpigmentation	History and symptoms	Surgical removal
Tail gland hyperplasia	Dogs have a sebaceous gland on the top of the tail near its base; in this disorder, the gland enlarges; seen in unneutered dogs and secondary to other diseases such as hypothyroidism	Oily area, hair loss, crusts, and hyperpigmentation on area over gland	Clinical signs; look for underlying cause	Castration may help; treat underlying cause; surgical removal
Uveodermatologic syndrome	Hypersensitivity to melanin (the dark pigment) in the skin and eyes	Pigment loss on nose, lips, and eyelids; occasionally footpads, scrotum, and anus can be affected; rarely see ulcers or drainage; uveitis (inflammation of the eye) may occur	History, clinical signs, biopsy	Long-term prednisone, azathioprine; appropriate eye medications
Vitiligo (Decreased Pigment)	Can be hereditary or caused by an autoimmune reaction	Loss of pigment, which may be temporary or permanent; usually on nose, lips, and face	Clinical signs, skin biopsy	None