Canine

Presence and Distribution of Pruritus and/or Inflammation—Allergic Skin Disease

The presence and distribution of inflammatory skin disease is very helpful in suggesting a diagnosis of allergic dermatitis (atopy, food sensitivity, flea bite hypersensitivity [FBH]). Predilection areas for alopecia/inflammatory changes associated with atopy or food sensitivity (due to either self trauma, increased transcutaneous absorption of allergen and/or a more generalized response to allergen exposure) include the periocular region, muzzle, chin, ears (entrance to the vertical canals), anterior elbows, axillae, flanks, ventral abdomen, groin, perianal region, perivulvar region, dorsal and/or ventral interdigital spaces, caudal carpal and tarsal regions and back. Individuals frequently do not have all areas involved, especially earlier in their disease. Some may be presented for only very localized signs (e.g. licking at the ventral interdigital spaces of the front feet). Finding inflammatory changes in one or more other predilection sites simply heightens the suspicion of allergy. Unfortunately, involvement of certain predilection sites does not seem to reliably predict for the specific allergy type (i.e. it used to be said that finding perianal pruritus along with otitis externa more strongly suggested the presence of food sensitivity. This does not appear to be the case). The distribution of skin disease associated with FBH includes the dorsal lumbosacral area, caudomedial thighs, ventral abdomen and flanks. Otitis and pododermatitis are only rarely associated with FBH.

It is not uncommon to have patients presented with problems such as otitis externa or pododermatitis wherein owners claim that pruritus is not a factor. Support for the fact that the individual is indeed pruritic can be achieved by stimulating the individual over the back or sides and assessing for a pruritic response (i.e. panniculus muscle contraction; patient attempts to scratch at skin). If a pruritic response is noted, it is important to examine the areas stimulated to make sure there are no lesions present that might suggest bacterial infection etc, because these problems can be pruritogenic. Pruritus without lesions is highly suggestive (but not specific) for allergic disease.

Comedones Where They Shouldn’t Be—Demodicosis

Comedo formation is perhaps most commonly seen in individuals with seborrheic disorders (most commonly endocrinopathies—especially hypothyroidism, spontaneous or iatrogenic hyperadrenocorticism; at times, associated with idiopathic seborrheic disorders). When present, these are usually most commonly seen over the ventral abdominal and groin area. Occasionally, comedones may be seen over the back in patients with spontaneous hyperadrenocorticism. Other folliculopathies that may manifest comedo formation include color dilution alopecia and the schnauzer comedo syndrome. When comedo formation is noted in high density (i.e. patchy areas where all follicles in the area are involved), especially in “atypical” breeds and in atypical areas, demodicosis should be considered a prime rule out. These patchy areas of involvement may be located anywhere over the body. In most instances, debris within the follicles will be dark colored and will impart a darkness to the skin that can be misdiagnosed as hyperpigmentation of the skin itself. It is also possible to see patients with demodicosis wherein the follicles are filled with whitish debris. A diagnosis will be made by skin scraping (making sure to squeeze the skin before scraping) and/or hair plucks.

Lick Granuloma—Etiology

Lick granulomas can be some of the most frustrating lesions to treat in the dog. It is very important to note that the majority of lick granulomas seen in the dog are related to underlying allergy (atopy and/or food sensitivity). They are very commonly complicated by secondary bacterial infection (esp. Staphylococcus intermedius). The “tip off” to the presence of intercurrent allergy is to find evidence of inflammatory changes or self-trauma that suggest allergy (i.e. low grade otitis externa or pododermatitis; pruritic response with stimulation of the skin). Therapy for the concurrent, underlying allergy with oral glucocorticoids will often reduce or resolve the tendency of individuals to lick at the lesion and/or make the lesion more rapidly resolve.

Alopecia Related to Endocrinopathies

Hair loss/coat color changes that spare the head and distal extremities strongly suggest the presence of an endocrinopathy. Hair loss may initially involve predominantly primary hairs (leaving a secondary hair—wooly coat), or in other individuals, secondary hairs (giving the coat a “thin” appearance). Color changes usually involve a lightening of coat color. Black coats tend to turn a “rust” color. These changes are not specific for a type of endocrinopathy. They may be seen with hypothyroidism, spontaneous and iatrogenic hyperadrenocorticism, sex
hormone imbalances (e.g. Sertoli’s cell tumor, ovarian cysts or tumors, sex hormone producing adrenal tumors, Alopecia X or growth hormone deficiency (Pituitary dwarfism). At times, one of the earliest signs of an endocrinopathy will be failure of hair to regrow at sites of clipping or trauma (e.g. dorsum of the tail; hair loss due to rubbing).

Linear prepucial erythema or hyperpigmentation involves an asymptomatic “red” or “black” line that extends variable distances down the ventrum of the prepuce. It may extend on to the scrotum. The presence of this lesion closely correlates with the presence of hyperestrogenism (Sertoli’s cell tumor).

Macular melanosis (patches of hyperpigmentation) that develop over the anal region and an increased prominence of anal tissue suggests the presence of hyperandrogenism (e.g. adrenal sex hormone imbalance; sex hormone producing testicular tumor).

A phlebectasia is a small (2—6 mm) vascular proliferation that looks like a small angioma or “blood blister.” They are most commonly noted over the glabrous (hairless) areas of the ventral abdomen. They are the product of steroid influence (usually longer term steroid use) and when seen, suggest the presence of spontaneous or iatrogenic hyperadrenocorticism. It is important to note that when these lesions develop in individuals who have been on steroid therapy, they are permanent (i.e. do not spontaneously resolve). They are especially helpful when they develop in individuals who have other suggestions of hyperadrenocorticism, but have not been on significant steroid therapy. The major differential diagnosis for the lesion would be a hemangioma.

When history/physical examination suggests the presence of an endocrinopathy, the author always looks for evidence of cutaneous atrophy to suggest the presence of hyperadrenocorticism. First evidence of atrophy is usually noted to involve older scars. Well defined, circular areas of atrophy over the ventral abdomen, inguinal and /or medial thigh regions are most consistent with the presence of iatrogenic hyperadrenocorticism.

Pattern of Hair Regrowth to Suggest Alopecia X (Hair Cycle Arrest)
Patients with Alopecia X usually have a distribution of hair loss that closely mimics that of a “classic” endocrinopathy. Hair growth at sites of trauma are often noted in individuals with this disorder. Examples of trauma noted to produce this growth may be minor (e.g. scraping of the skin). A tuft of hair will be noted at the site of trauma. It is thought that this growth of hair is a product of the local release of growth factors. This phenomenon is usually not seen with “classic” endocrinopathies, but may be seen with some other idiopathic follicular dysplasias.

Inflammation Due to Solar Dermatitis vs. Other Etiologies (e.g., Allergic Dermatitis)
Skin that is devoid of pigment and is associated with a thin or absent hair coat is prone to solar dermatitis. An excellent example would be English Bull Terrier and its propensity to develop UV related dermatitis over the axillae, ventral abdomen and groin in association with sun bathing. Sequels to this inflammation may involve folliculopathies (comedo formation), solar keratoses or neoplasia (squamous cell carcinoma). At times, solar dermatitis is difficult to differentiate from inflammation due to other disorders (e.g. allergy). One should always look for pigmented areas within these inflammatory lesions. If the dermatitis is solar in origin, it will spare pigmented areas (skin will remain of normal thickness, will not be scaly or crusty). Other inflammatory disorders will involve the pigmented skin.

Follicular Casts Suggesting Sebaceous Adenitis
Follicular cast refers to the accumulation of keratogenous and lipid debris that adheres to hair shaft as it extends out of the hair follicle. When follicular casting is widespread, it is most commonly associated with sebaceous adenitis in the dog and less commonly with primary, idiopathic seborrhea (especially in the spaniel breeds) and Vitamin A-responsive dermatosis. When it is associated with more focal lesions, underlying etiologies again include sebaceous adenitis and primary idiopathic seborrhea but casting may also be occasionally seen with diseases that cause folliculitis (bacterial or dermatophyte infections, demodicosis).

Depigmentation Suggesting Autoimmune/immune-Mediated Disease
The loss of pigment in those areas that previously had pigment strongly suggests the presence of autoimmune/immune diseases such as the pemphigus complex, lupus diseases and vitiligo (to name a few). Areas that are targeted often include the mucocutaneous junctions (mouth, eyes, vulva, prepuce) and planum nasale. Areas
that were previously black often initially depigment to grey, then to pink. It is important to note, however, that
depigmentation can be a post-inflammatory change (e.g. secondary to bacterial infection).

**Pattern of Alopecia and Macular Hypotrichosis Suggesting Color Dilution Alopecia**
Breeds prone to color dilution alopecia include the Doberman pincher, Great Dane, whippet, dachshund, standard
poodle, and chow chow. Affected individuals usually have a “blue” coat, although red and fawn Dobermans and
fawn Irish setters may also be affected. Hair loss is restricted to the “blue” coat areas of the body. Tan areas are
spared (i.e. have normal hair growth). Affected individuals also tend to develop many macular areas of
hypopigmentation in the truncal regions (another tip-off to this disease).

**Focal Crusting over Medial Pinnae Suggesting Autoimmune/immune-Mediated Disease**
When focal areas of inflammation and crusting are noted over the medial pinna, strong consideration should be
given to the presence of autoimmune/immune mediated skin disease (e.g. pemphigus, erythema multiforme, drug
eruption). The otitis associated with other diseases (e.g. allergy) tends to be more diffuse. Even focal bacterial
pyoderma or demodicosis (diseases that are often crusty) less commonly produce similar lesions in these areas.

**Feline**

**Indolent Ulcers Suggesting Allergy**
Indolent ulcers (eroded/ulcerated/indurated lesions affecting one or both sides of the upper lips of cats) are usually
caused by atopy, food sensitivity or flea bite hypersensitivity. An idiopathic form of this disease has been noted in
the cat.

**Eosinophilic Plaques Suggesting Allergy**
Very pruritic, inflamed, raised, plaquiform lesions, most commonly located over the medial thighs and ventral
abdomen strongly correlate with the presence of allergy (atopy, food sensitivity, flea bite hypersensitivity). Similar
lesions are rarely associated with infectious granulomas (bacterial, fungal) or neoplasia (mast cell tumor,
lymphoma).

**Linear Granuloma (Eosinophilic Granuloma) Suggesting Allergy**
Linear, inflamed, variably crusty, variably pruritic lesions, most commonly noted over the caudal aspects of the
hindlimbs strongly suggest the presence of allergy (atopy, food sensitivity).

**“Puffy” Chin Suggesting Allergy**
Eosinophilic granuloma involving the chin is the most common cause of “puffiness”/usually asymptomatic swelling
of the chin (fat-chinned cats, feline chin edema, pouting cats). “Puffy chins” correlate well with the presence of
allergy in the cat (in the author’s experience, most commonly atopy).

**Increased Skin Friability Suggesting Hyperadrenocorticism (Spontaneous or Iatrogenic)**
Cutaneous signs of hyperadrenocorticism in the cat most commonly include alopecia without erythema
(unassociated with self trauma; predilection for the underside of the abdomen and extremities), cutaneous atrophy,
increased bruising of skin, recurrent cutaneous abscessation, comedo formation over the ventral abdomen and
hyperpigmentation (in decreasing order of incidence). One very helpful additional “tip-off” to the presence of this
disease is extreme skin fragility (in one study, noted in up to 48% of individuals). This friability is associated with
skin that readily tears. This increased friability may be noted when hair loss is not significant!

**Curling of the Tips of the Ears—Suggesting Iatrogenic Hyperadrenocorticism**
Yet another “tip off” to the presence of iatrogenic hyperadrenocorticism (usually not seen with spontaneous
hyperadrenocorticism) is the tendency of the ear tips to curl! This change may also be seen with auricular chondritis.

**Alopecia and “Shiny” Skin Suggesting Hepatic or Pancreatic Neoplasia**
Cats with pancreatic adenocarcinoma or bile duct carcinomas may present with a symmetric alopecia involving the
ventrum, thoracic inlet, ventral neck, occasionally the face and extremities. Hairs are usually readily epilated. The
alopecic skin is often smooth and “glistening” or “shiny” which is the “tip off” to this disease. Affected skin may
also be mildly scaly and erythematous. Pruritus is usually absent. The footpads/, footpad/skin junctions may be dry
and scaly/crusty and occasionally fissured and painful. All cats manifest varying degrees of weight loss, inappetence
and lethargy. Diagnosis is by skin biopsy (severe follicular and adnexal atrophy with follicular miniaturization and mild perivascular inflammation) and workup to document visceral neoplasia. The prognosis is grave.