

## Dermatology Fact Sheet

What are the Infections and Why are they there?

The 10 most common skin patterns in dogs with skin disease are:

Folliculitis, Pododermatitis, Otitis, Yeast/Malassezia dermatitis  
Pruritus, Non-pruritic alopecia,  
Autoimmune disease, keratinization defects, lump/bumps/draining tracts,  
Weirdopathies.

All secondary infections of the skin and ears are triggered by allergies or endocrine disease causing changes in the normal structure and function of the skin (glands, thickness, turnover time, secretions, acidity, saltiness, dryness, IgA levels, temperature, etc)

The infectious causes of folliculitis are bacterial pyoderma, dermatophyte, and demodicosis.

Folliculitis looks like a mosquito bite rash (papular rash) with hair loss and crusting.

Severe folliculitis may result in ruptured follicles (furunculosis) and cellulitis.

Chin pyoderma and chin acne in dogs are usually caused by ingrown hairs.

Yeast dermatitis is caused by malassezia sp. and triggered by allergies or endocrine disease.

Yeast dermatitis looks like thickened lichenified skin - elephant skin in large plaques and smells like Fritos.

Yeast infections are usually in moist areas - arm pits, ventral neck, interdigital, inguinal skin and ears.

Eye margin dermatitis (blepharitis) is usually caused by yeast dermatitis.

Simple uninfected allergy patients will typically be below a 5 on the 0 - 10 itch scale.

Secondary infections cause the itch level to increase above 5 on the 0 - 10 itch scale.

Dogs with a 10 on the 0 - 10 itch scale often have yeast, scabies, or insect/flea infections.

Skin infection treatment duration is based on the typical epidermal turn-over time which is 21-28 days.

Most good skin antibiotics start with a "c" - cephalixin, Clavamoc, clindamycin, cefpodoxime.

The most common risk factor leading to MRStaph (multi-drug resistant Staph) is the use of fluoroquinolone antibiotics.

Cephalexin administered with ketoconazole makes dogs vomit.

Ketoconazole is the longest lasting anti-fungal drug in the glands and skin.

Terbinafine is the best anti-fungal drug for dermatophytes.

*Microsporum canis* is usually from cats: *M. gypsum* and *Trichophyton mentagrophytes* are from soil or rodents.

General body pruritus is caused by atopy, food allergy or scabies.

Allergies are associated with increased IL-4 which increases Th2 lymphocytes and thus increases in IgE, mast cells, eosinophils and the chemicals these cells release.

The immune response is predominantly either Th1 cells (IgG, IgM, Neutrophils, macrophages) or Th2 cells (IgE, mast cells, eosinophils).

Foot licking is usually associated by atopy.

Lumbar dermatitis is usually caused by insect (mosquito) and flea allergy.

Perianal dermatitis and butt scooting are usually associated by food allergy.

Hot spots (pyotraumatic dermatitis) are caused by insect bites (fleas or mosquitoes usually).

50% of allergic dogs do not sleep through the night and itch.

Acral lick granulomas are usually caused by a neuropathy and not allergy.

Atopy should be treated with pollen avoidance, antihistamines, Cytopoint and Allergy vaccine.

Food allergic dogs should avoid all beef, dairy and chicken.

Cytopoint blocks only IL-31 while Apoquel blocks IL-31 and IL-2, TNF, EPO and more.

Steroids and Apoquel are the only drugs that can cause Demodicosis.

Apoquel has a 10% tumor risk in dogs.

Isoxazolines are the safest and best class of parasiticides and are the treatment of choice for Demodicosis and Insect allergies.

Sarcoptiform mites have round bodies and stubby legs and are often contagious and have a 21 day life cycle.

The only disease that causes a pinal-pedal reflex is scabies.

Lumps Bumps and Draining tracts are caused by infections, neoplasia, or immune mediated granulomas.

The best way to diagnose the cause of Lumps Bumps and Draining tracts is to perform cytology, DNA PCR or cultures, and biopsies.

Common infectious causes of Lumps Bumps and Draining tracts are staph, demodex, nocardia, mycobacterium, actinomyces, and deep fungal infections.

Big dogs usually get hypothyroidism (20%) and small dogs get Cushing's (50%).

Melatonin is the only safe treatment for Cushing's and follicular dysplasia/arrest.

Otitis is usually triggered by allergies or endocrine disease and NOT swimming or conformation.

Ear cleaning and flushes should be used in the clinic and not sent home.

Otitis should be treated with multimodal medications either every 1-3 days with short acting meds or every 1-2 weeks with long-acting medications.

Most allergic otitis starts as a sterile inflamed ear and over time developed a staph or yeast infection with a waxy exudate.

A purulent ear exudate (pus) is associated with mixed infection with Pseudomonas, proteus, staph and possible yeast. Pseudomonas otitis is caused by recurrent-episodic otitis when the treatment is started and stopped multiple times.

Otitis should be prevented by controlling the triggering primary disease and multimodal medications used every 3-7 days with short acting meds or every 2-3 weeks with long-acting medications.

Long-term otitis prevention does not lead to Pseudomonas otitis.

Ototoxicity (hearing loss or neuro signs) are extremely rare (1 in 10,000) and happen regardless of the tympanic membrane being intact or ruptured. Thus the treatment for otitis is the same regardless of the ear-drum status.

Autoimmune skin disease (Pemphigus and Lupus) usually (90%) cause lesions on the nasal planet, ear pinna, and foot pads (PPP) due to the velcro like proteins that hold the skin together being targeted by the immune system.

Autoimmune diseases are diagnoses based on clinical pattern, acantholytic cells on cytology, and skin biopsies.

Skin diseases associated with oral erosions or ulcers are BAD and usually caused by Pemphigus vulgarism, Lupus, drug reactions, or Cutaneous lymphoma (mycosis fungoides)

The treatment for autoimmune skin diseases consist of normalizing the skin and glands and immune modulating and suppressing therapies: baths, Vit A, Omega 3 FA, doxy/tetracycline, niacinamide, UV light, tacrolimus, topical steroids, Atopica, Apoquel, oral steroids, azathiaprine, chlorambucil, lomustine, dapson, mycophenolate mofetil, steroid IV infusions.

Follicular casts are always associated with keratinization defects like sebaceous adenitis and Cocker seborrhea and Vitamin A is the best safest therapy.

Vitamin A therapy helps normalize the skin and ear glands and the epidermal turn-over time.

The most common skin tumors are sebaceous adenomas, follicular cysts, skin tags (acrocodons) apocrine cysts, lipoma, fibroma, hemangioma, melanocytoma, and mast cell tumors.

The 5 most common causes of round-cell tumors are lymphoma, mast cell, melanoma, histiocytoma, and TVT.

Acantholytic associated with pemphigus and look like round-cell tumor cytology but are from surface samples and not fine-needle aspirates.

German Shepherds have Lupus-like vascular disease that presents like deep cellulitis and fistulas: perianal fistula, meta-tarsal fistulas, inter-digital fistulas, peri-oral dermatitis, scalded skin syndrome, lupoid onychodystrophy.

## **CATS**

Cats do NOT have the same patterns or secondary infections that dogs demonstrate.

Bacterial pyoderma can be self resolved in cats with out antibiotics, if the triggering disease is treated and controlled.

Convenia is the best antibiotic for cats.

Yeast dermatitis in cats is rare but usually triggered by metabolic disease (diabetes, hyperthyroidism).

Kittens and shelter cats are the most common source of dermatophytes (*Microsporum canis*) which is zoonotic.

Herpes virus dermatitis in cats is increasing in frequency and presents as erosive facial dermatitis. DNA PCR testing is the best diagnostic method to confirm the diagnosis.

Skin lesions around the nipples is almost always associated with pemphigus in cats.

Otitis is rare in cats and usually caused by tumors or ceruminous gland cysts.

Most older cats will have increased dark waxy exudate which is not a disease or problem and should not be treated as treatment usually makes the situation worse.

Most inflammatory diseases in cats are caused by a lymphocytic, plasmacytic, eosinophilic immune response and Atopica (cyclosporine) is the safest and best long-term treatment option.

The allergy-pattern syndromes in cats are: allergic alopecia, bald belly, eosinophilic plaques, eosinophilic granulomas, indolent ulcers, fat chin syndrome, otitis, allergic asthma, stomatitis.

Any allergy (food, insect, pollen, mold) can trigger any of allergy-patterns in cats.

The infectious causes of the allergy-patterns in cats are: *demodex cati*, dermatophyte, herpes virus.

The best treatment progression for cats with the allergy-patterns would be to:

1. submit DNA PCR testing for Herpes, Demodex, dermatophyte
2. treat with an isoxazoline parasiticide to rule out insect allergy
3. start Atopica (cyclosporine) therapy for 1 month
4. consider skin biopsies and blood work
5. consider a home cooked food trial with pork or beef as the base protein
6. consider steroid therapy (oral or at-home injectable) every 3 days
7. consider allergy skin testing and allergy vaccine therapy

Injectable Depomedrol and Vetalog cause diabetes and heart failure in 20% of treated cats.

Cats with sudden onset of the allergy-pattern syndromes over the age of 10 years often have paraneoplastic syndrome with internal carcinoma of the liver, pancreases or lung. Radiographs and abdominal ultrasound are best to identify the source.