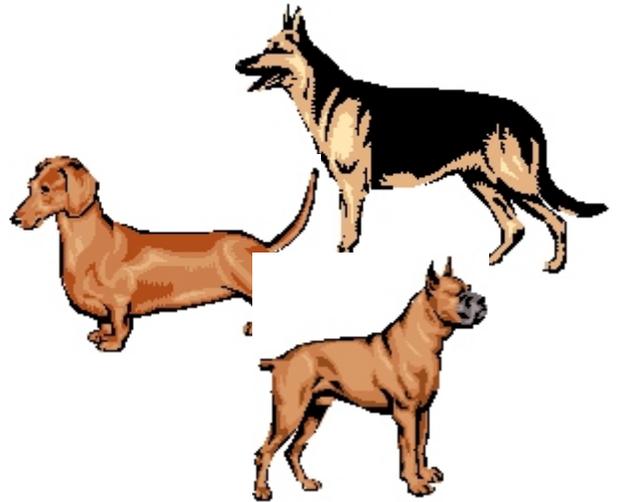


## A Pattern Approach to Clinical Dermatology

This approach is a variant on the classic lesion based model typically used to teach dermatology. The recognition of the basic patterns allows a practical approach to most of the common skin diseases.

### 10 Clinical Patterns

1. Folliculitis
2. Yeast Dermatitis
3. Pruritus
4. Pododermatitis
5. Otitis
6. Nonpruritic Alopecia
7. Lumps, Bumps, and Draining Tracts
8. Autoimmune Skin Disease
9. Keratinization Defects
10. Weirdopathies



### Goals:

Kill everything you can kill! (*Bacteria, yeast, mites, fungus*)  
Identify and control **all** of the primary/underlying diseases.  
Use symptomatic therapy to control clinical signs (remove crusts, anti-itch, etc.)

### Rules:

- 1) Assume everything has folliculitis (pyoderma, Demodex, dermatophytosis) until proven otherwise.
  - Skin scrape every case.
  - DTM culture almost every case.
  - Do cytology.
- 2) Lichenified skin on the ventral neck, axilla, and ventrum is caused by *Malassezia* dermatitis until proven otherwise.
- 3) Atopy, food allergy, and scabies can look exactly alike.
- 4) If you diagnosis *Malassezia* dermatitis, recurrent pyoderma, or recurrent otitis identify and control the primary underlying disease (allergy, endocrine, etc.)
- 5) Biopsy to diagnosis neoplasia, deep infections, autoimmune skin diseases, or when the dermatitis is severe or you are unsure of the etiology.
  - Use a dermatopathologist or someone who is interested in skin.  
([www.hnilica.com](http://www.hnilica.com), *VetMed July 2001 issue*).
- 6) If in doubt use antibiotics and use more antibiotics than steroids.
- 7) Use steroids only when you have a tentative diagnosis, not just for "itch".

### Essential Questions:

What infections are present?

Why? (ie. what are the primary/underlying diseases?)

## **Folliculitis**

### Key features:

- \* Most common pattern; pyoderma is the most common skin disease in dogs.
- \* Infection of the follicle is caused by Staph, Demodex, or Dermatophyte.
- \* Secondary pyoderma can and usually does complicate every other primary skin disorder.



### Differential Diagnoses:

Pustules or crusting lesions:  
Pemphigus, Cellulitis (deep infection),  
keratinization defects, Malassezia

### Diagnosis:

Assume everything has folliculitis until you rule it out.  
Skin Scrape  
Cytology: cocci and inflammatory leukocytes  
DTM Fungal culture

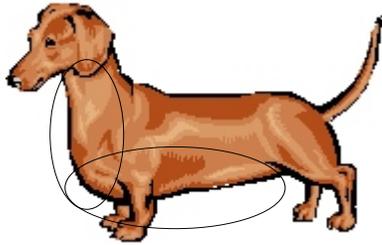
### Treatment:

Pyoderma: Long-term, high dose antibiotics (3-4 weeks)  
Demodex: Ivermectin or milbemycin (+/- Mitaban) - until 2 negative skin scrapes  
Dermatophyte: Lym Dyp, Systemic antifungals - until negative cultures

### Tips for Success:

Pyoderma almost always complicate every case - assume its present.  
Consider using antibiotics for several months while you find and treat the primary diseases.  
Allergies and endocrinopathies are the most common primary/underlying diseases.

## Yeast Dermatitis



### Key Features:

- \* Alopecia, lichenification, and hyperpigmentation (elephant skin) of the ventral neck, axilla, ventrum, toes.
- \* Severe pruritus that is not responsive to symptomatic therapy.



### Differential Diagnoses:

Chronic dermatitis can cause lichenification but if the lesions are ventral be sure to rule out Malassezia

“Elephant skin”

### Diagnosis:

Clinical signs are almost pathognomonic  
Cytology: Malassezia (can be hard to find)  
Fungal culture: Malassezia

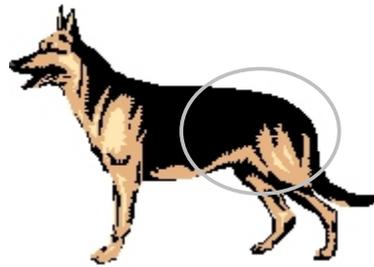
### Treatment:

Topicals: miconazole, ketoconazole, chlorhexidine: Malaseb, Ketochlor  
Systemic: Ketoconazole, itraconazole

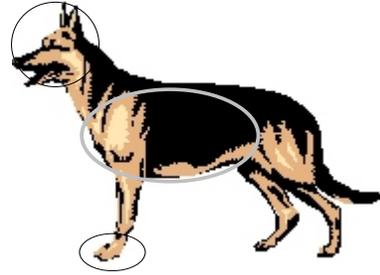
### Tips for Success:

Patients are intensely pruritic and do not respond to steroids.  
Malassezia infections are always secondary - find the primary disease.  
Can see miraculous response to systemic antifungals within 30 days.

## Pruritus



Flea Allergy Dermatitis



Atopy/Food Allergy/Scabies

### Key Features:

- \* Oh So Common
- \* Any infection can be pruritic: especially pyoderma
- \* Flea allergy = lumbar dermatitis.
- \* Face, feet, axilla, flanks = atopy, food allergy, or scabies

### Differential Diagnoses:

- Atopy, food allergy , and scabies (can look exactly alike)
- Pruritic secondary infections (pyoderma/Malassezia)
- Parasites: fleas, mites, hookworm dermatitis, flies, etc
- Contact dermatitis: extremely rare
- Cutaneous lymphoma (Mycosis Fungoides)

### Diagnosis:

- Rule out secondary infections (skin scrape, cytology, DTM fungal culture)
- Treat any mites (scabies, Cheyletiella, chiggers)
- Dietary food trial: 10 weeks
- Allergy testing

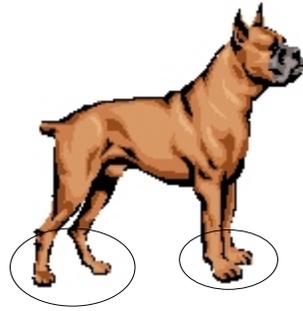
### Treatment:

- Reduce exposure to offending allergens
- Treat secondary pyoderma, otitis externa, and Malassezia dermatitis with appropriate therapies.
- Flea control program to stop fleas from aggravating the pruritus.
- Topical therapy, antihistamines, essential fatty acid supplements, glucocorticoids, and/or immunotherapy.
- When nothing else works: Cyclosporine (Neoral) 5 mg/kg tapered to the lowest dose/frequency that controls clinical signs.

### Tips for Success:

- Consider treating with antibiotics until the primary disease is found.
- There only a few potentials: atopy/food allergy/scabies with secondary infections.
- If you seem to run out of options; start over >>>  
pyoderma/yeast/atopy/food/scabies ...

## Pododermatitis



### Key Features:

- \* Pruritus, swelling, bulla, draining tracts: usually interdigital.
- \* Most often secondary to allergies (food, atopy, contact).
- \* Almost always responsive to antibiotics: but relapses.
- \* Short coated dogs have a mechanically induced syndrome.
- \* Autoimmune diseases usually present with crusted or ulcerated foot pads.

### Differential Diagnoses:

- Interdigital: Demodicosis, foreign bodies, parasites, contact, bacterial/fungal infections, neoplasia
- Footpad lesions: autoimmune skin disease, zinc responsive dermatoses, hepatocutaneous syndrome

### Diagnosis:

- Rule out secondary infections (skin scrape, cytology, DTM fungal culture)
- Cytology: acantholytic cells, tumor cells
- Culture: bacterial/fungal
- Biopsy if severe or ruling out autoimmune disease, neoplasia, or demodicosis
- Workup for allergies and endocrinopathies

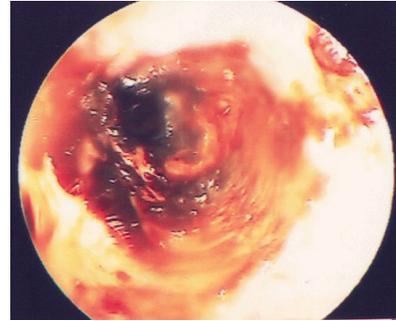
### Treatment:

- Treat primary etiology (food allergy, hypothyroidism, demodicosis, etc)
- Keep the environment dry and clean: moisture seems to perpetuate symptoms
- Topicals: Antimicrobial washes or soaks: Epsom salt soaks
- Mupirocin ointment (Bactoderm)
- Systemics: Antibiotics based on culture (long-term; maybe as maintenance)
- Antiinflammatory steroids
- Surgery: remove foreign body, fusion podoplasty

### Tips for Success:

- If the primary/underlying disease can be identified the prognosis is good.
- For non-curable cases: consider pulse antibiotics or surgery.

## Otitis



### Key Features:

- \* The infection is always secondary.
- \* Look for food allergy, atopy, polyps, endocrinopathies, foreign bodies.

### Differential Diagnoses:

Ear pinnae lesions: scabies, autoimmune skin disease, ear margin seborrhea, vasculitis, fly bite dermatitis.

### Diagnosis:

Otoscopy (under sedation): evaluate the canal and tympanic membrane

Cytology: bacteria, yeast

Culture: especially for chronic/resistant cases

Radiology: helps determine prognosis (calcification/osteomyelitis)

Biopsy any mass

### Treatment:

Find and treat the primary/underlying disease.

Flush the exudate out often. Avoid mechanical trauma during cleaning.

Treat the infections based on cultures: usually 30 days of aggressive therapy.

Once resolved, continue a maintenance treatment protocol every 3-7 days.

### Tips for Success:

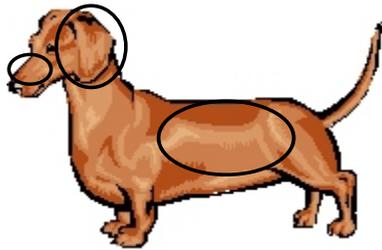
If you can not find the primary disease, consider a TECA.

If the ears are calcified, consider a TECA

For pseudomonas, use frequent topical antibiotics (systemics likely do not reach high enough drug levels in the tissue and resistance is promoted).

Think of severe otitis as controllable - not curable.

## Nonpruritic Alopecia



### Key Features:

- \* Alopecia on the nose, ear pinnae, or trunk.
- \* Always rule out folliculitis.
- \* Hypothyroidism or Cushing's are the most common etiologies.
- \* Many "follicular dysplasias" are reported but exact mechanisms are generally unknown: *Alopecia X, sex hormone alopecia, castration responsive alopecia, recurrent flank alopecia, pattern baldness, color alopecias, anagen/telogen defluxion, bald thigh syndrome, injection reactions*

### Differential Diagnoses:

- Folliculitis (pyoderma, demodicosis, dermatophyte)
- Paraneoplastic alopecia: aggressive carcinomas

### Diagnosis:

- Rule out folliculitis (skin scrape, cytology, DTM fungal culture)
- Big dogs: Free T4 (by eq dialysis), TSH, LDDST, ACTH stim, biopsy
- Small dogs: LDDST, ACTH stim, free T4 (by eq dialysis), TSH, biopsy

### Treatment:

- Hypothyroidism: supplement bid
- Cushing's: Lysodren
- Dysplasias: neuter, melatonin, Anypril, Lysodren

### Tips for Success:

- There are only a few disease options that are truly treatable.
- If it is not hypothyroidism or Cushing's then what's left over are "dysplasias".
- Rule out hypothyroidism or Cushing's then biopsy, neuter, or treat with melatonin.

## Lumps, Bumps, and Draining Tracts



### Key Features:

- \* Consider infection (bacterial/fungal), neoplasia, or immune mediated causes.
- \* Generally, old dogs get neoplasia and young dogs have infections.
- \* Drainage or pyogranulomatous inflammation equals infection: but it could be secondary.

### Differential Diagnoses:

- Severe folliculitis or furunculosis
- Infectious, neoplasia, immune mediated

### Diagnosis:

- Rule out secondary infections (skin scrape, cytology, DTM fungal culture)
- Cytology: bacteria, fungus, or tumor cells
- Culture: bacterial/fungal
- Biopsy:
- Systemic workup for deep fungal infections or neoplasia

### Treatment:

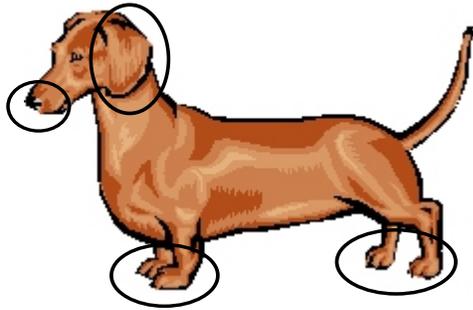
- Based on diagnosis

### Tips for Success:

- Wear gloves unless you want sporotrichosis.
- Sterile panniculitis and granuloma complex is a pyogranulomatous immune mediated disease that will have negative cultures.



## Autoimmune Skin Disease



### Key Features:

- \* Crusts, ulcers, and scars on the non-haired nose, ear pinnae, and foot pads.
- \* Pemphigus foliaceus is most common followed by DLE.
- \* Oral lesions are associated with SLE, Pem. vulgaris, or Bullous pemphigoid.
- \* Acantholytic cells and acantholysis are associated with pemphigus.

### Differential Diagnoses:

Autoimmune: Pemphigus complex (foliaceus, vulgaris, erythematosus, paraneoplastic), Lupus erythematosus (Discoid or Systemic), Bullous pemphigoid

Look alikes; Folliculitis, hepatocutaneous syndrome, Zinc responsive dermatosis, vasculitis, drug reactions, cutaneous lymphoma (Mycosis fungoides).

### Diagnosis:

Rule out secondary infections (skin scrape, cytology, DTM fungal culture)

Cytology: acantholytic cells = pemphigus (confirm with biopsy)

Biopsy

### Treatment:

Treat any secondary infections: pyoderma, demodicosis, dermatophyte

Topicals: Antimicrobial/antiseborrheic shampoo to remove the crusts and prevent infection.

Systemics Immune modulators:

Conservative Therapy: Tetracycline or doxycycline/niacinamide

Topicals: Synotic or tacrolimus (Protopic<sup>R</sup>)

Essential fatty acids / Vit. E

Aggressive Therapy: Immunosuppressive steroids

Azathioprine

Cyclosporine

Gold Salts

### Tips for Success:

These disease are rarely fatal but 1 year survival is only 40%.

Most dogs are euthanized due to lack of response or adverse drug effects.

Long-term antibiotics may increase survival.

## Keratinization Defects



Follicular Casts

### Key Features:

- \* Can be generalized or focal.
- \* Secondary seborrhea is most common; therefore look for the primary disease.
- \* True keratinization defects are rare:
  - Idiopathic seborrhea, sebaceous adenitis, ichthyosis, epidermal dysplasia, Schnauzer comedo syndrome

### Differential Diagnoses:

Folliculitis, autoimmune skin disease, zinc responsive dermatosis  
Other causes of secondary seborrhea (endocrine, allergies, infections, nutrition)

### Diagnosis:

Rule out folliculitis (skin scrape, cytology, DTM fungal culture).  
Rule out endocrinopathies, and allergies.  
Trichogram: follicular casts are almost pathognomonic for keratinization defects.  
Biopsy

### Treatment:

Topical antiseborrheic/antimicrobial shampoo to remove the crust and scale  
Essential fatty acids  
Vitamin A  
Isotretinoin, acitretin  
Zinc

### Tips for Success:

Primary keratinization defects are incurable diseases requiring long-term treatments so find a protocol that works for the owner and patient.

## Weirdopathies



AV Shunt and Ehrlichia positive

### Key Features:

- \* Any dermatitis that does not fit an expected disease or pattern.

### Differential Diagnoses:

Usually an odd variation of a more common disease.

### Diagnosis:

- Rule out folliculitis (skin scrape, cytology, DTM fungal culture)
- Culture; bacterial and fungal
- Biopsy: gets the most information in the shortest amount of time.