Morphology of skin lesions

สพ.ณ.ลาวัลย์ หล้าสุพร
Dermatologic diagnosis

Morphologic of skin lesions + History
Lesion type

**Primary lesions**
- Present depending upon the underlying etiology.
- May appear quickly and then disappear rapidly.
- Later: regression, degeneration, or traumatization, it change in form a secondary lesion.

**Secondary lesions**
- Evolve from primary lesions
- Induced by the patient or by external factors such as trauma and medications.

### PRIMARY LESIONS
- Macule or patch
- Papule or plaque
- Pustule
- Vesicle or bulla
- Wheal
- Nodule
- Cyst

### LESIONS THAT MAY BE PRIMARY OR SECONDARY
- Alopecia
- Scale
- Crust
- Follicular casts
- Comedo
- Pigmentary abnormalities

### SECONDARY LESIONS
- Epidermal collarette
- Scar
- Excoriation
- Erosion
- Ulcer
Primary lesion

**Macule**: a circumscribed, nonpalpable spot **less than** 1 cm in diameter and characterized by a change in skin color.

**Patch**: a macule **larger than** 1 cm.

**Differential Diagnoses**

**Depigmentation**: vitiligo, discoid lupus erythematosus, uveodermatologic syndrome, mucocutaneous pyoderma

**Hyperpigmentation**: lentigo, pigmented nevi, postinflammatory

**Erythema**: inflammation

**Hemorrhage**: trauma, vasculitis, vasculopathy, coagulopathy
**Vitiligo** in a rottweiler. Note nasal and eyelid depigmentation

**Lentigo** in an orange cat with macular melanosis of the lips

**Discoid lupus erythematosus** (DLE), an immune-mediated skin disease, restricted to the nose and muzzle. Loss of pigment, erosions, and scabs are common findings.
Pustule: a small, circumscribed elevation of the epidermis that is filled with pus.

Differential Diagnoses

Most commonly, pustules contain neutrophils and infectious in origin.

Eosinophils:
Parasitic or allergy, sterile (subcorneal pustular dermatosis, pemphigus foliaceus, eosinophilic pustulosis).

Larger flaccid pustules:
Cushing or iatrogenic Cushing disease, immune-suppressed cases, or pemphigus foliaceus.

Larger green pustules:
Gram-negative infections or marked toxic changes (impetigo)
Pemphigus foliaceus

A large, flaccid non-follicular pustule in a Yorkshire terrier with hyperadrenocorticism
**Primary lesion**

**Papule**: a small, solid elevation of the skin <1 cm in diameter that can be palpated as a solid mass. Pink or red swellings produced by tissue infiltration of inflammatory cells.

**Plaque**: a larger flat-topped elevation formed by extension or coalition of papules.

**Differential Diagnoses**

- Common cause of papules
  Superficial bacterial folliculitis.
- May not involve hair follicles
  Scabies and flea bite hypersensitivity
- Allergic reaction, reaction to ectoparasites, early stage of bacterial infection, immunemediated disease, drug eruption
**Vesicle**: Sharply circumscribed elevation of epidermis filled with clear fluid, < 1 cm diameter, intraepidermal or subepidermal

**Bulla**: > 1 cm diameter

**Differential Diagnoses**

- Rarely seen in dogs and cats because they are fragile and rupture easily
- Viral, immune-mediated diseases irritants
Primary lesion

**Wheal**: a sharply circumscribed, raised lesion consisting of edema that usually appears and disappears within minutes or hours.

**Differential Diagnoses**

- Associated with allergic reactions or trauma
- Urticaria, insect bites, and positive reactions to allergy skin tests
Intradermal skin test
Nodule: a circumscribed solid elevation greater than 1 cm usually extends into deeper layers (dermis or subcutis).

Differential Diagnoses

- Usually result from massive infiltration of inflammatory or neoplastic extending into dermis or subcutis.
- Deposition of fibrin or crystalline also produces nodules.
- Cellular infiltrates, neoplastic, granulomatous (bacterial or fungal), xanthomas and calcinosis cutis.
Primary lesion

**Cyst**: Epithelium-lined cavity containing fluid or a solid material. It is a smooth, well-circumscribed, fluctuant to solid mass.

**Differential Diagnoses**

- Usually originate from hair follicles or other adnexal structures.
Primary or Secondary

**Alopecia:** loss of hair and may vary from partial to complete. Damage to hairs or hair follicles, abnormal hair growth

**Differential Diagnoses**

**Primary:** endocrine diseases (hypothyroidism, hypercortisolism), follicular dysplasia, telogen effluvium, anagen defluxion

**Secondary:** pruritus, bacterial folliculitis, dermatophytosis, demodicosis
Loss of hair

**Alopecia**: loss of hair in any amount up to complete baldness.
- **Focal** – a single, small patch of alopecia.
- **Multi-focal** – multiple, small, circular patches of alopecia giving the coat a moth-eaten appearance.
- **Regional** – alopecia affecting a region of the body such as one leg

**Hypotrichosis**: less than the normal amount of hair

**Defluxion / effluvium**: a sudden, widespread loss of hair

**Easy epilation**: the ability to easily remove excessive hair during physical examination. This implies that many hairs are in the resting (telogen) phase. This can be physiological (due to shedding) or pathological.
**Telogen effluvium** with thinning alopecia on lateral thorax and flank regions

**Telogen** hairs are characterized by a uniform shaft diameter, nonpigmented root end that lacks root sheaths
Primary or Secondary

Scale: loose fragments of horny layer (cornified cells)
- Branny, fine, powdery, flaky, platelike, greasy, dry, loose, adhering
- Color varies from white, silver, yellow, or brown to gray.

Differential Diagnoses

Primary lesions: primary idiopathic seborrhea, ichthyosis, follicular dysplasia
Secondary: chronic inflammation
Primary or Secondary

**Crust:** exudate, serum, pus, blood, cells, scales, or medications adhere

**Differential Diagnoses**

**Primary:** primary seborrhea, superficial necrolytic dermatitis, zinc responsive dermatosis

**Secondary:** pyoderma, fly strike, or pruritus
Superficial necrolytic dermatitis

Zinc responsive dermatosis
Follicular casts: accumulation of keratin and follicular material that adheres to hair shaft extending above surface of follicular ostia

Differential Diagnoses

**Primary lesion:** vitamin A–responsive dermatoses, primary seborrhea, and sebaceous adenitis

**Secondary lesions** demodicosis and dermatophytosis
**Primary or Secondary**

**Comedo**: dilated hair follicle filled with cornified cells and sebaceous material

**Differential Diagnoses**

**Primary**: feline acne, vitamin A–responsive dermatosis, Schnauzer comedo syndrome, endocrine, congenital hypotrichosis (e.g. Chinese crested dogs) and idiopathic seborrhea disorders.

**Secondary**: demodicosis, dermatophytosis
Secondary lesions

**Epidermal collarette**: scale arranged in a circular rim of loose keratin flakes or peeling keratin

- Represents remnants of roof of a vesicle, bulla, pustule or papule caused by a point source of inflammation.

**Differential Diagnoses**

- Bacterial pyoderma, immunemediated
- Less often fungal, insect-bite reactions, or allergic diseases
**Scar**: Area of fibrous tissue that has replaced damaged dermis or subcutaneous tissue
- Most scars in dogs and cats are alopecic, atrophic, and depigmented.

**Differential Diagnoses**

Prior trauma or skin lesions  
(Severe burns and in deep pyoderma)
Secondary lesions

**Excoriation:** erosion or ulcer caused by scratching, biting or rubbing
- Self-produced and result from pruritus
- Secondary bacterial infection

**Differential Diagnoses**
Ectoparasites, allergies, irritants, and other causes of pruritus
Secondary lesions

**Erosion**: shallow epidermal defect that does not penetrate basal laminar

**Differential Diagnoses**

- Results from epidermal diseases and self-inflicted trauma
- Ectoparasites, allergies, and other causes of pruritus, immune-mediated diseases, trauma
Ulcer: a break in continuity of epidermis with exposure of underlying dermis.
- A scar is often left after an ulcer heals.

Differential Diagnoses
Feline indolent ulcer, severe deep pyoderma, vasculitis, immune-mediated diseases, necrolytic diseases
**Indolent ulcers** in a cat with flea allergy dermatitis.
Secondary Lesions

Fissure: Linear cleavage into epidermis or through epidermis into the dermis.
- Occur when skin is thick and inelastic and then subjected to sudden swelling from inflammation or trauma.
- The regions of frequent movement: ear margins, ocular, nasal, oral and anal mucocutaneous borders

Differential Diagnoses

Chronic skin diseases, canine distemper, zinc-responsive dermatoses other keratinization disorders
Lichenification: thickening and hardening of skin characterized by exaggeration of superficial skin (often hyperpigmented).

Differential Diagnoses

- Response to chronic friction or inflammation
- Crusted lichenified plaques: Bacterial and malassezia
Secondary lesions

Callus: thickened, rough, hyperkeratotic, alopecic, lichenified plaque
- Develop in skin exposed to pressure and chronic low-grade friction, as in areas over bony prominences
- Elbows, hocks, hips, and sternum are commonly affected areas.
The distribution of lesions

**Symmetrical lesions (A)**

*Internal cause:*
allergy, endocrine, metabolic, immune-mediated disease

**Asymmetrical lesions (B)**

*External environmental causes:*
infections, ectoparasites, fungi, contact allergens
Focal

Multifocal & asymmetrical

Multifocal & symmetrical
Diagram for recording the type and distribution of skin lesions

- Periocular erythema
- Dorsal scaling
- Ventral and dorsal interdigital erythema
- Papular eruption
Configuration of skin lesions.

- Annular
- Single
- Polycyclic
- Grouped
- Serpiginous
- Linear
- Arciform
- Iris (central healing)
# Dermatology

## Distribution of Lesions

<table>
<thead>
<tr>
<th>Primary Lesions (Check)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macule</td>
</tr>
<tr>
<td>Papule</td>
</tr>
<tr>
<td>Pustule</td>
</tr>
<tr>
<td>Abscess</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Secondary Lesions (Check)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale</td>
</tr>
<tr>
<td>Erosion</td>
</tr>
<tr>
<td>Excoriation</td>
</tr>
<tr>
<td>Hyperpigmentation</td>
</tr>
<tr>
<td>Hyperkeratosis</td>
</tr>
<tr>
<td>Sinus</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Skin Changes (Check)</th>
<th>Other Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>Pinnal-pedal reflex</td>
</tr>
<tr>
<td>Thick</td>
<td>Lymph nodes</td>
</tr>
<tr>
<td>Thin</td>
<td>Ears L</td>
</tr>
<tr>
<td>Fragile</td>
<td>R</td>
</tr>
<tr>
<td>Hypotonic</td>
<td>Oral</td>
</tr>
<tr>
<td>Hyperextensible</td>
<td>Anogenital</td>
</tr>
<tr>
<td>Increased laxity</td>
<td>Footpads</td>
</tr>
<tr>
<td>Hair coat changes (Check)</td>
<td></td>
</tr>
<tr>
<td>Alopecia</td>
<td>Claws</td>
</tr>
<tr>
<td>Hypotrichosis</td>
<td>Other:</td>
</tr>
<tr>
<td>Hypertrichosis</td>
<td></td>
</tr>
<tr>
<td>Dry coat</td>
<td></td>
</tr>
<tr>
<td>Brittle coat</td>
<td></td>
</tr>
<tr>
<td>Oily coat</td>
<td></td>
</tr>
<tr>
<td>Easy epilation: Primary hairs</td>
<td>Secondary hairs</td>
</tr>
<tr>
<td>Both</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Configuration of Lesions (Check)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear</td>
</tr>
<tr>
<td>Follicular</td>
</tr>
<tr>
<td>Grouped</td>
</tr>
<tr>
<td>Annular</td>
</tr>
<tr>
<td>Other:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cutaneous Pain (Check)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absent</td>
</tr>
<tr>
<td>Mild</td>
</tr>
<tr>
<td>Moderate</td>
</tr>
<tr>
<td>Severe</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parasites (Check)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fleas</td>
</tr>
<tr>
<td>Flea dirt</td>
</tr>
<tr>
<td>Lice</td>
</tr>
<tr>
<td>Ticks</td>
</tr>
<tr>
<td>Ear mites</td>
</tr>
<tr>
<td>Other:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Diagnosis/Differential</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Laboratory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scrape</td>
</tr>
<tr>
<td>Scotch tape</td>
</tr>
<tr>
<td>Fungal culture</td>
</tr>
<tr>
<td>Wood's light</td>
</tr>
<tr>
<td>Hair examination</td>
</tr>
<tr>
<td>Cytology:</td>
</tr>
<tr>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
</tr>
<tr>
<td>4.</td>
</tr>
</tbody>
</table>


THANK YOU