DERMATOLOGY

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Type of Skin Lesions

I. primary lesions:
primary lesions...

**Macule:**
- flat circumscribed impalpable area of color change level with the skin surface (1cm), as in Arabian fading syndrome
primary lesions...

Patch:

a macule more than 1 cm, the depigmentation of the muzzle of this horse shows white patches and black macules within patches
primary lesions...

- **Papule**: a circumscribed, palpable solid usually round mass in the skin, less than 1 cm. Slight erythema may show in non-pigmented skin; heavily pigmented skin may not show any color change. It can be associated with pruritus caused by insect bites
primary lesions...

Plaque:

a solid, elevated, flat-topped lesion, more than 1cm. They may be irregular in shape but are often circular. They are related to allergic reactions from drugs or feed.
**primary lesions…**

**Nodule:**

a circumscribed, solid, usually round mass, usually raised and rounded more than 1cm. Nodules have the same origins as papules but increased size due to more severe reaction.
**primary lesions...**

- **Vesicle:**
  a circumscribed, elevated, fluctuant fluid filled lesion containing serum, (1cm). Due to the thin layer of skin covering both vesicles and bullae, they often rupture, leaving a reddish eroded surface.

primary lesions...

- **Bulla:**
  a vesicle more than 1 cm. They can be epidermal or subepidermal. They often rupture, leaving a reddish eroded surface, therefore rarely seen intact.
primary lesions...

Pustule:

A vesicle filled with pus (inflammatory cells). These lesions are seen in staph. and strept. Skin infections and later stages of Equine Coital Exanthema. These are pustules due to ECE on a stallion’s penis.
primary lesions...

- **Wheal** (urticaria, hive): a circumscribed, semisolid, raised, round or flat-topped lesion of varying size from 2-3 mm up to 10-12 cm. They are usually associated with edema of the area.
Wheals - Equine back from stable fly bites
Type of Skin Lesions

II. Secondary lesions
Secondary lesions...

**Scale:**

an accumulation of loose fragments of stratum corneum. May be white or discolored by secretion of sebum or blood breakdown products.

Thicker and more adherent scale
Secondary lesions...

- **Hyperkeratosis**: localized, multifocal or generalized accumulation of adherent keratinaceous material.
Secondary lesions...

- **Crust** (scab): a dried, solid, adherent consolidation of varying combinations of serum, blood, pus, cutaneous debris, and microorganisms. It may or may not be infected.
Secondary lesions...

**Erosion**: loss of epidermis to varying depths, but not penetrating the basement membrane. Does not result in scarring.
Secondary lesions...

**Ulcer**: loss of tissue that breaches basement membrane and the dermis, if healing occurs, it results in scar formation.
Secondary lesions...

- **Epidermal collarette:**
circular rim of peeling epidermis surrounding a recent erosion or ulcer.
Secondary lesions…

- **Lichenification:** thickened skin that is hard, with exaggeration of normal lines and markings. It occurs as a result of chronic inflammation and is due to repeated rubbing or biting at areas affected by pruritus.
Secondary lesions...

- Lichenification
- Chronic
Secondary lesions...

**Excoriation**: Superficial traumatic abrasions and scratches which remove some of the skin substances, commonly caused in animals by rubbing or scratching pruritic skin.
**Secondary lesions...**

- **Fissure**: the skin may split due to drying out and loss of elasticity. The split area often bleeds if forceably moved as is seen here in a *Dermatophilus* infection of the nose.
Secondary lesions...

- Alopecia (hypotricosis): complete absence or loss of hair where it normally occurs. This illustration shows a horse’s neck with alopecia due to Dermatophilus infection causing loss of hair.
Secondary lesions...

- **Hyperpigmentation:**
  develops due to increased melanin in the epidermis and/or the dermis. This can be a natural change.
Secondary lesions…

- Hypopigmentation:
Secondary lesions…

**Comedo**: plugged hair follicle by keratin and sebum, either black or white. Found in feline and canine (Schnauzer Comedo Syndrome) the causes are unknown, but believed to be an inherited disorder of Keratinization.
Secondary lesions...

- Hypotrichosis Changes in quality of hair coat.
Secondary lesions...

- Hypertrichosis
  Increase of hair coat.
Secondary lesions...

Hypertrichosis:

Hypertrichosis due to hyperadrenallism in a pony with a hypophyseal tumor
DISEASES OF EPIDERMIS AND DERMIS
1-Pityriasis (dandruff)

Presence of bran – like scales on the skin surface.

Etiology

- Infectious agent
  - ring worm.
- Parasitic
  - flea, louse, mange.

Dietary

- Hypovitaminosis-A
- Poisoning by Iodine
- Vitamin B deficiency
- Deficiency of fatty acids especially linolenic.
Clinical findings

Primary Pityriasis:
- scales accumulate in the area where the coat is long
Clinical findings

Secondary Pityriasis

- associated with lesions of primary disease.
Clinic pathology: skin scraping.

D. Diagnosis:
- Hyperkeratosis.
- Parakeratosis.

Treatment:
- Correction of primary cause.
- Thorough washing followed by alcoholic lotion, salicylic acid with lanolin base.
2-Parakeratosis

Keratinization of the epithelial cell is incomplete.

Etiology
- Deficiency of zinc
- Adema disease in cattle
- Chronic inflammation of cellular epidermis.
Parakeratosis

- Zinc deficiency

![Image of skin condition](image.png)
Parakeratosis

Clinical Finding
- Lesions confined to flexor aspect of joint
- Reddening
- Thickening of skin gray coloration
- Lesions (Crack & fissure).

Clinical pathology:
- Biopsy or skin section.

D. Diagnosis
- Keratinization.
Treatment
- Correction of the deficiency
- Remove of abnormal tissue by (salicylic acid ointment) then application of astringent preparation (white lotion paste).
3-Hyperkeratosis

- excessive keratinized epithelial cells accumulate on the surface of skin.
3-Hyperkeratosis

**Etiology**
- Chronic arsenic poisoning
- Poisoning with highly chlorinated naphthalene compounds
- Inherited (fish – scale disease) of cattle.

**Clinical findings**
- Skin is thick & is corrugated & hairless
- Fissures, scaly appearance
- Secondary infection of the fissures if the area is wet.
Clinical pathology: biopsy section to histopathology

D. Diagnosis
Parakeratosis

Treatment
Salicylic acid ointment.
4-Pachyderma

Thickening of the skin affecting all layers (subcutaneous tissue is involved).

**Etiology:**
Chronic or recurrent inflammation of the skin.

**Clinical findings:**
Thin or no hair coat, the skin is thicker & tight.
D. Diagnosis
No superficial skin lesions & no cell depeires so the condition is differentiated from other conditions.

Treatment
- Cortisone preparations locally
- Surgical removal of small areas.
5-Impetigo

- Superficial eruption of thin walled, usually small, vesicles surrounded by a zone of erythema.
Impetigo….

Etiology
the main organism is staphylococcus.

Clinical findings:
- vesicles (3-6 mm), in early stages zone of erythema.
- vesicles may persist and become pastule.
- involvement of hair follicles acne.

Clinical pathology:
vesicular fluid culture.

D. Diagnosis
Cow pox and pseudo pox.

Treatment
- prevent the occurrence of new lesions
- twice bathing with germicidal skin wash daily.
Urticaria

allergic condition
characterized by the
appearance of wheals on
the skin surface common in
horses.
Urticaria

Conventional wheals lesions are 2-3 mm up to 3-5 cm in diameter
Urticaria

- Multiple giant wheals up to 20-30 mm diameter
Urticaria

- Papular wheals, multiple, small uniform 3-6 mm diameter wheals
Urticaria

- Annular wheals. Doughnut-like lesions with regular or irregular ring of edema surrounding a depressed, non or less oedematous centre.
Urticaria
Urticaria Etiology...

Primary
- Insect stings
- Ingestion of unusual food
- Drugs as penicillin, milk allergy.

Secondary
- Respiratory tract infection (strangles, viral infection).
Urticaria....

Clinical findings
- Tense elevated with flat top lesions (0.5-5 cm)
- Color changes in un-pigmented skin
- No exudation or weeping.

Clinical pathology:
- Biopsies, tissue histamine and eosinophils.

Treatment
- Antihistamine
- Change of diet
- Mild purgative
- White lotion.
7-Dermatitis

Conditions characterized by inflammation of dermis & epidermis.
Etiology
*Cattle:

1. Udder impetigo
   *(Staph. aureus).*
Etiology
Cattle: Cowpox
Etiology

*Cattle Ulcerative mastitis.*
Etiology

*Cattle:

- Lumpy skin disease.
Etiology
*Cattle:

- F.M.D
Etiology
*Cattle:

- Rinderpest
MCF
Etiology Sheep, Goat

1. Strawberry Foot rot
Etiology Sheep, Goat

Etiology Sheep, Goat
Contagious ecthyma.
Etiology Sheep, Goat
F.M.D
Etiology Sheep, Goat
PPR
Dermatitis Etiology Horse...

1. *Staphylococcal dermatitis* (Saddle rash) due to *Staph. aurous.* The affected area of the saddle was extremely painful to touch.

2. *Staph. byicus*

3. *Actinomyces viscosum*
Viral papular dermatitis lesions on the scrotum of a stallion
Horse pox: Typical ulcerative, vesicular and scabby lesions of horse pox on the lips and nasal margin.
Dermatitis

Dermatophytes:

Dermatophytosis - early annular lesions - equine gluteal region
Dermatitis

- Dermatophytosis - bovine face - annular alopecia (white rings)
Clinical Finding
- Erythema & increased warmth.
- Discrete vesicular lesion, diffuse weeping.
- Edema, scab formation.
- Diffuse cellulites or phlegmonous.

Treatment
- Removal of the stimulus.
- Identification of etiological agent:
  Bacterial culture & Sensitivity.
- Local + Systematic treatment together.
- Anti histamine in allergic states.
- Anesthetic when pain or itching.
8-Photosensitization

- Sensitization of the superficial layers of lightly pigmented skin, mucosa & cornea to light.
Photosensitization affecting the white facial stripe and the white digits in a mare with liver failure. The foot lesions affect the lateral aspects far more than the medial.
Photosensitization

Severe photosensitization affecting the white areas of the skin. Notice the sharp cut-off of the severe dermatitis at the margins of the white areas.
Photosensitization
Etiology

I. Primary photosensitization due to ingestion of exogenous photodynamic agent usually occurs when plant is in the lush green stage & is growing rapidly & the plant must be eaten in large amount.

II. Photosensitization due to aberrant pigments synthesis: Congenital prophyria excessive production of body prophyrins.
III. Hepatogenous Photosensitization

normally:
Chlorophyll by metabolism $\Rightarrow$ phylloerythrin (end product) $\Rightarrow$ which is excreted in bile.

If bile excretion is obstructed, phylloerythrin accumulate in the body increase in the skin, that lead to $\Rightarrow$ skin is sensitive to light.

IV. Photosensitization of uncertain etiology
Clinical findings
- Erythema → edema → weeping → gangrene.
- Distributed in non pigmented skin.
- Irritation, rubs of affected part.

Clinical pathology: no, field test for sensitivity

Treatment
- Removal from direct sun light.
- Prevention of ingestion of further toxic materials.
- Antihistamine.