



Lecture title: Pathology of cutaneous system

Lecturer Affiliation: Department of Pathology and poultry diseases

Summary: this section of pathology will highlight the pathological changes and lesions of skin in farm animals and pits .

ALLERGIC DERMATITIS

This is the inflammation of skin sensitized to certain substances, known as allergens. Such inflammation can be seen as a result of delayed type hypersensitivity (DTH) reaction.

Etiology

- Chemicals (DNCB/ DNFB).
- Soaps, detergents, organic chemicals
- Parasites- fleas

Macroscopic and microscopic features

- Hyperemia, Erythema
- Edematous/ nodular swelling, hard to touch.
- Atopy with vesicular rash, pruritus, serous exudate.
- Infiltration of eosinophils and mononuclear cells, macrophages, lymphocytes.
- Hyperemia, Edema, necrosis

GANGRENOUS DERMATITIS

Gangrenous dermatitis is the inflammation of skin along with formation of gangrene caused by fungal toxins and characterized by sloughing of skin, dry gangrene with break in epidermis.

Etiology

- *Fusarium* sp. toxins
- Rice straw feeding- Degnala disease

Macroscopic and microscopic features

- Presence of gangrenous inflammation on extremities such



as legs, udder, ears, tail, scrotum.

- Sloughing of skin leaving raw surface.
- Sloughing of hoofs with haemorrhage
- Inflammation of skin and invasion by saprophytes causing dissolution of cells/ tissue
- Infiltration of mononuclear cells at the periphery of the lesion.

EQUINE CUTANEOUS GRANULOMA

There is development of chronic, ulcerated and bloody granuloma on limb of horses due to wire cuts or other cutaneous injury.

Etiology

- Skin cuts/ injury
- Habronemiasis
- Phycomycosis
- *Hyphomyces destruens*
- *Entomorphthora coronata*

Macroscopic and microscopic features

- Granulation tissue in wound.
- Presence of yellowish/ white specks.
- Summer sores/ Bursatti.
- Tissue composed of newly formed fibrous tissue, with large number of capillaries, infiltration of eosinophils
- Presence of necrotic masses stains deep red with H&E
- Presence of helminths in section- cutaneous habronemiasis
- Presence of septate hyphae of fungus

MISCELLANEOUS LESIONS OF SKIN

Papule: Focal Hyperplasia of stratum spinosum epithelium leading to hard nodular eruption on skin.

Vesicle: A cavity in epidermis containing fluid and covered by a thin layer of epidermis elevated from the surface.

Pustule: A vesicle filled with pus.



Acanthosis: Thickening of epidermis due to hyperplasia of stratum spinosum/ prickle cell layer.

Hyperkeratosis: Thickening of keratin layer stratum corneum.

Parakeratosis: The retention of nucleus in keratin layer.

Bulla/bleb: Cavitations in epidermis filled with fluid and larger than vesicle.

Erosionf Excoriation: Superficial loss of epithelium.

Fissure: Linear defect in epidermis, which may be crusted at mucocutaneous junctions.

Abscess: A circumscribed cavity filled with pus.

Ulcer: A break in the continuity of the epidermis exposing dermis.

Urticaria: A circumscribed area of swelling/ oedema involving Dermis

Folliculitis: Inflammation of hair follicles.

Acne: Enlargement of sealed off hair follicles or sebaceous glands and rupture through the epidermis. It leaves a rounded hole in the epidermis and a canal down to the dermis.

Eczema: Eczema is a form of allergic dermatitis of obscure etiology and characterized by erythema, vesicular rash, serous exudate and pruritus.