University of Mosul
Lecture No.: 22
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Date:
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Website:

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 .

DEVELOPMENTAL ANOMALIES

Congenital icthyosis :

Congenital icthyosis is scaly epidermis which resembles with skin of fish . This condition is characterized by scaly, horny, thick epidermis divided into plates by deep fissures. Microscopically, there is thick keratin layer over the epidermis.

Epitheliogenesis imperfecta :

Epitheliogenesis imperfecta is a congenital defect characterized by discontinuity of epithelium on skin leaving patches without squamous epithelium mostly at feet, claws and oral mucosa. Such defect may occur in calves or foals which may have infection after birth or such foetus may abort.

Congenital alopecia

Alopecia or hairlessness on the skin with complete lack of hair follicles has been observed in dog and other animals. Such hair less sites may follow a regular pattern or occurs in patches. This is a hereditary defect recognized in certain breeds.

Congenital albinism

Albinism is absence of melanin pigmentation due to deficiency of tyrosinase. This congenital abnormality is encountered sporadically . The melanocytes are present but there is lack of melanin synthesis due to tyrosinase deficiency.

Congenital cutaneous asthenia

The collagen fibers are irregular in size and orientation and fragmented due to disorganization of fibrils within the fibers. This condition occurs due to a deficiency in procollagen peptidase responsible for formation of collagen. This condition leads to hyperelasticity and fragility of skin and hypermotility of joints in cattle, sheep and dogs.

ACANTHOSIS NIGRICANS

This is increased amount of melanin in skin along with hyperkeratosis. This condition commonly occurs in dogs, at ventral abdomen and medial surface of legs.

Etiology
• Hormonal imbalance
• Tumors of testicles and pituitary gland

Macroscopic and microscopic features
• Colour of skin becomes black
• Dry and scaly skin due to hyperkeratosis
• Proliferation of melanocytes and melanoblasts.
• Black/ brown colour pigment intracellular/ extracellular.
• Cells appear as black or brown globular mass.
• Melanin granules are minute, dirty brown in colour and spherical in shape.
• Hyperkeratinization.

DERMATITIS

Dermatitis is the inflammation of skin characterized by hyperemia, erythema, serus exudation and infiltration of neutrophils and mononuclear cells.

Etiology
• Bacteria, Viruses, Chemicals, Allergy, Trauma, Fungi and their toxins.
Macroscopic and microscopic features
• Erythematous patches on skin
• Swelling of skin, itching sensation leads to damage/ scratch due to rubbing.
• Loss of hairs, patches on skin, alopecia.
• Hyperemia
• Serous exudate
• Infiltration of neutrophils and mononuclear cells.
• Presence of fungus in skin scrapings.

VESICULAR DERMATITIS

Vesicular dermatitis is excessive accumulation of clear fluid in dermis and epidermis leading to vesicle/ blisters formation. It is also known as hydropic dermatitis.
Etiology
• Sunburn
• Heat
• Foot and Mouth Disease virus
• Pox virus

Macroscopic and microscopic features
• Oedematous fluid in dermis and epidermis resulting in thickening of skin
• Hyperemia, vesicles.
• Break of vesicles leads to clear fluid discharge.
• Hyperemia
• Accumulation of clear fluid in epidermis and dermis, which is characterized by clear spaces or takes light pink stain of eosin.

• Some cells show hydropic degeneration.
• Infiltration of leucocytes.

PARASITIC DERMATITIS (ACARIASIS)

Acariasis or mange is caused by mites and characterized by hyperkeratosis and inflammation of skin leading to itching, rubbing and scratching.

Etiology

• Mites
• *Sarcoptes scabei*
• *Psoroptic* sp.
• *Demodectic* sp.
• *Chorioptic* sp.

Macroscopic and microscopic features

• Hyperkeratosis of skin, dry and scaly appearance of skin.
• Hemorrhage/ trauma due to rubbing/ scratching as a result of intense itching.
• Absence of hairs on lesions.
• Hyperkeratinization of skin.
• Hyperemia
• Infiltration of neutrophils, lymphocytes, macrophages, eosionophils
• Presence of mites at the site of lesions