



Lecture title: Canine Diseases

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Summary:

. Canine distemper

Synonym: Carre disease

Definition: Canine distemper (sometimes termed hardpad disease in canine) is a viral disease that affects a wide variety of animal families, including domestic and wild species of dogs, foxes, wolves, raccoons, and large cats. In canines distemper impacts several body systems, including the gastrointestinal and respiratory tracts and brain, with common symptoms that include high fever, eye inflammation and eye/nose discharge, labored breathing and coughing, vomiting and diarrhea, and hardening of nose and footpads. The viral infection can be accompanied by secondary bacterial infections.

Etiology

It is caused by a single-stranded RNA virus of the family paramyxovirus (the same family of the distinct virus that causes measles in humans). The disease is highly contagious via inhalation. Despite extensive vaccination in many regions, it remains a major disease of dogs.

Lesion

Grossly: Sometime, the pathway of this disease is **peracute** which characterized by hydropericardium with peticheal hemorrhage in the myocardium only. In **acute** form, the lesion noticed in the respiratory system which characterized by suppurative or catarrhal inflammation which affects the nose (rhinitis), trachea (tracheitis), bronchi (bronchitis), and pneumonia with fibrinous pleuritis.

Digestive system:

The lesion of digestive system characterized by gastroenteritis, particularly in the large intestine. Serous lymphadenitis may be occur. Also there is congestion and splenomegally.



Heart:

Accumulation of the serous fluid in the pericardial sac (hydropericardium), peticheal hemorrhage and fatty degeneration in the myocardium.

Skin:

Vesicular or pustular dermatitis, particularly in the lower parts. Thickening of foot-pads of dogs due to skin hyperkeratosis. So that the disease called hard-pad disease.

CNS:

The canine distemper virus can be affects the CNS through the nervous clinical signs of this disease. The virus have high affinity for the myelinated portions of the brain and spinal cord.

Microscopically: Presence of esinophilic intracytoplasmic or intranuclear inclusion bodies which seen in many organs when it stained with hematoxylline and eosin stain (H&E).

The inclusion bodies of canine distemper virus have been seen in the respiratory tract exudates, in the lung within the monocytes. Also in the epithelial cells of bronchus and bronchioles. In the skin, it appears in the epithelium of the sebaceous glands. In the epithelium of urinary tract and in the epithelium of stomach, intestine and bile ducts.

The inclusion bodies in the CNS, showed in the acute cases within the meningeal epithelial cells and within the glial cells particularly within the astrocytes. Gliosis (microglial cells proliferation) around the blood vessels may be occurring.

Diagnosis:

- 1- Gross and microscopic changes.
- 3- Serological test.
- 4- Molecular test (PCR, and ELISA).

4. Canine parvovirus enteritis

Synonym: **Canine Panleukemia.**



Definition: Canine parvovirus is the most deadly canine virus of the last two decades. This virus causes severe debilitating and often fatal illness, the symptoms being vomiting, diarrhea, dehydration, loss of appetite and often death. The virus causes illness by destroying the inner lining of the intestine. The result of this is rapid dehydration with vomiting and diarrhea and secondary bacterial infection throughout the body, affecting the major organs i.e. heart, liver and kidneys.

Lesion:

Grossly:

Intestinal form: the disease showed as hemorrhagic gastroenteritis, there is dehydration. The stomach and small intestine mucosa covered with red and hemorrhagic exudate, with congestion and extensive hemorrhagic in it.

The lesion disappear toward the large intestine except the coloration of feces with dark red color. Enlargement of mesenteric lymph node due to the edematous and bloody discharge.

Microscopically

The main lesion presents in the small intestine, there is destruction and damage of mucosa due to severe necrosis and absence of superficial epithelium. Also there are inclusion bodies present within the nuclei of the superficial intestinal epithelium.

Cardiac form

The lesions characterized by cardiac hypertrophy, presence of extensive areas of necrosis. Pulmonary edema due to heart failure.

Microscopically, there is inflammatory response in the heart characterized by non-suppurative myocarditis. Also there is multiple foci from viral erosions, and edema.

Diagnosis

- 1- Gross and microscopic changes.
- 3- Serological test.
- 4- Molecular test (PCR, and ELISA).