



Leukemia

Lect:(5)

Q:What are the typical presenting signs in veterinary patients with lymphoid leukemia?

As many as 50% of patients diagnosed with **chronic leukemia** are asymptomatic. In these animals diagnosis is frequently made incidental to routine hematologic evaluation.

In other patients, mild or formless signs of progressive disease may be present, including vomiting, diarrhea, fever, pallor, lethargy, polyuria, polydipsia, weight loss, and mild lymphadenopathy and hepatosplenomegaly.

In contrast, acute leukemia tend to be associated with a greater frequency of nonspecific signs, including weakness, anorexia, vomiting, diarrhea, fever, pale mucous membranes, mild lymphadenopathy and hepatosplenomegaly. Infrequently in advanced disease, myelophthisis may result in thrombocytopenia and clinical signs of hemorrhage. Neurologic manifestations, including neuropathies, paresis, and ocular complications (e.g., glaucoma) may occur rarely.

Bone marrow response to infectious diseases, acute and chronic

- 1-Factions differ response to the acute and chronic diseases for over factions in response to the diseases dogs and cats then cows, sheep and horses.
- 2-When infection dog by bacterial disease, the white blood cells will come out from bone marrow very fast through 24 hours and represent the picture blood show high white blood cells through high **neutrophils**. This situation will continue until the finish of the pathogen.
- 3-Less cows in response to infection when a cow infect with acute mastitis will see blood picture is low in the white blood cells **leukopenia** reason for this is that the stem cells in cows slow division and remains low for 6 days, If the animal did not resist the disease during this period will die.



- 4-In the case of chronic infection in cows and dogs almost be similar because there is enough time for the formation of white blood cells despite the fact that cells in dogs is higher than cows the elevation of white blood cells and cells of high neutrophils and monocytes.
- 5- Some Salmonella in acute infection will find everywhere in the body in this case white blood cells consumption more than production in the body, the blood pictures in this infection neutropenia.
- 6- Also note neutropenia in viral infections such as Bluetongue virus (BTV) disease in sheep and Infectious Bovine Rhinotracheitis (IBR) in cows, but those few be transient.

In chronic diseases get anemia for two reasons.

- 1-The red cells and white blood cells in the bone marrow when increasing white blood cells will lead to decrease red blood cells account and less in the pattern.
- 2-The red cells when they are old shatter in spleen components return to the body, bacteria need iron, the phagocytic cells in the spleen are trying to keep the iron Not him back to the body as part of a defense that gets anemia.

List conditions associated with lymphopenia.

- a. Stress
- b. Glucocorticoid therapy
- c. Acute inflammation
- d. Viral infection
- e. Decreased recirculation of lymphocytes from lymphoid tissues:
congestive heart failure, or thoracic duct leakage
- f. Decreased recirculation of lymphocytes from intestinal lymphatics:
Intestinal neoplasm or Granulomatous inflammation
- g. Congenital immunodeficiencies (e.g., severe combined immunodeficiency)



List the general mechanisms (with appropriate examples) that cause neutropenia.

- a. Excessive emigration to tissues during inflammation (acute bacterial infection, sepsis, necrosis)
- b. Endotoxin-induced margination (equine salmonellosis)
- c. Decreased marrow granulopoiesis
 - (1) Viruses (feline leukemia virus [FeLV], feline immunodeficiency virus [FIV], parvoviruses)
 - (2) Cellular infiltration of marrow (myelophthistic conditions, e.g., lymphosarcoma, myelofibrosis, granulomatous disease)
 - (3) Toxins (bracken fern in cattle, estrogen and sulfadiazine in dogs)
- d. Increased destruction of neutrophils (immune-mediated neutropenia)