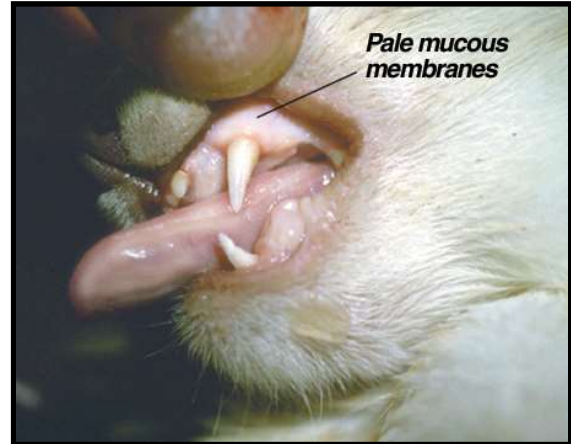


Anemia in the Cat

Anemia is defined as a reduced number of red blood cells or hemoglobin, or both. It is a symptom of another disease process, and not a specific disease. A diagnosis is necessary in order to treat it intelligently. It is a significant finding because red blood cells, or erythrocytes, are needed to transport oxygen to the tissues. When the total numbers of red blood cells are reduced, there can be insufficient oxygen delivery to vital organs, which can result in damage if it goes on long enough.



Red blood cells are produced in the bone marrow, or hollow core of the bones, by specialized cells. Before being released into circulation, the precursor cells must undergo a specific sequence of steps to reach full maturity. Once released by the bone marrow, the red blood cell lives about 60-70 days in cats. Interestingly, the red blood cell lives much longer in dogs, about 120 days.

Prevalence

Anemia is probably the most frequent laboratory abnormality involving the blood cells. It is a relatively common finding in cats of all ages and breeds.

Symptoms

The most easily observed sign of anemia is a loss of the normal pink color of the gums and other mucous membranes. Anemic cats also have little endurance so they seem very weak or tired. In a cat, symptoms may be as subtle as sleeping more, having a poor appetite, or not grooming as well. Pale gingiva and lethargy make us want to perform some tests on blood to document anemia. Sometimes, anemia can cause the heart rate to elevate and a heart murmur to develop. If the anemia is caused by red blood cell destruction, the skin may have a yellow tint (jaundice or icterus).

Diagnosis and Evaluation

Initial Tests

The initial tests performed on blood are needed to determine the severity of the anemia and the ability of the bone marrow to respond to the anemia. The most common test for anemia is the packed cell volume (PCV); it is also called the hematocrit. A blood sample is placed in a centrifuge to separate the red blood cells from the plasma (the liquid part of the blood). This takes only a few drops of blood and can be performed in about five minutes. The normal PCV of the cat is 25% - 45%; anemia is defined as a PCV below 25%.

A more complete assessment of the red blood cells can be calculated by very sophisticated instrumentation; a number of specific measurements can be provided. These include hemoglobin, as well as the size and color of individual red blood cells.

Responsiveness of the bone marrow to the anemia is evaluated by the reticulocyte count. The reticulocyte is a young adult red blood cell. It has not quite completed all of the steps to maturation. A rough index of the reticulocyte numbers can be gleaned by examining a blood smear. The precise count is easy to determine by mixing a small amount of blood with a special stain and then re-examining the blood smear. It is generally preferable to have a reticulocyte count that reflects the ability of the bone marrow to respond to the anemia; this is called a "regenerative anemia." When the marrow appears unresponsive based on reticulocyte numbers, this is called a "non-regenerative anemia."

A fecal exam is important to rule out parasites as a cause of anemia. If the cat has fleas, they should be immediately removed and preventative steps taken to prevent reinfestation.

Additional Tests

Several other tests are usually indicated for complete evaluation of the cat with anemia. These are described below.

A careful study of the blood smear is important to look for parasites that might be causing red blood cell destruction and abnormal cells that could indicate leukemia.

A bone marrow biopsy or aspirate is a procedure that recovers a small sample of cells from the bone marrow for evaluation by the veterinary pathologist. Studying these cells can give valuable information about the cause of some anemias and the condition of the bone marrow. Sometimes it is prudent to give the bone marrow several days and up to a week or more to respond to the anemia if there is a suspicion of recent blood loss. When this is the case, a bone marrow aspirate may be temporarily postponed to give the bone marrow a change to respond fully. In some situations, it is clear that the anemia is long-standing and a bone marrow evaluation should be done as soon as possible.

A biochemical profile and urinalysis are other important tests for anemic cats. These tests evaluate organ functions and electrolyte levels. They will often provide important information about the total health of the cat. A fecal exam is also important for identification of parasites in the intestinal tract that might be causing blood loss.

Finally, an anemic cat should be tested for the feline leukemia virus and the feline immunodeficiency virus because these viruses are important causes of anemia.

Causes/Transmission

Several tests are important for an anemic cat because there are many diseases that cause anemia. These are grouped into 1) diseases that cause blood loss, 2) diseases that cause hemolysis (red blood cell breakdown), and 3) diseases that decrease the production of red blood cells.

The main causes of blood loss in cats include:

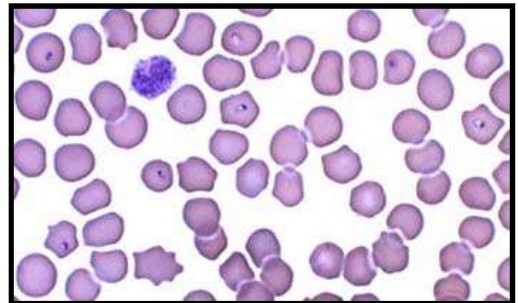
Trauma or injury that severs blood vessels or internal organs
Parasites such as fleas, ticks, and hookworms
Tumors of the intestinal tract, kidneys, and urinary bladder
Diseases that prevent proper clotting of blood

The main causes of hemolysis in cats include:

Autoimmune disease
The feline leukemia virus
Blood parasites
Chemicals or toxins – Tylenol®, onions, garlic, propylene glycol and others.
Neoplasia (cancer)

The main causes of bone marrow suppression in cats include:

Any severe, chronic disease
Very poor nutrition or nutritional imbalances
Autoimmune disease
The feline leukemia virus
The feline immunodeficiency virus
Chemicals or toxins
Neoplasia (cancer)



Parasites that can cause anemia in cats

It is noteworthy that while iron deficiency anemia is a common finding in people, especially women, it is uncommon in cats and only occurs secondary to some form of chronic blood loss.

Treatment

If your cat's anemia is so severe that it is life threatening, a blood transfusion may be needed. This may be performed immediately after a blood sample is taken for testing. The main purpose of a blood transfusion is to stabilize the cat long enough that a determination of the cause of the anemia can be made. If your cat is a purebred cat, it is advisable to have him/her blood typed prior to transfusion. While there is less than a 5% chance of transfusion reaction, transfusion reactions in cats can be particularly severe, and even sometimes fatal.

Further treatment will be determined once the underlying disease has been diagnosed.

Prognosis

The prognosis is dependent upon identification of the underlying cause and a positive response to appropriate therapy. Sometimes, the prognosis cannot be given until the tests are completed and a diagnosis is made. Response to treatment is also important to determining prognosis.

References:

1. Sharon Fooshee - Homecare Handouts.
2. Ernest Ward – Lifelearn Handouts.
3. Wendy Blount – Practical Vet Med.
4. Celeste Clements – VetCentric.