

## The "Cool Aid Cat": Feline Anemia

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Cats who are anemic have very thin, cherry colored blood that more resembles cool aid than the thick, dark red substance known as blood. So, now we have the nickname cleared up. Now all we have to do is explain in 2 pages or less a process that can be caused by over 75 disease processes in our feline friends. Thanks for the topic Marie!

Dorland's Medical dictionary has a 2 page definition for anemia. To summarize: "a reduction below normal in the number of erythrocytes (red blood cells)...in the quantity of hemoglobin, or in the volume of packed red blood cells....which occurs when the equilibrium between blood loss and blood production is disturbed." In plain English this means a decrease in the amount of red blood cells.

Anemia is very easy to diagnose both by physical examination and routine laboratory tests. Examination usually reveals very pale gums and other mucous membranes. A number of simple tests such as hematocrit or packed cell volume, red blood cell counts, and hemoglobin concentration are used to diagnose anemia. To help pinpoint the type of anemia we look at the size, refractory nature, and stage of red blood cells present in a blood smear (ie. either mature or immature cells). These tests can tell us if the bone marrow is responding to the anemia or not; if the marrow is responding it is classified as a regenerative anemia and if it isn't it is called a nonregenerative anemia. This can help pinpoint a cause, aid our diagnosis, and affect treatment decisions.

Cats who are anemic are often very weak. This is the reason most people with anemic cats seek veterinary care. Anorexia is another common clinical sign. The degree to which these signs develop is related to the rate at which blood is being lost or destroyed. Cats who have lost a good deal of blood over a long period of time may look and act normal. Whereas a cat that has rapidly lost a relatively small amount of blood may appear very ill.

So what do we do if we discover a cat is anemic. The first thing to do is correct the anemia if it is life threatening. Most guidelines suggest a blood transfusion if the hematocrit is below 10% (normals are 25 to 40% but these vary from lab to lab). As mentioned earlier, a computer assisted diagnosis program listed 75 diseases when anemia was plugged in as the symptom. Basic blood tests for any anemic cat should include Feline Leukemia and Feline AIDS tests, blood chemistries, a complete blood count (with platelet estimations/counts): a fecal exam and a urinalysis should also be considered as well as abdominal and chest radiographs.

These tests should be done in a step-wise fashion; this can save you money in the long run. For example, if your cat is anemic secondary to hookworms you would want to treat them before spending more money on the full battery of tests. This is where the judgment and expertise of your veterinarian come into play.

Let's discuss some of the more common causes of anemia in cats. Feline leukemia and feline aids affect mostly younger cats but can affect cats of any age. These viruses cause many symptoms besides anemia and are easy to diagnose with routine blood tests. Another infectious cause is hemobartonellosis, a blood borne parasite, which was discussed in other PT issues. Coccidia, intestinal parasites, Feline Infectious Peritonitis (FIP), and heartworms help round out some of the other infectious causes.

On to the toxicities. There are many substances toxic to the feline red blood cells. Tylenol is well known for it's ability to destroy RBC's (as well as liver cells). Some other common toxins include lead and arsenic, rat poisons of the anticoagulant class, phenol compounds, coal tar, and pennyroyal oil. Toxins that affect the kidneys can secondarily lead to anemia.

There are other disease also. Cats suffer from autoimmune diseases that are similar to lupus in man. The body recognizes the red blood cells as foreign proteins and destroys them. Strong drugs such as cortisone and some chemotherapeutic agents are needed to stop the destruction. Diabetes is also known to cause anemia. certain types of cancer such as stomach/GI tumors cause bleeding which results in anemia. Liver tumors, splenic tumors, mast cell tumors, hemangiomas, mediastinal masses are among others causing anemia.

A very common cause of anemia in cats is kidney disease. Both acute kidney failure and chronic kidney failure (CRF) cause anemia. Most of our cases are from chronic kidney disease because it is so common among older cats. There is a decrease in the amount of erythropoietin (ep) produced by kidneys in CRF; ep is a hormone which tells the bone marrow to make more red blood cells. Fortunately, in CRF we can inject ep with good success; be prepared to spend some money if your cat needs ep, it is expensive.

Treatment for anemia is, you guessed it, aimed at the underlying cause. Of course this is after any supportive and life threatening problems are taken care of. These usually involve treating for shock, restoring good circulation with intravenous fluids and/or plasma expanders, and transfusions if indicated. Anemia by itself is not considered a disease but rather it is a condition produced by many, many causes.