

Immune-Mediated Thrombocytopenia

By Dr. Karen Becker

Hi, this is Dr. Karen Becker. Today we're going to discuss immune-mediated thrombocytopenia (IMT), which is the destruction of blood platelets by the body's immune system. IMT is primarily a disease of middle-aged dogs and any breed can become affected. But oftentimes poodles, cocker spaniels, and the old English sheepdogs are more predisposed. The disease is actually quite rare in cats.

Platelets are a very important type of blood cells that are produced from bone marrow. They help blood to clot by travelling to damaged areas of blood vessels, where they collect and bind together, forming a small plug or patch that actually seals the hole in the leaky blood vessel. While they are performing this really important function, the platelets also release a number of biochemicals that create a permanent seal for the tear in the blood vessel.

In a healthy pet's body, platelets do their thing each time they discover small bleeds and normal wear and tear on blood vessels. In this way, they actually preserve the integrity of the vascular system. There's anywhere from 200,000 to 500,000 platelets traveling through an animal's circulatory system at any given time, but only 20,000 to 50,000 platelets are actually needed to prevent spontaneous bruising and bleeding. About one-third of circulating platelets are stored in the spleen, waiting to be called into action if necessary.

When those platelets that are waiting get too old to do their job efficiently, the spleen sends them through a pretty neat recycling program. When a small bleed inside a pet's body doesn't receive the attention from blood platelets that it needs, it quickly becomes a large bruise. Spontaneous bruising from normal wear and tear on the body is one of the signs of either not enough platelets, or poorly functioning platelets.

Once in a while platelets are mistaken by an animal's immune system as foreign invaders rather than normal blood cells. That's what IMT is. When this occurs, it sets off a destructive series of events. First, the immune system sends antibodies to coat the platelets. The spleen interprets the coated platelets as candidates for recycling and starts removing them at a rate much higher than the normal platelet removal rate.

The cells in the bone marrow that produce platelets react to the situation by getting larger and growing in number, so that they can meet the increased demand for platelet production. The platelets now being produced by the bone marrow, called stress platelets, are actually larger and more effective than their normal counterparts. However, while all of this is going on, the immune system is continuing to destroy platelets. If antibody levels are very high, the platelets may actually only survive minutes or hours after production.

Causes

It's very hard to predict how the disease will react from one patient to the next because there are so many variables involved. Most traditional veterinarians believe that IMT is idiopathic, meaning we don't know why it's going on in the body. However, those of us in the holistic veterinary community suspect that like most immune-mediate diseases, there is a trigger that prompts the immune system to become confused.

What most holistic veterinarians agree on is that the exact cause of IMT may not be identified. But we do know that IMT can be triggered or exacerbated by vaccines, particularly bacterins – like the leptospirosis and Lyme vaccines – as well as killed vaccines, which contain very strong immune-stimulating adjuvants, like the rabies vaccine.

Sometimes it's a vaccine alone that triggers immune system problem in a pet, but more often, it's vaccinations that are coupled with either medications, environmental toxins, maybe a poor-quality diet, or other lifestyle stressors. While sometimes an adverse vaccine reaction is immediate, more oftentimes an animal's immune system reacts to a cumulative effect, which means vaccinations given over a period of months to years add up to make the immune system become really confused. That's why I strongly encourage pet owners to avoid all unnecessary vaccines and certainly revaccinations.

Symptoms and Diagnosis

Most of the clinical signs of IMT are bleeding-related, which means that there could be spontaneous bruising on your pet's body. Other symptoms can include lethargy or weakness, an increased respiratory rate, bruising, bleeding from the mouth or nose, certainly pale gums from anemia, or dark, tarry stools that could indicate the presence of blood in the GI tract. Less common signs are breathing difficulties, including a really significantly increased respiratory rate as well as sudden death.

Diagnosis of IMT involves ruling out all non-immune related causes and other primary conditions that have thrombocytopenia or low platelet count as a secondary condition, which in dogs include viral, parasitic, fungal, and bacterial diseases as well as certain types of cancer and the administration of certain drugs.

Diagnostic tests will typically include a complete blood count (CBC), as well as a blood chemistry profile, coagulation testing, titers for infectious diseases, and an antinuclear antibody (ANA) test to evaluate the immune system's response against DNA. A urinalysis, chest x-rays, and oftentimes an abdominal ultrasound will also be suggested.

Treatment

Immune-mediated thrombocytopenia is a complex condition that varies from patient to patient, so the treatment is quite individualized. Often aggressive treatment is needed when the disorder is initially diagnosed. Certainly many pets must be hospitalized because they're critically ill at this time.

The immune system assault on the blood platelets must be controlled very quickly, which unfortunately means using immunosuppressive drugs like steroids, azathioprine, and cyclosporine among other drugs that will be necessary to save your pet's life. If anemia is present, a blood transfusion will be required. Supportive care in the form of oxygen and fluid therapy may also be given.

Underlying diseases must be identified and treated to help control the IMT and lower the risk of recurrence. Long-term, the pet will require immunosuppressive and other drugs based on the symptoms. It's not unusual for a dog to be on drugs for several months after diagnosis. Supportive herbs, such as milk thistle can be used during this time to help reduce the stress on the organs of detoxification. When the patient is stable, many integrative veterinarians will incorporate integrative protocols to help the patient's immune system rebalance itself long term.

Any drugs or vaccines received prior to developing IMT should obviously be avoided for the rest of that animal's life. I also recommend all dogs that have recovered from IMT be titered for all vaccines, including rabies, for the rest of the pet's life.

Most dogs with IMT can live normally if they respond well to medical treatment. Generally speaking, if a dog does well during the acute phase of the disease and throughout treatment, he has an excellent chance of doing well long term. Many dogs can be weaned from all medications as their condition improves, but occasionally a dog may require intermittent drug therapy for the rest of his life. These dogs are really good candidates for integrative medical care, which can actually help reduce flare-ups of autoimmune reactions and reduce the need for long-term drug therapy.

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