

ITP - Immune-Mediated Thrombocytopenia

I love immunology (the study of the immune system) and hematology (the study of blood). I once contemplated completing a PhD in these fields, but two residencies was enough. Immune-mediated thrombocytopenia or ITP is an immune-mediated disease that is personal. My own dog was diagnosed with this disease during my residency training. This week I'm sharing information about this potentially life-threatening condition in hopes of helping other families who have pets fighting this malady.



ITP - What is it?

Platelets having several important functions in the body, chiefly helping to form strong blood clots. Occasionally, cats and dogs develop thrombocytopenia or low platelets, and this condition can be life-threatening. Without adequate functional platelets, patients can spontaneously bleed. Immune-mediated thrombocytopenia is the term used to describe the destruction of platelets by the body's immune

system.



Electron microscopy of activated platelets

When we can identify the cause that triggers the immune system to attack platelets, we use the term secondary ITP. Common potential causes include:

- Infections (bacterial, viral, parasitic)
- Reactions to certain drugs
- Cancers
- Vaccine reactions

Sometimes we can't identify the underlying cause for why the immune system attacks platelets. In such instances, we use the term primary or idiopathic ITP.

What does it look like?

Certain dog breeds are predisposed to developing primary ITP, including American cocker spaniels, Old English sheepdogs, Scottish terriers, Hungarian Vizslas and dachshunds. To date, there is no breed predisposition documented in cats.

When platelets are decreased, a body is predisposed to spontaneous bleeding both externally and internally. Common clinical signs of ITP in dogs and cats include:

- Pinpoint bruises on skin, ear flaps, and/or gums
- Bleeding in the sclera (aka "whites of the eyes")
- Epistaxis (nasal bleeding)
- Pale gums
- Acting tired, weakness or collapse
- Shallow, rapid and/or labored breathing

- Bloody urine
- Tar-colored feces or raspberry jam-like feces
- Reduced (or loss of) appetite



A dog with bleeding in the iris due to immune-mediated thrombocytopenia.



Classic bruising called ecchymoses in a dog with immune-mediated thrombocytopenia.

How is ITP diagnosed?

Several non-invasive tests are essential to accurately diagnose patients with ITP, including:

- Measure red blood cells, white blood cells and platelets (cells that help with blood clotting) - *complete blood count, peripheral blood film evaluation*
- Evaluate major organ function, like the liver and kidneys - *biochemical*

profile & urinalysis

- Assess the immune system - *peripheral blood film evaluation, direct antibody test, antinuclear antibody test (ANA)*
- Look for certain infectious diseases, such as those transmitted by ticks - *polymerase chain reaction (PCR) or antibody/serology tests*
- Determine if the bone marrow is functioning properly - *bone marrow cytology & biopsy*
- Screen for cancer - *chest radiographs (x-rays), abdominal radiographs, abdominal ultrasound, bone marrow cytology & biopsy*



How is it treated?

Modifying how the immune system responds is essential to effectively beating this disease. The initial intervention most commonly used to modulate the immune system is treatment with a corticosteroid, typically prednisone. Side effects are common but *temporary*, and may include:

- Increased thirst
- Increased appetite

- Increased frequency of urination
- Panting
- Muscle weakness
- Weight gain

Some patients with ITP can be successfully managed with prednisone alone. Many, however, benefit from the use of more than one immunomodulatory drug. No study has yet identified the perfect immunosuppressive protocol, that is, one that works for every patient. To help develop the best possible treatment plan for your pet, consulting with a board-certified internal medicine or critical care specialist can be invaluable. Some drugs that may be recommended (or at least discussed) include:

- Vincristine
- Cyclosporine
- Azathioprine
- Mycophenolate mofetil
- Leflunomide
- Intravenous immunoglobulin G (IVIg)
- Melatonin

If a pet has an infection, it must be appropriately treated because inhibiting the immune system's ability to fight such an infection could allow the infection to (rapidly) spread. Patients who fail to respond to traditional immunomodulatory therapy may benefit from a specialized blood-cleansing procedure called plasmapheresis that can be performed at certain specialty hospitals.

The take-away message about ITP...

Immune-mediated thrombocytopenia or ITP is a life-threatening disease. With aggressive medical management patients can respond to prescribed therapies and ultimately lead happy, healthy lives. Board-certified internal medicine and critical care specialists have extensive experience diagnosing and managing patients with ITP, and their involvement as a member of your pet's healthcare team can be invaluable.

To find a board-certified veterinary internal medicine specialist, please visit the American College of Veterinary Internal Medicine.

To find a board-certified veterinary emergency and critical care specialist, please visit the American College of Veterinary Emergency and Critical Care.

Wishing you wet-nosed kisses,

CriticalCareDVM

