



## THROMBOCYTOPENIA

### What is Thrombocytopenia?

Thrombocytes (also known as platelets) are subcellular structures in normal blood. Their job is to help with the blood clotting mechanism. When the platelet count is below the lower limit of the reference range (dogs: 200,000- 900,000/ $\mu$ l; cats: 300,000-700,000/ $\mu$ l) the condition is called thrombocytopenia (“platelet deficiency”).

Platelets are produced in the bone marrow, released into the bloodstream, and circulate for a few to several days. In the normal state, the platelet count remains stable because the production of platelets is equal to the removal of platelets from the blood. In addition, there is a fairly large reserve of platelets in the spleen. A low number of platelets can be caused by decreased production, sequestration, increased destruction, or increased utilization.

If the platelet count is low enough (less than 40,000/ $\mu$ l), hemorrhage can occur into any area of the body or to the outside of the body. Hemorrhage is commonly recognized in the skin, gastrointestinal, urinary, and respiratory systems, but it is more difficult to recognize in the nervous and cardiovascular systems.

In the autoimmune form of thrombocytopenia, the autoimmune process develops antibodies against platelet proteins on the platelet surface, and then the antibodycoated platelets are prematurely destroyed by the macrophage phagocytes (a type of white blood cell).

### What are the Symptoms of Thrombocytopenia?

Spontaneous and inappropriate bleeding from the lips and gums, skin, nasal, urinary, or gastrointestinal tract is a common sign. Some pets will show weakness and collapse, or trouble breathing. Physical examination may reveal hemorrhages in the skin and oral membranes; blood coming from the nose; black or bloody stool; bloody urine; pale lips and gums; heart murmur; and neurologic signs.

It is fairly common in dogs, but rare in cats. In dogs the breeds that are most commonly involved are the Cocker spaniel, poodle, Old English sheepdog, and German shepherd, but any breed of dog can develop

it. It is usually in adult dogs over six years of age. It is more common in female dogs. About half of the dogs with thrombocytopenia have the autoimmune kind.

### How is It Diagnosed?

The history and physical examination make this disease one of a number of bleeding abnormalities that require blood testing to differentiate among them. Sometimes a bone marrow biopsy is indicated as well.

### How is Thrombocytopenia Treated?

If the patient has severe hemorrhage, it must be stabilized in the hospital and then it may be treated as an outpatient. In severe cases whole blood or platelet-rich plasma transfusions may be needed to help stabilize a critical patient. Animals with severe hemorrhage should be brought to the hospital for monitoring and treatment.

With the autoimmune form the cortisone group of drugs is the main medical treatment. Some cases may take several weeks, and others are refractory to treatment. Immune suppressive agents may be used too. Splenectomy (surgical removal of the spleen) may be performed in cases that are refractory to medical treatment. Other causes of thrombocytopenia are treated in other ways depending on the cause of the condition.

**PATIENT MONITORING;** Platelet counts are done daily until the count is greater than 50,000/ $\mu$ l and then weekly until the count returns to the normal range (in some patients the count will not return to the normal range). If the owner notices severe bleeding, the patient should be brought in for evaluation.

### EXPECTED COURSE AND PROGNOSIS

(autoimmune thrombocytopenia): If the thrombocytopenia is severe and cannot be quickly improved by immunosuppressive therapy, animals may succumb as a result of fatal hemorrhage. Approximately 25% of patients referred to a veterinary teaching hospital died or were euthanized. Of the patients that survived, approximately 50% had acute disease requiring only one course of immunosuppressive drugs, and 50% had chronic disease that recurred months to years later. In patients with acute disease that respond to corticosteroids, the platelet count increases in several days.