Few Cocker Spaniel owners recognize the signs of immune-mediated hemolytic anemia (IMHA), though the breed has an increased risk for developing the fast-acting, potentially fatal illness. A disease in which a dog’s immune system attacks and destroys the oxygen-carrying red blood cells, IMHA is a major cause of severe anemia.

Not only is it difficult for owners to realize when their dog suffers from IMHA, it can be costly and challenging to treat. This was the case for Christine Erickson of East Bethel, Minnesota. When her 5 ½-year-old agility pro “Bumper” (MACH 4 Livingston’s Legendary Bippity Boppity Bumper) looked listless on the agility course doing what he loved, she knew something wasn’t right. Ranked among the Top 10 agility Cocker Spaniels, Bumper usually raced through the course.

“Since ticks are prevalent in this area, at first I thought the problem was a tick-borne disease or even allergies,” Erickson says. “That evening, when Bumper showed no interest in eating or drinking and his gums were pale yellow, I knew something wasn’t right. Ranked among the Top 10 agility Cocker Spaniels, Bumper usually raced through the course.”

The veterinarian examined Bumper and ran a complete blood count (CBC) test, blood chemistry analysis and blood smear evaluation. The tests showed a low red blood cell count, and the cells had an abnormal shape and size. As is common in dogs with IMHA, the red blood cells were clumped together. This occurs when a coating on antibodies produced by the immune system causes the cells to stick together. The immune system produces antibodies that attach to oxygen-carrying red blood cells and “tag” them for destruction by macrophages, or white blood cells.

Bumper was Erickson’s third Cocker Spaniel. She had never heard of IMHA and neither had the breeder. “It was four days on a roller coaster and in the end, we lost Bumper,” she says. “I learned a whole lot about this disease in a short time and spent a considerable amount of money treating it as well.”

Dr. Rob Lyerla, grants chair for the American Spaniel Club Foundation, says the American Spaniel Club Foundation recently supported research sponsored by the AKC Canine Health Foundation at Iowa State University and Cornell University to learn more about IMHA and the genetics that make Cocker Spaniels prone to developing it.

“Not every owner is prepared for the costs associated with treating IMHA,” says Dr. Rob Lyerla, grants chair for the American Spaniel Club Foundation. “Treatment can be very expensive, and unfortunately, there’s no guarantee it will be successful. Dogs that survive the initial crisis face the risk of relapse down the road and the potential for complications related to having a chronically depressed immune system.”

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“Reducing IMHA in Cocker Spaniels requires early recognition.

The survival rate is considerably better now than it once was, but we need to make more Cocker Spaniel breeders and owners aware of the disease and what to look for.”

Dr. Rob Lyerla, grants chair for the American Spaniel Club Foundation

A proud sponsor of the AKC Canine Health Foundation since 1997, Purina works with the Foundation to help advance canine health research so dogs may live long, healthy lives.

Opposite page: MACH 4 Livingston’s Legendary Bippity Boppity Bumper, a Top 10 agility Cocker Spaniel, died at age 5 from immune-mediated hemolytic anemia.
“The survival rate is considerably better now than it once was, but we need to make more Cocker Spaniel breeders and owners aware of the disease,” he says. Early recognition of IMHA can mean the difference between life and death. Prompt diagnosis and treatment are key to stopping the destruction of red blood cells, stabilizing a dog and allowing the red blood cells to regenerate.

Lethargy is the most common sign of IMHA due to anemia and oxygen starvation that results from the destruction of healthy blood cells. The lethargy is pronounced and has a rapid onset, making it quite noticeable. Hemoglobin in the urine indicates a breakdown of red blood cells. Jaundice from bilirubin, a byproduct of red blood cell destruction, accumulates and can cause yellowing of the skin and whites of the eyes. Pale white or yellow gums also are a visible sign. The heart can be affected, and dogs with advanced disease may collapse from lack of oxygen.

Owners noticing these rapidly presenting signs in their dogs should seek treatment immediately. For many, that means a trip to the emergency room, possible blood transfusions, overnight stays, and watching the clock for signs of improvement.

A Common Immune-Mediated Disease

Immune-mediated hemolytic anemia is one of the most common immune-mediated diseases in dogs. Primary IMHA, the type affecting Cocker Spaniels, accounts for about three-quarters of cases in North America. Considered idiopathic, or having no known cause, primary IMHA is a complex polygenic disorder that likely involves several genes plus environmental triggers.

Secondary IMHA is caused by a number of other causes, including other diseases, medications, and toxins. It may occur in dogs battling cancer, such as lymphosarcoma, leukemia or hemangiosarcoma, or when a dog has a blood parasite that causes an abnormal immune reaction. Many tick-borne organisms can induce IMHA.

Detection can be extravascular (outside the blood vessels) or intravascular (inside the bloodstream). Extravascular destruction, which occurs in the spleen or liver, has a more favorable prognosis because the hemoglobin released by the destroyed cells is engulfed by macrophages, or white blood cells, rather than being released into the bloodstream.

When the destruction is intravascular, the released hemoglobin endangers a dog’s kidney function. Regardless of the site of destruction, massive inflammation can affect multiple organ systems, and blood clotting can cause organ failure or death.

Anthony Carr, DVM, DACVIM, professor of small animal clinical sciences at the University of Saskatchewan in Canada, has studied IMHA for 20 years. In necropsy studies, he has found that 90 percent of dogs with IMHA had blood clots in various organs. “Inflammation and hemostasis, the process of clotting to stop bleeding, are definitely linked,” Dr. Carr says. “IMHA is a condition of massive inflammation that promotes hemostasis and the formation of clots.”

In an article published in the Journal of Veterinary Internal Medicine in 2002, Dr. Carr was the lead author of research that aimed to identify risk factors for canine IMHA. Medical records of dogs admitted to the University of Wisconsin Veterinary Medicine Teaching Hospital from 1987 to 1995 were reviewed.

Seventy-two cases of IMHA were included. Among the 28 breeds represented in the study, Cocker Spaniels were the most overrepresented breed. Other breeds at higher risk for IMHA were English Springer Spaniels, Collies, Irish Setters, and Poodles.

Mortality frequently was associated with thromboembolism. A life-threatening acute blood clot that can result in sudden death, thromboembolism often goes to the lungs preventing oxygen from getting into the bloodstream. “Blood transfusions may be needed to buy time until medications can work,” Dr. Carr says.

Confirming a diagnosis of IMHA involves a series of tests. Similar to what Ericsson’s dog Bumper underwent, diagnostic testing could include CBC tests, blood chemistry analysis to evaluate organ function and electrolyte levels, and blood smear evaluation to assess the clumping of red blood cells. A Coombs test can help detect antibodies attached to red blood cells. An abdominal ultrasound or radiograph can be performed to check for other causes of anemia, such as cancer in the abdomen. Kidney function and urinary tract infections can be evaluated via urinalysis.

“Cocker Spaniels are the poster children for IMHA,” says Jeanne S. Grim, DVM, who breeds Cocker Spaniels and participates in conformation, obedience, rally, agility, and hunting. “My experience with this disease is that most owners don’t realize the urgency of the condition and how challenging it can be to treat a dog. If you wait 36 hours from the time you realize a dog is acting abnormally to go to the veterinarian, it could be too late.”

Veterinarians use a three-pronged approach to treat IMHA that involves suppressing the immune system, preventing blood clots and treating clinical signs. For immunosuppression, prednisone, a corticosteroid hormone, is the first drug used. Although it is effective, prednisone can affect quality of life, causing side effects such as excessive thirst and urination, panting, gastrointestinal ulcers, and increased susceptibility to infections.

Prednisone may be combined with a second immunosuppressant for better control. Giving a slower-acting drug, such as azathioprine or cyclosporine, provides an added chance to suppress the immune system and allows a dog to be tapered off prednisone sooner while continuing the slower-acting drugs that have fewer side effects. Dogs also may receive low doses of aspirin, heparin or clopidogrel to help prevent blood clots. Other drugs that have been used to treat IMHA when a dog is not responding to more traditional drug therapy include leflunomide and mycophenolate mofetil.

Dogs that survive the initial crisis of IMHA 60 days or more face the risk of relapse and complications related to having a chronically depressed immune system. About 15 percent are estimated to experience a relapse.

Although no causal gene is expected to be discovered soon linking affected dogs to the complex polygenic disease, better education and awareness of IMHA will surely help increase survival for affected Cocker Spaniels. Dr. Lyerla, of the American Spaniel Club Foundation, is optimistic about the future.

“There is more to be learned about the causes of IMHA and, of course, treatment can possibly improve,” he says. “Importantly, Cocker Spaniel enthusiasts can work together to help get the word out about this disease and help identify dogs in the early hours of IMHA when a difference still can be made.”

Purina thanks Dr. Rob Lyerla, grants chair for the American Spaniel Club Foundation, for helping us to identify this topic for the Cocker Spaniel Update.
Since it began in 2002, the Purina Parent Club Partnership (PPCP) Program has raised more than $3.07 million to support canine health research funded by the AKC Canine Health Foundation. Cocker Spaniel enthusiasts who are members of Purina Pro Club and who have designated Cocker Spaniel as their breed of dog and submitted weight circles from qualifying Purina brand dog foods have contributed to the $26,103 given directly to the American Spaniel Club through PPCP since 2002. An annual donation based on the value of the submitted weight circles is split between the parent club’s Donor Advised Fund at the Foundation for canine health research and the parent club for education, research and rescue efforts.

**Purina Pro Plan Introduces BRIGHT MIND for Adult Dogs**

Purina Pro Plan recently launched BRIGHT MIND Adult Formulas to help support the cognitive health of adult dogs. The breakthrough nutrition includes a blend of brain-supporting nutrients, DHA and EPA, B vitamins, antioxidants, and arginine to help support a dog’s cognition throughout adulthood. Purina Pro Plan BRIGHT MIND Adult Chicken & Rice Formula and Adult Small Breed Formula have optimal levels of high-quality protein, including chicken as the first ingredient, and fat to help maintain ideal body condition. These dog foods also have vitamin A and linoleic acid, an omega-6 fatty acid, for healthy skin and coat, and EPA, an omega-3 fatty acid, and glucosamine for joint health and mobility.

**‘Rumor’ Wins 2015 Purina Pro Plan Champions Cup**

The No. 1 all-breed show dog in the country in 2015, the German Shepherd Dog “Rumor,” also tallied the most points to win the Purina Pro Plan Champions Cup. Among her prizes, Multi-BIS/Multi-BISS GCH Lockenhaus’ Rumor Has It V Kenlyn received $10,000 and an original oil painting by accomplished canine artist Linda Draper. The 4-year-old female, who was handled by breeder-owner Kent Boyles of Edgerton, Wisconsin, won 175 Bests of Breed, 154 Herding Group Firsts, 93 Bests in Show, and 33 Reserve Bests in Show in 2015.

**Want to Reach the Editor?**

Have comments about the Cocker Spaniel Update? Send them to: Barbara Fawver, Editor, Nestlé Purina PetCare, 2T Checkerboard Square, St. Louis, MO 63164 or via email at editor@purina.nestle.com.

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