Hospital services coordinate to diagnose and treat dangerous, disguised condition

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Within only a few days, a young St. Bernard went from a swollen leg to critically ill. Her owners rushed her to Cornell University Hospital for Animals (CUHA). There, it was all hands on deck as the hospital's emergency, internal medicine, soft tissue, anesthesiology and critical care services worked together to diagnose and treat an unusual sepsis, a response to infection, that was threatening the pup's life.

"I can't even tell you how grateful I am to Cornell for saving Charlie's life," says Marjorie DiMorier, who owns the 18-month-old dog.

At first, Charlie was simply not herself and lethargic. Her local veterinarian treated her for a fever but, within a week, her back leg was significantly swollen and paralyzed. When Charlie also stopped eating her owners took her to CUHA. The emergency and critical care service did blood work and found changes consistent with inflammation in her body, so they transferred her to internal medicine service for further investigation.

"There was no obvious cause of the inflammation so we did a complete work-up of Charlie," explains Dr. Brittany Kunz, second-year internal medicine resident. This included blood work and testing fluid from the swollen leg that was thought to be at the root of the problem. A CT scan of Charlie's abdomen was also performed, which identified a fluid pocket. Kunz took a sample of the fluid and sent it for testing that determined it was infectious. This confirmed that Charlie had a very serious condition, septic peritonitis, in which the tissue that lines the inner wall of the abdomen is inflamed. She needed exploratory surgery to find and treat the cause.

"This was a good reminder that not everything is localized to the region with the obvious symptoms, such as the leg in Charlie's case," says Kunz. "The infectious fluid took an unusual path down the leg that masked its presence in her abdomen."

Internal medicine consulted with soft tissue service, who reviewed the CT and agreed Charlie needed surgery.

"Everyone did a great job reaching a diagnosis. Septic peritonitis is a life-threatening condition and only about half of the animals who suffer from it survive," says Dominick Valenzano D.V.M. '15, a surgical resident.

During surgery, Valenzano explains, "We found a giant abscess around the kidney that ruptured and was leaking infected fluid throughout the abdomen." He notes there are many causes for an abscess like this to form and it's not known exactly why Charlie developed hers. Surgeons removed as much of the abscessed tissue as possible. They also started Charlie on antibiotics to help her body kill off any remaining bacteria.

“Charlie did fairly well in surgery. We moved pretty quickly because she was a very sick dog and not very stable,” says Valenzano. “The anesthesiology service really managed her carefully throughout the surgery.”

DiMorier was unable to remain at the hospital during Charlie’s stay, so relied on the staff to keep her informed of her progress. “They were awesome about calling us and keeping us updated every couple of hours or so through those first critical days. It was a very scary experience, but a positive one because of the staff.”

Charlie recovers from surgery at home. Photo provided.

Charlie recovered with the critical care service in the intensive care unit, as is typical for animals with septic peritonitis. “In these cases, we worry both about the consequences of sepsis itself and the potential for complications of surgery and anesthesia,” explains Dr. Robert Goggs, assistant professor in emergency and critical care at Cornell. He supervised Charlie’s care in critical care service. “Sometimes the disease and treatment are overwhelming and organ dysfunction can occur despite our best efforts,” he adds.

The service watches patients carefully to spot complications early and take steps to support organ function to help patients get better. Thankfully, Charlie did not need blood pressure support and was eating on her own. However, she did need special fluids to compensate for low sodium levels and required a day of oxygen support. Critical care also managed her pain and anxiety and treated her infection with antibiotics.

“Charlie did remarkably well,” says Dr. Sarah Robbins, emergency critical care resident.

Before Charlie was discharged, DiMorier gave Goggs permission to include the dog in a study aimed at finding treatment protocols for sepsis that limit the development of antibiotic-resistant bacteria. Dogs are identified as potential study candidates at the time they are diagnosed with sepsis and are then tracked through treatment and recovery up to day 60. Charlie simply had to return to Cornell a few times for blood tests.

“The best part was, we got to see her again multiple times when she was feeling better and wagging her tail,” adds Robbins.

DiMorier says Charlie is completely recovered and “back to her clown self,” adding, “If it weren’t for Cornell, she wouldn’t be alive today.”

“The study will improve our ability to treat sepsis, and particularly indicate when it’s safe for us to discontinue antibiotics. We hope our results will help guide clinicians on how to treat individual dogs with antibiotics while safeguarding these drugs for use in all dogs,” explains Goggs.

DiMorier hopes Charlie’s participation will help others. “I’m happy Charlie may help another animal with a septic abdomen get safe and effective treatment,” she says. Charlie seems to enjoy the regular visits back to Cornell, too. “When it’s time to leave, she tries to follow them rather than go with me. That tells me she’s received ultimate care.”

By Cynthia McVey