

Canine streptococcal Toxic Shock Syndrome

by

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New more invasive strains of streptococci have recently appeared, resulting in frightening new diseases in both humans and dogs. Both humans and dogs can develop streptococcal toxic shock syndrome, with the rapid development of symptoms of shock, high fever (104 to 107 degrees Fahrenheit), cough, abnormalities of coagulation and rapid death. In humans, the mortality rate is estimated at between 60-80%. In dogs, it may be even higher as the course of the disease is so rapid that a dog may be killed in as little as 1 to 4 hours from development of the first symptoms, so that some dogs are simply found dead in their runs, houses or yards. It's entirely possible to leave a healthy dog in the morning and find it dead when you come home from work. Necropsy, if done, frequently fails to reveal the cause of death in dogs found dead, further skewing the statistics.

Treatment of acute CSTSS is often unsuccessful. One veterinarian in Canada has noted a 50% mortality rate, which seems to be unusually successful. Those dogs who survive have been treated with IV antibiotics to which streptococci are susceptible, particularly Penicillin G and Clindomycin. Clindomycin seems to be particularly useful in acute cases because it halts the metabolism of the streptococci, stopping the cascade of toxins responsible for the high fever, shock and Disseminated Intravascular Coagulation (DIC).

Dogs can be infected by canine strains of streptococci and sometimes by human strains. A dog handler with pharyngitis (sore throat) was thought to be the source of infection in a Greyhound kennel epidemic in Florida, and a human strain was isolated from an infected dog in Canada. There are certainly human "carriers" of streptococci, and according to Brad Fenwick, D.V.M. of Kansas State University Veterinary School, there are also canine carriers of virulent streptococci who never show a symptom.

The portal of entry in dogs usually seems to be the throat and lungs. The reproductive tract of bitches in season is an open invitation to bacteria as well. Oddly, streptococcal skin infections in dogs don't seem to be a problem although this is a frequent site of entry in humans. This could be because canine skin is better protected by the fur, because canine skin is simply more resistant to infection, or because minor wounds or cellulitis are overlooked because of being covered by fur.

The severe symptoms typical of CSTSS seem to result when the bacteria invade the bloodstream, producing septicemia and toxemia, with a cascade of toxins. In humans, the invasion follows the pattern of classical "blood poisoning" from streptococcal cellulitis or septicemia from "strep throat," except for being much more toxic and much quicker. In humans, the disease is about as contagious as bacterial meningitis, and antibiotic prevention is recommended for both diseases.

TRANSMISSION OF CSTSS

The known exposures and transmission factors in Cloudy's case are as follows, and seem to be fairly typical:

Dog "A", 11 mos old Siberian female was lethargic and vomiting small amounts (no fever) at about 5pm and was found dead in run at 6am...necropsy showed nothing.

Two weeks later, on 9-3-99, Dog "B" 2 1/2yr old Siberian female was housed in the same indoor kennel area, while being shown at the National Specialty in Portland Oregon. Last day at that kennel was on 9-12-99 and dog was then transported home to another state.

On 9-22-99, Dog "B" became lethargic with vomiting, and was taken immediately to the local vet. Blood work was negative...vet sent the dog home on Clavamox for owner to monitor. Dog vomited up the Clavamox and owner left dog in its crate and went to work and then to school. Owner arrived home at 10 pm to find Dog"B" dead in crate. Necropsy showed nothing abnormal, but noted blood in uterus and vulva.

The cause of death in dogs "A" and "B" has not been definitely established, although Dr. Fenwick has spoken with dog "B's" veterinarian and both agreed it was most likely CSTSS.

On 9-12-99, owners of Dog "A" came into physical contact with Dog "C", 8 mo Siberian male (Cloudy) by examining the puppy's mouth and teeth. Dog "C" was stricken at about 11:00 a.m. on 9-23-99. This is where my story comes in. Puppy survived. In a side note, my puppy (and many others unaffected for that matter) was exposed to the humans handling both Dogs "A" & "B" during the week of 9-3-99 through 9-12-99.

Cloudy's case illustrates a typical picture of canine streptococcal toxic shock syndrome. Cloudy went to the Siberian Husky National Specialty in Portland, where he is thought to have been exposed to SCTSS. About 12 days later, Cloudy's owner took him with her to her work as a vet tech. He was apparently in good health in the morning, but developed some vomiting and drooling about 11 a.m. At about noon, he became lethargic, and by 2 p.m. he developed a fever of 106 degrees, developed shock and collapsed. He was treated with IV fluids, dexamethasone and IV antibiotics. While this treatment was being started he developed a deep, wet cough and signs of DIC (disseminated intravascular coagulation) in the form of ecchymoses on the abdomen and penis. With intensive treatment, he improved and his temperature was back down to 104 degrees by 6 p.m. and finally became normal by 11 p.m. Since at that time the infectious agent was unknown, he was put on oral metronidazole as well as his other antibiotics, to be sure of covering all the bases. The deep wet cough persisted for three full days. He recovered much less quickly than he became ill, with persistent weakness and lack of energy, but was in apparent good health in about 2 weeks.

RISK FACTORS

Important risk factors in the transmission of CSTSS seem to be:

Crowded conditions, such as racing Greyhound kennels and conformation dog shows, especially inside and in the fall and winter months. Conformation dogs are at higher risk than dogs entered only in performance events.

Hygiene factors, including sharing food and water bowls. Handlers and judges may transmit the infection by examining/handling multiple dogs sequentially without washing their hands. Equipment, such as muzzles used in racing dogs should be kept clean and/or not shared by multiple dogs.

Close physical contact: Although "social sniffing" and running with an infected but asymptomatic dog is reasonably safe, jaw-wrestling and play-fighting is not. Sharing a run with an infected dog is an important risk factor, as well as water-bowls, bedding, etc.

Crate-swapping and sharing is high risk. Licking of genitalia of bitch in season by infected male is another high risk factor. Dogs kenneled in adjacent runs are not at high risk.

Dogs licking the face of a human with a "strep throat" or cellulitis or of a child with impetigo are definitely at risk.

Stress factors, such as traveling long distances, confinement, exposure to stressful situations, estrus, etc. may reduce a dog's resistance to disease.

WHAT YOU CAN DO TO PROTECT YOUR DOG

Avoid exposing your dog as much as possible to the high-risk conditions above. If you find that one of the dogs to which your dogs were significantly exposed develops an illness with shock, collapse and high fever, consult your veterinarian about antibiotics.

If your dog is entered in a conformation show, crate and groom the dog outside if possible, or in as well-ventilated an area as is available. Try to show your dog's bite to the judge yourself, to minimize the possibility of bacteria being carried down the line of dogs. Remember, this is an infectious disease, like chicken pox, and if your dog develops CSTSS it's not a reflection on your kennel, cleanliness or management. You wouldn't be reluctant to admit that you yourself had strep throat, after all

If you don't have a rectal thermometer, get one.

Know the location of the nearest 24-hour emergency veterinary clinic as well as your veterinarian, and memorize the phone numbers.

Print out this post or the information in websites and carry a copy in your car or van.

Watch your dog or dogs carefully, and check them frequently. Remember, if your dog does develop CSTSS there is no time to waste, so make as many preparations as possible in advance.

If you or your veterinarian have further questions, or if you think your dog may have CSTSS, please call:

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Dr. Fenwick would like information on ANY dog who may have or have had CSTSS, surviving or not. There is grant money available for laboratory tests and necropsies. Contact Dr. Fenwick to find out if you are eligible, exactly what information, cultures and tissue samples he needs and where to send it. Dr. Fenwick is interested in speaking to owners and veterinarians of any dog who may have or have had CSTSS.

This information has been compiled by the Southeastern Newfoundland Club, as part of their comprehensive rescue program. We are grateful for their generosity in sharing all of their hard work.- NCA 2006

