Canine streptococcal toxic shock syndrome (STSS) (14-Aug-1999)

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Abstract

Streptococci are a family of gram-positive bacteria which cause either localized or systemic infections in humans and animals. While some strains rarely cause disease and are often considered to be commensal inhabitants of the skin and mucosal surfaces (oral, nasal, intestinal), other strains are capable of causing life-threatening primary infections. In dogs, Streptococci are known for their ability to occasionally cause septicemia in puppies and a range of localized diseases in adults.

Approximately ten years ago, Streptococci emerged as the cause of a previously unrecognized disease in humans. The clinical disease became known as Streptococcal Toxic Shock Syndrome (STSS) because it closely mimics the better known "Toxic Shock" in women caused by toxin producing strains of Staphylococci. Rapid onset, high fever, hypotension and shock are prominent characteristics of STSS in humans. At approximately the same time, a number of unusual cases of necrotizing fasciitis (NF) caused by Streptococci were also reported in humans. This syndrome relates to a very aggressive and rapidly advancing infection of subcutaneous tissues with extensive tissue destruction and high mortality rates.

In 1996, Miller and Prescott reported on a series of seven dogs from southern Ontario that had severe systemic disease and shock associated with infection with fl-hemolytic Streptococci canis (Group G). In four of these dogs the infection was associated with necrotizing fasciitis. As a result of surgical debridement, supportive medical care, and treatment with antibiotics, all of these dogs survived. In contrast, all three of dogs with streptococcal shock without necrotizing fasciitis died or were euthanized within 48 hours. The lungs were considered the primary site of infections in two of these dogs as their clinical signs were related to respiratory distress and shock. Historically, similar disease outbreaks have been reported by Garnett et al (1982) in a group of research dogs, in captive coyotes by Gates and Green in 1979, and in racing Greyhounds in 1981 by Sundberg et al. More recently, multiple outbreaks of fatal STSS occurred in racing Greyhounds in 1992 and again in January/February of 1999. Additional cases have recently been reported in other dog breeds and has become a concern for owners of dogs housed in large groups or participating in shows or performance events. The reason for the emergence/reemergence of canine STSS/NF is unclear and very little is known about transmission or prevention.

Dogs that develop STSS are healthy prior to being found very sick only a few hours later. Typically, they are found in lateral recumbence, either being too weak to move or experiencing rigidity or mild convulsions. Rapid, uncontrolled muscle fasciculations are often noted. A consistent and important clinical finding is a very high temperature (105°F). As the disease progresses a deep, non-productive cough typical of pulmonary edema develops. Rapidly, spontaneous hemorrhaging typical of disseminated intravascular coagulation develops which is associated with coughing up blood, bleeding from the nose, severe bruising of the skin, and in some cases bloody diarrhea. Shock therapy alone is generally not able to save these dogs. Dogs treated in the beginning stages of the condition with injectable antibiotics (clindamycin or penicillin-G) are more likely to recover.

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