

A Closer Look at *Streptococcus Canis*, *Agalactiae*, and Subspecies *Equi Zoopidemicus*

Streptococcus Canis is a G beta-hemolytic species of *Streptococcus*. It is also part of the healthy microbiota of dogs and cats, that promote healthy mucosal and skin health. When opportunistic infections occur, read overgrowth, and keep in mind that our body is like a scale, to much one way or the other and the whole system falls over, so keeping bacteria in the middle range of growth is important to receive potential benefits from them, to little or to many can cause system stress and allows for opportunistic infection. During infection, the bacteria have been known to cause neonatal septicemia, abortion, and cellulitis in dogs. In addition, *S. canis* is also responsible for streptococcal toxic shock syndrome and necrotizing fasciitis. The main causes for overgrowth of this bacteria is overcrowding of a population as overcrowding cause stress on a cellular level allowing overgrowth as well as remaining in confined spaces for long periods of time... like kennels with no outside access. Death results in the very young and old of the population as well as already weak individuals. The development of disease can occur rapidly, and symptoms include skin ulceration, chronic respiratory infection, and necrotizing sinusitis. The persistence and spread of these bacteria in a confined area can lead to both sepsis and death, quickly resulting in above average levels of mortality among susceptible canines. Treatment is relative simple as this bacteria has no immunities for antibodies due to it not being a huge killer unless circumstances are right. Best practices of management are a clean environment, to allow fresh air and outside access to a clean area and to not overcrowd animals.

Streptococcus Agalactiae is a group B strep also know as GBS, and is a round gram positive bacteria, with a tendency to form chains. Again this is another 'normal flora' colonizing the gastrointestinal and genitourinary tract of up to 60% of canines, and 30% of humans and can be transferred through mucus membrane contact during birth. It does not pose a problem in the health adult. But it can be devastating for a new born exposed during birth . And it is the major cause of several bacterial infections of the newborn neonatal infection septicemia, pneumonia, and meningitis, which can lead to death or long-term sequelae . In the neonate pup early symptom onset will be at 1-3 days after birth and presents as fluid build up behind the eyes causing a 'pop eye' effect. With out treatment, which consists of releasing pressure of the eye, permeant damage can come from the rupture of fluid filled eye resulting in blindness, and secondary infection of the eye. Presentation after day 7 will normally self correct as the eye will be open enough to drain fluids naturally. Prevention can be excessed with antibiotic treatment 1-3 days prior and 1-3 days post birth. This is also the bacteria most commonly at fault for Mastitis .

Streptococcus zoepidemicus is another gram positive bacterial infection that manifests itself similarly to human Toxic Shock Syndrome, causing a severe, bloody pneumonia in dogs. It has an acute onset and in a small proportion of cases the disease has been known to kill dogs within 24 hours of contracting the infection. With mortality rates being as high as 50%. Presentation is normally similar to kennel cough, and can include fever, accompanied with sneezing, nasal discharge, which is often bloody, lethargy, and death by hemorrhagic pneumonia. Dogs can be silent carriers, meaning they will have no symptoms but can still pass it on to others, this is a highly contagious disease. However, fatal cases of *Streptococcus zoepidemicus*, in canines is generally also associated with multiple opportunistic infections, such as *Bordetella*, or other bacteria that diminish the immune system and allow the opportunistic infection to take root. It has its most common transfer is from equine, where it is considered a normal bacteria, but also can come from pigs, cows, goats, cats, sheep, Guinea pigs, and even humans . This bacterium is most commonly seen in assesses and uteruses and can cause late term abortion in canines.

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