

Herpesvirus Is Forever, but Proper Care Can Protect Puppies

By Susan Chaney

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Once a dog has canine herpesvirus, it has it for life.

Fortunately, in adult dogs, “it usually doesn’t cause much of a disease,” says Steffen Sum, D.V.M., an assistant professor at the University of Georgia College of Veterinary Medicine in Athens. “Usually it’s kept under control by the immune system.”

In adult dogs, the virus is contracted from a dog that is “shedding” it. That typically happens when the dog is “somehow immune-compromised,” Sum says. For example, if it’s being treated with corticosteroids or has some immune-related condition, the virus will start replicating and make the dog sick. The virus is excreted via any mucous membrane, plus the nose and the mouth, as well as through regurgitation. The disease is “usually self-limiting, so you treat them symptomatically,” Sum says. If the dog has a cough, the veterinarian treats that. Once the immune system recovers, otherwise healthy adult dogs get better quickly.

A Virus in Hiding

The virus “hides” in a dog’s DNA, Sum explains, and no antibodies are produced unless the dog gets sick. That’s why it’s called a “latent infection,” having no ill effects on the dog. It’s only when the immune system is compromised that the virus is stimulated and starts multiplying.

One of the times this can happen is during gestation. Hormonal changes affect the immune system, and the hidden virus may activate. Stress in the dam can also be the activation trigger.

Surveys show that 30 to 80 percent of dogs in breeding kennels are infected, according to Sum. The problem is that the dogs don’t show any signs of disease, so breeders don’t know which dogs carry the virus and which don’t. Most infected bitches carrying their first litters are likely to be perfectly healthy, Sum says, while some may have a minor upper respiratory infection or a little genital or oral mucus.

Sum says, however, that even if 80 percent of a breeder’s dogs have the virus, with proper management in a clean, warm environment, “You shouldn’t have problems.

“The virus itself can hardly survive outside of the body,” he says. “It’s very easy to kill herpesvirus. If you have a proper breeding facility, usually it’s not a big problem. We see it in puppy mills where individuals are stressed.

“In good dog breeding facilities, herpesvirus is not a problem at all,” Sum says.

It can be spread through breeding, but that particular method of transmission plays only a minor role, Sum says. “It’s very, very rare.” Although a stud may harbor the virus, it would have to be shedding it to transfer it to the bitch.

First Litters: The Danger Zone

When it comes to an infected bitch's first litter of puppies, however, it can be a different story. Without proper preparation and management, and if the virus is passed to the puppies, it's unlikely any of them will survive, Sum says.

The virus thrives in temperatures below an adult dog's normal rectal temperature – 100.2 to 103.8 degrees Fahrenheit. Because puppies can't regulate their temperatures very well for the first few weeks of life, if their temperatures drop even a degree or two, the virus replicates quickly, creating multiple problems in the puppies.

Herpesvirus can spread to puppies at three different times with varied results: while still in the uterus, in the first week of life or after the first couple of weeks.

If contracted *in utero*, "most of those don't even get born," Sum says. The fetuses will either be reabsorbed or aborted, or the puppies will be stillborn. "If they do survive, you get very weak puppies who usually die or get severely sick within the first nine days." They are so weak that they can hardly suckle.

When puppies get infected within the first week of their lives, they have bleeding in the mucous membranes, as well as internally, along with severe inflammation in the kidneys, liver and lungs. "They either die of that pretty rapidly or later it infects the brain," Sum says. If, and that's a very big "if," a puppy survives, it will "often have lifelong neurological deficits."

"The older the puppy gets, the better it can control its body temperature," he says. If the litter isn't infected until the puppies are at least 2 weeks old, "like adults, they may get a respiratory infection, mild rhinitis and vomit a little bit.

"The big thing is to keep the puppies from getting infected in the first two weeks of life." If the environment the puppies are born into – the room in the house or the kennel – is kept warm enough and warming blankets are continually monitored to ensure the puppies' rectal temperatures are maintained at 98 to 100 degrees Fahrenheit, it is possible to prevent the virus from becoming a disease. If a puppy's temperature drops just one or two degrees, it becomes susceptible, Sum says.

Preventing the disease is much more important than treating it, he adds. Sum does not, however, recommend Caesarian sections as preventive measures. When that's been done, puppies often still have the disease.

Treatment Is Futile

In almost all cases, treating puppies with the disease is fruitless.

"To be honest, treatment is usually unfavorable, Sum says. "In puppies, the disease is so quickly progressing, there's usually not much you can do."

Several treatment options exist, but none provides much in the way of survival rates, Sum says. One is to give the puppies serum from a bitch that just lost a litter. "That's something people have tried, all with variable results." The human herpes-simplex drug acyclovir affects herpes-infected cells and is "usually well-tolerated," Sum says. "That's something you can try, but again there's usually so much damage going on." Another drug is vidarabine for neurologic herpes, "but the nervous system usually never recovers, so a lot of people decide to put them

down. It's pretty toxic, so you have to get it very diluted. It's a very, very expensive treatment usually with a poor outcome."

Infected puppies usually "die really quickly while you're working on them," Sum says. A necropsy will determine conclusively whether they had herpesvirus, but while they're still alive, "you make a presumptive diagnosis." A veterinarian can take smears to diagnose the puppies, but it takes two or three days to get results. The puppies will be gone before the results get back, Sum says.

Other puppy diseases can have similar clinical signs, but at different stages. Sum says most puppies won't show signs of parvovirus, for example, until they're between 9 and 13 weeks of age. Distemper can look similar, but most dams have been vaccinated, so "usually you won't see a whole litter affected by it," he says.

"Herpesvirus is probably one of the worst," he says, "but then again, it usually only happens once." That's because the dam will produce antibodies that she will pass on in her colostrum to any future litters.

"In a proper breeding facility that's taking good care of the bitches and keeping the puppies warm, it's not a big deal," Sum says. That's why there's no vaccine in the United States. "It would be easy to make a vaccine, but there's no market." A Merial-manufactured vaccine is available in Europe, so if a kennel had a tremendous problem, a veterinarian could get it through customs on a "compassionate use" waiver. However, "Before I start vaccinating, I'd work on the environment," Sum says.

"What I can't stress enough is that you have to provide a good environment," he adds. "You have to keep the puppies warm. You may have to elevate the room temperature. Prevention is more important than treatment."

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