

IRISH WORKING TERRIER FEDERATION

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CANINE HERPES – MORE THAN A NEONATAL RISK

Until relatively recently, canine herpes seemed to be a problem only in the whelping boxes maintained by rank novices in breeding dogs. Experienced breeders could control it, prevent the effects – if they knew about it. But it appears that perhaps a different strain of virus is running rampant and causing more and different problems for breeders of working dogs. After recent failed litters from IWTF members, matters were focussed upon to ascertain likely causes of failed litters and failed mating. Indeed the cause and effect of the various guises of “Fading Puppy Syndrome”, which is a name given to a collection of illnesses in puppies such as *Canine Adenovirus*, *Canine Herpes Virus*, *Bordetella*, *E.Coli*, *Salmonella* along with other more common contagions like *Canine Parvovirus* and *Canine Distemper*. Each which can lead to death within a few days of birth. In this Bulletin we are focusing on Canine Herpes Virus. It would appear “Canine Herpes Virus” ... has been largely forgotten for many years, due in part to the difficulty in making a definitive diagnosis. However, it is becoming increasingly clear that the virus causes many more problems than was first thought. Here we are speaking mostly of the fading-puppy syndrome where entire litters die off, one pup at a time, in the course of a day or two at most.

Herpes is caused by a virus. Demodectic mange is caused by the action of a parasitic mite on the dog that has a weak immune system. Alike as night and day, you might think, but there are one or two similarities: some dogs are more resistant to such attacks than others, and the causative or triggering culprits are almost everywhere. A close similarity in control and resistance is in the response to other antigens, such as hookworm, coccidiosis, and even parvo. None of these is an automatic death sentence if the dog is an adult or adolescent, and is otherwise healthy. The very young and the very old are less able to fight off new microbial or parasitic attacks. The more such stresses are put on these individuals, the worse the prognosis. Puppies can die of combinations like coccidiosis and hook, when they would have survived if only one of those had been present. Also adults exposed to parvo for the first time can come through the ordeal just fine. But combine the threats, or aim them at the age extremes, and mortality rates become very high.

What is meant by the omnipresence of antigens is that Demodex mites, for example can be found on perhaps well over 90% of dogs and a big percentage of humans. (One researcher said, “This disease can literally be carried home on your clothing.”) It’s like dust or pollen... it’s everywhere. But with an immune system not up to par, and a combination of stress factors, and you have dangerous, even fatal consequences. Oestrus (female reproductive cycle) is by far the most stressful trigger for demodicosis. Herpes virus, though an entirely different organism, also exists on or in nearly all animals, including probably a transient and harmless guest on humans. However, we therefore could transmit the virus to our dogs. Virus particles do not live forever in non-nutrient (host) environments, but long enough to

be carried to the ultimate host on clothing, by sneezes, etc. It is the immune-challenged weakened pup that would fall to its onslaught. One difference between Demodex and Herpes is that the mite is alive and active, though ineffective against a healthy dog; herpes virus microbes enter a dormant state and are “awakened” by various stresses. Merial (a world leading Animal Health company who also manufacturer Frontline) says, “Most animals have already been exposed. Although Canine Herpes can be spread at mating, it is much more likely to be spread by simple contact.”

According to an Australian website, and an article by Dr. Mary Wakefield, “Puppies die of Herpes only so long as they are unable to mount a fever response, or have the lower body temperature of neonates. After 3 weeks of age puppies can raise their body temperatures high enough to resist the overwhelming infection which results in death. The treatment for Herpes in young puppies with the appropriate signs is elevation of the body temperature. It goes on to say check with your veterinarian if you think this may be the problem in your litter under three weeks of age.” The problem with that advice is that by the time one has a clue to the presence of the disease (the first dead or dying puppy), it is too late. The others are likely to have been just as chilled during a period of exposure to the virus. And in weakened pups, the virus can replicate like wildfire with entire litters lost.

According to Fred Lanting (Canine Health Lecturer), unfortunately the Wakefield piece, while very helpful overall, has some minor problems. For example, she states, “The best way of preventing newborn puppies from acquiring the disease is to quarantine them and their dam from 3 weeks prior to birth and 3 weeks after whelping.” If the virus is everywhere, as it almost always is, that is no solution. There are only two ways (1.5, really) to some have confidence in to prevent neonatal deaths from herpes: elevated ambient temperature during the first three weeks, and the possibility of the Merial vaccine (but still, I would not lower the thermostat!). Wakefield says, “Herpes infection of the dam which does not result in abortion may result in low birth weight, weak, or stillborn puppies.” And, she says that titres show herpes activity in 80% of bitches who had lost their litters, even though there was no bacterial blame. Wakefield advocates isolation, but Fred Lanting believes that is a lost cause; Merial states, “The virus does not come from bad kennels – it is already everywhere!” A point that some IWTF members are beginning to agree with.

Since immunity is very short-lived, contracting the problem again and again is to be expected. Dogs have fluctuating titre levels all the time, some of it due to new exposures, some due to stress-released previously dormant particles.

In the next few paragraphs, we can inform you what we used to know about it – the old viral strain. Then we will return to some of the more recent reports and difficulties that exist in the last decade and to suggested solutions.

Herpes — There are many organisms in the virus family called herpes, the most common in dogs being the puppy killer at ages of around two weeks or less. Herpes seems to be present in most dogs most of the time, but some pups are more susceptible or under more stress, which lowers their resistance. New puppies that are not given adequate drying, heat, and nursing opportunity (internal warming) right after delivery are most at risk. Once the disease has been noticed in a litter, few survive. Prevention is the only remedy in nearly all cases. It is practically unstoppable once noticed.

Neonatal deaths and Herpes viremia — This syndrome, caused by a herpes virus, is a major cause of death in pups between two days and three weeks, and may take two weeks to spread through the litter. “Herpes” actually refers to a class of several viruses, so you may encounter the word used in the context of a human disease, or a disease in other animals. One of this class will not produce the same disease as will another. With this viremia, death from kidney and liver failure usually occurs within eighteen hours; symptoms include failure to suckle, constant crying, shallow and rapid breathing, loss of appetite and coordination, and a soft, yellowish green stool with no particular odour. The stool symptom can be easily missed if the bitch is cleaning her pups to make them defecate.

Treatment includes elevating the environmental temperature, thus creating a sort of artificial fever since fever is one of nature's ways of fighting virus organisms. Close to one hundred degrees F (38 C) for the first three or more hours post-parturition is a recommended ambient temperature, followed by 90 to 95 degrees for another 24 hours. Some people who have worries about the drying-out effect of such high temperatures frequently give the pups glucose solution and formula to prevent dehydration, or simple monitoring of litter temperature and condition. It is wise to make sure that the floor is warm or insulated, and the heat lamp, heating pad, or low-hanging light bulb is on when the dam is going out to “potty” for the first weeks. Herpes thrives even as high as between 91 and 98.6 degrees F (33 to 37 degrees C), and chilled pups are especially susceptible. At 100 or 101 degrees the virus stops replicating, so the object is to get the pup's body temperature up to that which is considered normal in the adult, about 102 degrees. After three weeks of age, the pup's body temperature is usually high enough to prevent herpes growth, and by then they have developed the shiver reflex, which is another heat-regulating mechanism. However, because damage to kidneys may not produce symptoms until as late as ten months of age, perhaps the surviving pups (in a litter with pups known to be dying of hypothermia -exacerbated herpes) that show the crying symptom associated with haemorrhage and necrosis should be euthanized right away. Ask your veterinarian about treatment with a preparation, Vira A, designed for human herpes encephalitis, or he may have more recent advances. But I have not seen any good results from any kind of treatment. A few pups will survive now and then, but regardless of treatment (other than elevated temperature).

This virus can remain latent for many months and be reactivated by stress or an immunosuppressive agent such as a shot of cortisone or similar steroid. Thus, pups that contract a marginal infection but not enough to be fatal, might still have their immune system weakened, or else harbour the inactive virus. Pups seem to get the virus through the saliva of their infected dam, though a few may contract it in the birth canal or even in the uterus before birth. If you have a kennel in which two or more bitches are producing litters and one loses a litter to herpes, what should you do to save the next litter? Besides the usual step of cleaning everything with a dilute bleach solution (as with parvo or other viral infections), you may find success by having your veterinarian inject them with serum obtained from the bitch that lost the litter. You may also succeed by keeping them in the high temperature environment mentioned above.

That was the state of our knowledge in the last couple decades of the 20th Century. We had come only so far as determining that herpes had about 90% mortality in neonates. Now we may be on the brink of an advance in knowledge, unfortunately brought on by an alarming increase in failures in the dog breeding community. For some years, we have been hearing more and more complaints about bitches not conceiving or failing litters. But now, there may be another factor? Herpes appears to

be the cause of many or most of these missed mating or litter failures. Nobody has been keeping statistics, so we can't tell how many failed matings are costing bitch owners time or eventual failed litters. Not a pleasant experience. Also delayed repeat breeding or even unwittingly changing stud dogs may alter a person's entire breeding plans and lines.

The increasing use of too-frequent vaccines for any and all things is another target for blame for lack of conception and other concerns – for some. That is, some want to point the finger at the effect of over-vaccination on the immune and other systems. People have other causes they want to point the finger to, but it is a definite fact that some people are not getting their bitches pregnant and a recently higher number of failed litters. Perhaps the new factor in all this is a new herpes variety? Europe seems to have found out that it is real. In many growing pockets on the continent, breeders are using and reporting success with a new vaccine. In England, for example, scores of bitches supposedly infertile or nearly so have been producing very well after getting the vaccine. The word going around there is that if the bitch is vaccinated while in oestrus or right after the bitch is mated, and again at 6 or 7 weeks in whelp, not only is it almost always successful, but larger litter numbers than expected seem to be the norm.

Right now, we know of only one company making the herpes vaccine, Merial. They have said that: "the herpes canine virus is an infectious and contagious disease caused by alpha herpes virus, which involves reproduction disorders, losses of pups mainly before 3 weeks, but also of infertility, abortions, and/or stillbirths. The vaccination which exists is used to protect the pups less than 3 weeks at which age one finds the clinical form most serious. The mothers receive an injection at the time of heats [oestrus] and another injection one or two weeks before whelping. A serious consideration for any breeder who may have experienced Canine Herpes Virus symptoms.

Merial also says, "Visit www.canineherpes.com for comprehensive public domain info." And describes the virus and vaccine thusly: "EURICAN Canine herpes virus (F205) strain antigens; Indication: Active immunisation of bitches to prevent mortality, clinical signs and lesions in puppies resulting from canine herpes virus infections acquired in the first few days of life."

Merial is headquartered in Belgium, but has done much if not most of its business in France, although national borders in Europe are getting indistinct. French breeders are convinced the new herpes strain is the real cause of bitches not getting pregnant as well as a reputed increase in mummy puppies, absorbed fetuses, spontaneous abortions, stillbirths, and neonate mortality in the first three weeks. It would appear some Irish Greyhound breeders are also well aware of this inoculation preventative measure. Whether this will be substantiated by scientific studies, we cannot forecast, but limited research told us that the herpes incidence there (France) in GSDs is now about 40%, and was expected to rise to 80% in 2005.

The anti-virus (Merial – Eurocan Herpes F205) is available in Ireland. Many people would urge every breeder to get their brood bitches vaccinated during her oestrus period and some say a booster before whelping.

There are other causes for non-conception, of course. If persist issues occur it is suggested to "do a sensitivity test for bacteria near the uterus, and put her dogs on an antibiotic." But E. coli and other bacteria, while almost as omnipresent as Herpes and Demodex, is relatively seldom the culprit.

Merial information tells us, "Like all herpes viruses, CHV is highly infectious, and a recent study showed that more than 80% of the dogs tested had been exposed to the virus at some time in their lives. Other studies have shown infection rates of 40-100% in kennels around Europe." They also note, "Once the virus becomes established in kennels, periods of high mortality are interspersed with a general fall in the average birth weight of the litter" and "the existence of a problem only becomes apparent once a vaccination programme is put in place."

The "epidemic" (not really an accurate term here) is going to get worse before it gets better. Drug supply firms in the U.S., Europe and other countries need to determine if indeed, the conception and litter failures are due mostly to the virus, and that they had best get with the program and serve their customers! While only a few mentions in Merial's promotional literature (and zero professional journal articles so far) involve "infertility affecting several bitches", one suggestion under their "treatment" guidelines is simply, "Try the vaccine and see what happens".

To the question, "If the bitch is already pregnant, is there any point in vaccination?", they respond in the affirmative: "If possible, try and give two injections, even in the last few weeks of pregnancy. Even one injection is beneficial, though obviously the later it is given the greater the chance that the placenta will be damaged and the unborn puppies affected." Here again, the emphasis is mostly on the health of puppies already conceived or whelped, not so much on the failure to conceive. That is only brushed lightly.

Advice is to question your vet to get the straight facts about the effect of herpes virus on conception and litter failures if you suspect an underlying issue in your kennels; then, if there is confirmation of the anecdotal evidence (necropsy of pups or test sire/dam), quickly provide a vaccine to breeders as recommended by the manufacturer under veterinary advice. Many have already lost enough!