

## Canine Herpes Virus Seminar.

A seminar was held by St. Paul's Veterinary Clinic, Orpington at the Olympic Golf Club in Swanley, Kent on Wednesday 26<sup>th</sup> March 2008. Introduced by the lead vet at the practice Kate Arrowsmith MRCVS, the presentation was given by Merial's Veterinary Professional Services Manager, Mrs Susanna Batchelor MRCVS. Sue gave an informative presentation that whilst being technical could be easily understood by the 60 plus people who had travelled quite some distance to be in the audience and whose backgrounds were quite diverse.

Beginning by telling us that there is only one vaccine available for Canine Herpes and that is produced by Merial who had kindly sponsored the evening for St. Paul's Vet. Centre, Sue went on to describe the disease, its origins and modes of transmission, its effect on canines and more importantly bitches/puppies, diagnosis and prevention and the suggested vaccination programme to help avoid the pitfalls of this aggressive disease.

Canine Herpes Virus (CHV) is related to Feline Herpes Virus (FHV) and Equine Herpes Virus (EHV) but is only infectious to dogs. It is spread by direct contact – oronasal, venereal or transplacental – but, contrary to popular belief, the most common route of transfer is oronasal for example when dogs go nose to nose in the park. The venereal route is not very efficient. There is no air transfer of this disease only via secretions.

In the body it replicates in the tonsils, nasal mucosa and pharynx and the secretions become loaded with the virus. It is unstable and can be destroyed by disinfection and heat. It is widespread – an estimated 90% of the canine population has been exposed to it. Exposed animals develop a lifelong carrier state where the virus becomes latent in the ganglia of the nervous system. When in the latent state the virus is not replicating and the animal is not shedding but the virus may recrudesce when the animal becomes ill or stressed. Because of the high prevalence of CHV in trials it has been hard to find virus negative bitches.

CHV is transmitted to the whelp via the birth canal or contact with infected oral and nasal secretions from the mother or litter mate. The whelps' low body temperature allows the virus to spread and infect the rest of the body. It is therefore essential to raise the ambient environment temperature when the bitch is whelping and nursing. The incubation period is 6 – 10 days.

In neonates (whelps less than 6 weeks old) CHV can be an acutely fatal disease and may present with any or all of the following:

- sudden death
- haemorrhage – bruising along the belly of the pup is indicative

- vomiting / diarrhoea
- weight loss and failure to suckle (fading puppy syndrome)- the pup loses the suckle reflex therefore it loses weight and becomes listless and then fades.
- constant complaining – pup cries because of hunger/ weight loss.
- neurological signs – blindness, wobbliness.
- ocular disorders – inflammation

There is a high mortality rate – 80% of those infected at less than one week old will die. Death occurs within 1 -2 days. There is less severe disease in pups who are 3 – 5 weeks of age because they can control their body temperature and raise a fever which prevents the progression of the disease.

In adults, the most common signs are NOTHING – the dog assumes an inapparent carrier state. The virus reactivates during periods of stress especially pregnancy. Reproductive problems include infertility in males and females, abortion and placentitis which gives rise to weak puppies. CHV can also be a cause of kennel cough.

Previously infected dogs may shed virus as discharge from the nose, vaginal secretion or penile secretion. While infected, active raised sores may be seen in the vagina or penis but often there are no clinical signs.

There is no definite way of saying an animal has herpes. Serology (taking a blood sample) will show that the animal has been exposed to herpes but not if it is currently causing disease or shedding at that moment. Pathology is the most definitive way but at that stage it is too late for the puppy. Certain pathological samples need to be sent for virus isolation. These are usually kidneys, liver, lung, placenta and must be bagged, refrigerated and submitted to a specific lab eg Glasgow within 24 hours.

Differential diagnoses are:

- viral - Coronavirus in conjunction with parvovirus; adenovirus and distemper (although this is not seen too often).
- bacterial – e coli; streptococcus; mycoplasma.

The following is recommended in the prevention of CHV :

- isolation of whelping and breeding bitches for 3 weeks before and after whelping to minimise the risk of infection.
- general hygiene – routine disinfection to keep things clean; minimise water/ humidity; keep ambient temperature raised.

- prevent overcrowding and stress. Stress causes recrudescence . Keep the bitch on her own to minimise stress.
- use heat lamps at 38 – 39C and give supportive care – make sure pups are suckling, clean and warm.

Vaccination can help reduce loss but must be in conjunction with all the above. Vaccination boosts antibody level but the immune response lasts only about 3 months therefore vaccinate only during pregnancy and for each subsequent pregnancy. Active immunisation of pregnant bitches induces passive immunity in the pups. The majority of maternally derived antibodies pass to the pups via the colostrum during the first 24 hours of life. After 24 hours, the gut does not absorb any more. The herpes virus vaccination stimulates the bitch to produce large levels of antibody to pass to the puppy when it needs it most.

The vaccination schedule:

- 1<sup>st</sup> injection at heat or 7– 10 days after mating.
- 2<sup>nd</sup> injection 1-2 weeks before expected date of whelping. This gives an anamnestic response.
- booster – revaccinate at each pregnancy.

If the 1<sup>st</sup> vaccination window is missed it is recommended that the owner speaks with their vet who will contact Merial to be advised of the appropriate protocols. Should the bitch miss, the injections are not harmful to her. The duration of immunity declines rapidly after 3 months. Vaccination is therefore required for each pregnancy.

In a trial situation investigating the efficacy of vaccination in a naïve population where pups were challenged with CHV after birth, the data revealed a mortality of 80% in the placebo group and zero mortality in the vaccinated group. A study of vaccination in a CHV contaminated environment showed 50% reached weaning age in the non vaccinated group and 75% reached weaning age in the vaccinated group and this group had a higher birth weight.

Vaccination in practice:

The classic changes at pathology in a puppy that has died from Canine Herpesvirus include intestinal thickening; subcapsular renal haemorrhage; friable liver and spleen and petechial haemorrhages on the belly.

Once a positive diagnosis has been reached the action plan to reduce losses include raised hygiene levels; separate pregnant and whelping bitches from their kennelmates; barrier nursing where clothes and footwear are changed before entering the whelping quarters; ensure dry surfaces and low humidity; use heat lamps; vaccinate.

In a case study of a highly contaminated environment, a single vaccination reduced the mortality to 25% and a full vaccination course reduced mortality rate to 2%.

The vaccination is not designed to protect adults – only the resulting pups therefore there is no benefit to vaccinating stud dogs or bitches. Neonates cannot mount an immune response therefore they must get antibodies from the mother. Vaccination can only be obtained through vets. There is a limited stock at the moment but your vet will be informed when more is available.

Adverse reactions: The CHV vaccine is a killed vaccine so cannot cause disease but vaccination can cause any subclinical infections present at the time of vaccination to become clinical.

Herpes can be responsible for the reabsorption of pups. The vaccine has been around since 2003 and Merial have no knowledge of any adverse reactions in the pups from inoculation.

In conclusion, CHV is impossible to eradicate; 90% of the canine population could be carriers; warmth and hygiene are vital; vaccination can help.

Transcribed by Gwen Beaden.  
Myriehewe Collies and Shelties.  
27.03.2008

