



The Liphook Equine Hospital

EQUINE HERPESVIRUS INFECTIONS

There are several equine herpesviruses, 4 of which are widespread in the horse environment and are associated with a variety of disease syndromes. They are called Equid Herpesviruses 1, 2, 3 and 4 (EHV-1, EHV-2, EHV-3 and EHV-4).

What are the signs of infection?

In its most common form, EHV-1 causes respiratory disease in foals and yearlings. They show variable signs which include elevated temperature, watery nasal discharge, enlarged glands under the jaw and coughing. Some cases may progress to secondary pneumonia. EHV-1 can cause single or multiple abortions ('virus abortion') in mares during mid to late pregnancy. Also, infected foals may be prematurely born alive but soon fade and die while others are born dead at full term. Disastrous epidemics ('abortion storms') can occur in susceptible pregnant mare populations. Also, the virus can also cause paralysis, in horses of all ages and types, often first involving the hindlimbs and bladder and sometimes progressing to involve all four limbs and resulting in death or a requirement for euthanasia.

EHV-2 does not usually cause disease on its own but is believed to cause suppression of the horse's immunity to other viral infections and allow them to cause signs of disease, usually respiratory infection, i.e. elevated temperature, watery nasal discharge, enlarged glands under the jaw and coughing.

EHV-3 causes 'coital exanthema' which is a contagious genital infection (vulva in mares, penis and scrotum in stallions) characterised by numerous small blisters or spots, sometimes called 'the pox'. The blisters burst and become secondarily infected by skin bacteria and then heal leaving white (de-pigmented) skin spots. The infection spreads venereally usually from mare to stallions and then to other mares. It has no direct effect on the fertility of stallions or mares but natural mating must be stopped to allow the disease to take its natural course (usually 10 days to 2 weeks to complete healing) and to prevent further spread of infection.

EHV-4 is a common cause of coughing and loss of performance in racehorses. Usually the respiratory disease is not severe but the disruption to training and performance programmes and consequent economic losses can be very significant. Rarely, EHV-4 is a cause of isolated abortions in mares.

What is the treatment?

Treatment is usually supportive, as specific anti-Herpesviral agents available for humans have not been proven to be successful in horses. Horses with respiratory disease may benefit from medication to reduce temperature and coughing and antibiotics may be given to help prevent or combat secondary infection with bacteria, all reducing time to recovery. Horses affected by paralysis can be very difficult to manage. Anti-inflammatory drugs may help to ease clinical signs but if the condition progresses, the horse may be unable to stand unassisted. If such cases are to be treated, the horse needs to be supported in a sling and may need to receive water and food intravenously or by stomach tube. Some horses respond to

support in slings better to others, who panic and fight in an uncontrollable manner. Abortion cannot be treated but must be managed to proceed as easily and safely as possible in terms of the mare's health and that of others. She must be isolated from all other pregnant mares, including those that she has lived with throughout her pregnancy because she, her placenta and her placental fluids are highly infectious to other mares only after she has aborted. Viraemic newborn foals cannot be treated but must be isolated and supported until the diagnosis is confirmed and euthanasia is performed.

How does the infection spread?

These Herpesviruses spread, mainly by inhalation of infectious material, either from nasal discharge or from fluid which may be coughed or sneezed over a wide area. Following abortion, the placenta, its fluids, the foetus or dead foal are heavily contaminated with virus and are a potent source of infection by inhalation for other mares.

It is possible for horses to spread the virus even when they are not showing signs of illness, i.e. they can be symptomless carriers. These horses are called 'shedders' and are very difficult to detect because they may only spread virus when stressed by transport, illness, competition etc.

Coital exanthema is spread by direct genital contact during mating. The blisters contain fluid which is highly infectious and breeding must stop until all spots have cleared.

In a group of horses which have not been previously infected or vaccinated, introduction of the virus usually results in disease in all of the animals. Horses that have been previously infected or vaccinated may exhibit reduced or no clinical signs of infection.

How can a diagnosis be made?

Specific blood tests can be used to determine if a respiratory infection is associated with EHV-1 or 4 infection. In most cases, two blood samples are taken 10 days to two weeks apart and tested to see if antibodies have been produced to one of the viruses (seroconversion). While the horse is often well on the way to recovery by the time results are available, the information may help with the management of other horses in the same yard.

It is not possible to predict or diagnose an abortion due to EHV-1 or 4 on the basis of a blood test. The mare may have been infected several weeks before the abortion occurred and even when seroconversion (a significant rise in specific blood antibody levels) is demonstrated, this cannot be differentiated from coincidental respiratory challenge. A specific postmortem examination must be performed on the dead foetus or foal to look for characteristic pathological changes and specific samples must be collected for laboratory examination to detect the virus.

Coital exanthema is usually diagnosed and acted upon on the basis of typical clinical signs. In some cases the infection is confirmed by demonstration of EHV-3 antibody seroconversion in paired blood samples collected 10 days apart and by isolation of EHV-3 virus from fluid collected from the blisters.

Control and prevention

Ideally, all horses should be vaccinated to reduce the incidence of Herpesvirus diseases and to minimise the shedding of virus into the horse environment (see below). If an outbreak of respiratory disease occurs, affected animals should be isolated until they have fully recovered. Where possible, horses should be kept in groups and these groups kept constant to minimise the risk of disease spread from one group to another.

Pregnant mares should be kept in small fixed groups according to their stages of pregnancy and no young animals or horses out of performance training should be introduced to their groups. Each group should have plenty of paddock space and separate stable accommodation and pregnant mares should never be kept in over-crowded conditions. If an abortion or stillbirth occurs, contact your veterinary surgeon without delay. The affected mare and foetus should be immediately isolated from all pregnant mares, including those that she has lived with throughout her pregnancy, until the results of the postmortem examination are known and EHV-1 infection has been ruled out. The placental membranes and fluids are highly infectious and should be disposed of immediately by burning or burying with lime. Your veterinary surgeon may be able to arrange safe disposal of these membranes for you. They should be sealed within two strong intact plastic sacks. The stable used by the mare should be thoroughly steam cleaned and disinfected before being used by another horse. In-contact pregnant mares should not be re-located and should be isolated in their small in-contact group until they either abort or produce a healthy live foal.

Vaccination in the face of disease, i.e. where an abortion or paralysis case has occurred is not recommended as horses who are incubating infection may react badly to vaccination.

Herpesvirus Vaccines

Vaccines available against EHV-1 and EHV-4 infection are available. They do not completely prevent individual horses from infection but they reduce the risk of infection, they reduce the risk of spread of infection to other horses and they reduce the severity of clinical signs if infection occurs. Vaccinated horses may not show any signs of disease but may still show a rise in antibody level after infection. All pregnant mares should be vaccinated and studfarms who board mares for foaling should not accept pregnant mares who have not been fully vaccinated. Individual 'virus' abortions have become unusual and abortion 'storms' are now rarely, if ever, seen in vaccinated mare populations. There is no evidence that the vaccine prevents neurological herpesvirus disease.

The vaccine should be given according to the manufacturer's recommendations. For non-pregnant horses this is a primary course of two injections four to six weeks apart followed by booster vaccinations at six month intervals. Pregnant mares are vaccinated at five, seven and nine months of pregnancy.

Unfortunately, neither natural infection nor vaccination produces long lasting immunity to Equid Herpesvirus infections. This reflects the nature of the virus, but experience suggests that disease incidence is significantly lower in vaccinated horse populations.

The benefits of vaccination therefore include:-

- reduced risk of infection
- reduced shedding of virus by infected horses
- reduced severity of clinical signs
- less time off exercise

- lower cost of veterinary treatment

Code of Practice - Control of Equine Herpesviral Infections

Since 1978, the Horserace Betting Levy Board has annually updated and produced it highly successful Code of Practice for the control of equine venereal diseases, which includes a section on Equid Herpesviruses. This contains detailed advice and recommendations on the diseases and their effects, diagnosis, control and prevention. This Code has been adopted by the Thoroughbred breeding industry of UK and other participating countries and has been adapted by many other equine horse breeding industries. Your veterinary surgeon will have a copy of the Code and copies may be obtained via the Thoroughbred Breeders' Association (Stanstead House, The Avenue, Newmarket, Suffolk CB8 9AA. Tel: 01638 661321 Fax: 01638 665621) or the British Horse Society (Welfare Department, British Equestrian Centre, Stoneleigh Park, Kenilworth, Warwickshire CV8 2LR. Tel: 01203 696697) . Although a voluntary code it has become the industry standard for the benefit of all and all horse breeders should read it and follow its advice.