

## Important to be ever-vigilant against Equine Herpes threat

**H**igh-profile outbreaks at stud farms and training yards in recent seasons have reminded us to be ever-vigilant for signs of Equine Herpes Virus

There are more than 100 known herpes viruses, including the human viruses Epstein-Barr (mononucleosis), cytomegalovirus and varicella-zoster (chickenpox and shingles).

In horses, Equine Herpes Virus (EHV-1 and -4) are among the most common causes of contagious respiratory disease, particularly in young animals. However, both can also cause abortion – EHV-1 is a more significant cause of abortion than EHV-4 because it can cause ‘abortion storms’ (multiple abortions within a population of mares).

EHV-1 can also cause neurological disease. Most mature horses will have been exposed to EHV-1 and -4 at some stage in their lives, although most might have experienced only mild respiratory symptoms or none at all. The virus can spread by direct horse-to-horse contact, indirectly by contaminated hands, equipment and tack, and via aerosolisation of the virus in enclosed spaces.

One of the major characteristics of the herpes viruses is their ability to establish long-term latency in host tissues. This means that after an initial infection, the virus can survive within specific tissues without causing disease only to re-emerge and induce disease in the host or replicate in the host and infect other susceptible people or animals. A good example is the development of shingles in adults who were exposed to chickenpox as children.

EHV infections are highly contagious with the risk of spread closely linked to the concentration of virus particles being shed and the proximity and health status of in-contact horses. Recrudescence (reactivation of latent infection) usually occurs after a stressful event such as transportation or mixing new groups of horses.

The main tool in preventing the transmission of infection is accurate diagnosis. This allows early disease detection and implementation of



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*There is a suggestion that horses could be more at risk during an outbreak in shared air space, such as in an American barn environment*

control measures to limit spread of disease. Tests which can be used include Polymerase Chain Reaction (PCR) on placenta, foetal tissues, nasopharyngeal swabs or nervous system samples; immunohistochemistry on similar tissues and paired blood tests for detection of rising antibody levels. In neurological disease it might be possible to detect an elevated antibody titre on a single sample. It is important to note that antibody levels can be influenced by recent vaccination.

### **EHV-1 abortions**

EHV-1 abortions can occur singly or in multiple mares in a group resulting in an abortion storm. Abortion can

occur two weeks to several months after either recrudescence or recent infection. Usually abortion occurs in late pregnancy but can occur as early as four months. The foetus usually dies before expulsion but a term foal may be born alive but quickly succumb to fatal disease. Infection might spread to other animals within the group via the respiratory route before the first abortion occurs or from infected foetal fluids, the infected placenta or an infected foetus at the time of abortion.

It is important to diagnose or rule out EHV infection in any abortion by submitting the foetus and placenta for post-mortem examination and testing. While waiting for results, the mare should be kept in isolation and steps

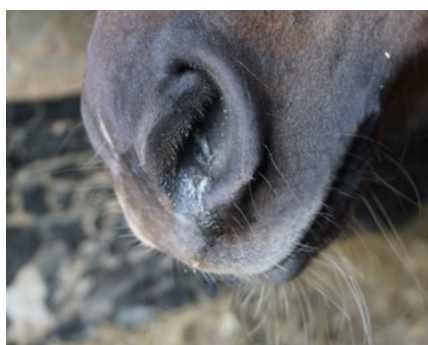


» taken to minimise risk of accidental spread of infection. If a positive result is diagnosed, restrictions should be applied in accordance with the HBLB Codes of Practice. Serial testing of in-contact animals can help to detect the extent of any spread of infection and allow separation and isolation of those most at risk.

In a recently reported EHV-1 abortion outbreak, eight abortions and two neonatal deaths occurred on a well-managed stud. In spite of strict biosecurity procedures which were instigated immediately after the first abortion, it appears that infection had already spread in the paddock in the weeks beforehand as well as by aerosol within the barn where the first abortion occurred. All of the mares had been vaccinated. Other mares which were in the same barn(s) and/or paddock(s) as the mares that aborted produced healthy foals. It appears that the barn environment permitted spread of the virus at a higher concentration than had occurred in the paddock and it was suggested that, in the event of another outbreak, heavily pregnant mares would be at less risk if housed so that they don't share air space with other mares.

## EHV-1 respiratory disease

This infection can cause a range of clinical signs from none (subclinical), to a slightly runny nose, to a high temperature (pyrexia), depression, profuse watery nasal discharge,

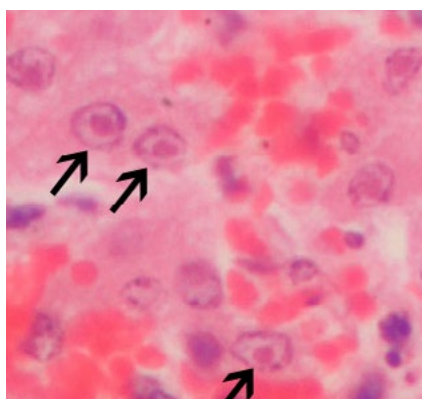


Nasal discharge can be a sign of EHV

enlarged lymph nodes and cough which may last for several days. The disease is usually self-limiting and diagnosis made by PCR on a nasopharyngeal swab or serial blood samples submitted for paired serology.

## EHV-1 Neurological Disease

EHV-1 neurological disease is seen occasionally on studs, in training



Tissue section showing inclusion bodies characteristic of Herpes virus infection (arrows)

yards and other groups of horses. Occasionally multiple outbreaks occur.

We seem to have seen an increase in the number of cases of EHV neurological disease being reported with cases in 2017 in the UK, France, USA and Germany among others. Some of these have occurred in, or been linked, to polo yards. Symptoms include pyrexia, depression, ataxia (incoordination) and loss of control of the tail and bladder. In severe cases the affected horse might be unable to walk or stand and in many cases have to be euthanised. Isolation and testing of in-contacts is strongly recommended and quarantine of affected premises should be instigated as for EHV abortion.

In May 2017 a case of EHV-1 neurological disease was reported in a four-year-old racehorse gelding which had shown significant neurological signs and had to be euthanised. This horse had only recently arrived in the trainer's yard suggesting the infection had either been contracted or undergone recrudescence prior to arrival. Voluntary restrictions on movement of other horses in the yard were initiated and advice on further management given by the Animal Health Trust. None of the horses on the premises had been vaccinated against EHV and so it was possible to use serological testing to determine that exposure to the infection in the yard was widespread. Repeat testing was then used to monitor spread of the infection through the yard. This also helped to determine which horses were potentially infectious and those which were most susceptible to infection and also to monitor viral 'burnout' when disease was no longer likely to occur.

The BHA allowed racing to be resumed approximately six weeks

after the initial case as long as horses had a negative PCR on a nasal swab taken within 48 hours of racing. All of the steps taken to diagnose and monitor the spread of disease in this yard helped to ensure resolution of this disease outbreak as quickly as possible for the yard itself and protected the UK racing industry from the potential spread of this infection.

## EHV-4

Abortion due to EHV-4 is significantly less common than that due to EHV-1 and occurs only as single cases. EHV-4 abortion can be confirmed on the basis of PCR on foetal and placental tissues.

According to the HBLB Codes of Practice, EHV-4 is not considered a risk for contagious abortion, but it makes sense to isolate any mare that has aborted due to a viral infection.

It is not really possible to differentiate between EHV-1 and EHV-4 respiratory disease on the basis of clinical signs alone. Nasopharyngeal swabs for PCR and/or paired serum sampled should be used to confirm or rule out one or other of these viruses.

## Vaccination

We do currently have access to an inactivated vaccine licenced for use in the UK for both EHV-1 and -4. According to the data sheet, it is used 'for active immunisation of horses to reduce clinical respiratory signs due to infection with EHV-1 and EHV-4 and to reduce abortion caused by EHV-1 infection'. In pregnant mares it should be administered at five, seven and nine months of pregnancy. To help protect against respiratory infection, two injections should be given four to six weeks apart, with boosters given every six months.

Trainers and owners should also note that, in 2018 and beyond, owing to a new requirement from France Galop, horses travelling from the UK to race in France will need to have been vaccinated against EHV.

Because of the nature of all herpes viruses and their ability to cause latent infections it is important to realise that vaccination does not provide total protection, and good management remains paramount in the prevention and management of disease. As demonstrated above, abortion can occur in vaccinated animals, but it is felt that vaccination helps to reduce the risk of abortion storms and severity and spread of respiratory infection.

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