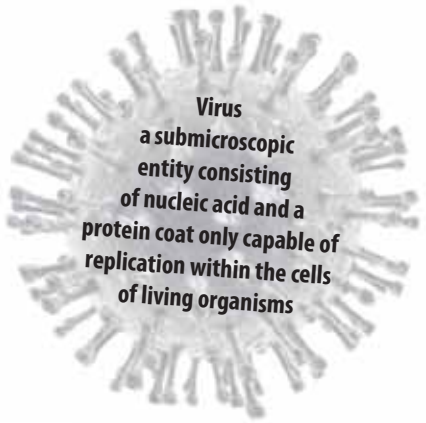
Major Viral Diseases of Rabbits

by Owen Davies MRCVS



The two major viral diseases of rabbits are myxomatosis and VHD (Viral Haemorrhagic Diseases). Both of these diseases are frequently fatal, but are spread in different ways and have different effects on the rabbit.

The diagnosis of either of these viral diseases is notifiable to OIE, which is the World Organization for Animal Health, formerly known as Office International des Epizooties. No other rabbit diseases are reported to OIE. However, both of these diseases are accepted by OIE as being endemic in the UK and therefore individual cases or outbreaks do not need to be reported to them.

Myxomatosis

Myxomatosis is caused by the myxoma virus (a type of pox virus), which has existed for many years in cotton-tail rabbits that are native to the Americas. In this rabbit species the virus co-exists with its host, so that the most serious consequence is the occurrence of lumps and it is rarely, if ever fatal. In many cases where a virus enters a different species only mild or frequently no disease symptoms occur, and therefore the myxoma virus does not cause disease in dogs or in us.

Unfortunately this is not the case with European rabbits and their domestic descendents, and when they encounter the virus it results in obvious disease, which is frequently fatal.

This was first recognized in 1896 in Uruguay, and shortly afterwards suggestions were made as to its potential use to control the wild rabbit population in Australia. At that time this was prevented from happening, but it was imported into Australia in 1951 and in 1952 was introduced into France. The following year it appeared in this country and has been here ever since, affecting both wild and domestic rabbits.

The first British diagnosis was in Edenbridge in Kent in October 1953. Early in its history it was recognized that it was spread by biting insects and this is still thought to be the primary mode of transmission.

It appears to occur in cycles, as each time the disease occurs it spreads rapidly and over some distance, resulting in widespread fatalities of all but a very tiny proportion of the population who have some resistance. These then survive to breed until the next encounter occurs, by which time the virus may well have mutated and changed its virulence.

Weather patterns will also affect the occurrence of the disease, as temperature and the presence of standing water will affect the reproduction of the principal vectors (insects causing transmission), which are the mosquito and the rabbit flea.

There are three different recognized syndromes caused by the myxoma virus in European rabbits.

The classical syndrome occurs over several days, where the eyelids and genital area swell, followed by the face and ears. Usually the rabbit stops eating and drinking and unless caught by a predator such as a dog or fox will eventually starve to death, having suffered in the meantime.

There is also a less common atypical form, which is far more like the disease in cotton-tail rabbits, causing the growth of lumps frequently on eyelids, the nostrils and lips. This is caused by a less virulent virus or more commonly when the rabbit has incomplete immunity to the virus, such as when a vaccine is wearing off.

On the occasions when this occurs it is not uncommon for the rabbit to survive, although secondary bacterial infections will require antibiotics and sometimes the lumps will need removing to prevent them interfering with normal body functions.

The rarest form of myxomatosis is rapidly fatal and this is when it causes an acute pneumonia.

Viral Haemorrhagic Disease (VHD)

VHD sometimes called HVD (haemorrhagic viral disease) or RHD (rabbit viral disease)

This disease is caused by a much smaller calicivirus than the myxoma virus. It was first recognised in China, and spread over the next few years, arriving in Britain in April 1992.

The first cases were in Uttoxeter, but during the next year or so most cases occurred in the south. It has since spread throughout the country and reports are not confined to any one region.

It is my opinion that whereas the presence of myxomatosis is usually very evident, the prevalence of VHD is seriously under-diagnosed.

There is a frequent misapprehension that the most common symptom of VHD is bleeding especially from the nose. This is in fact rarely the case, and usually rabbits are just found dead.

When symptoms are observed this is most likely to initially to be not eating, followed rapidly by breathing difficulties and fitting and resulting in death within 24 hours.

It can be spread in various ways, but perhaps the most common mode of transmission is mechanical. By this I mean that the virus is picked up on the feet of birds or on the tyres of vehicles and then deposited elsewhere.

Other modes of transmission include by flies feeding on rabbit carcases and defecating elsewhere, and it has also been reported to spread long distances by the wind, especially over the sea.

Disease Control

There are vaccines available for both of these diseases. Those vaccines available against VHD produce good immunity for a minimum of one year, and therefore annual vaccinations are recommended.

The only myxomatosis vaccine that is available provides immunity for six months. I suspect that the reason that the immunity does not last longer, is because the vaccine is based on Shope fibroma virus rather than the myxoma virus. This works because the virus looks similar to the immune system, and is a safe way of promoting immunity as the myxoma virus is not used.

Other aspects to consider in the prevention of the disease include preventing the entry of insects, restricting entry by other humans and quarantining incoming rabbits.

This means that all rabbits that have left the premises for whatever reason, as well as any new rabbits are kept separate usually for a period of two weeks. This will ensure that any disease they may have encountered is identified before the rest of the rabbits have chance to acquire infection from those incoming rabbits.

Welfare Considerations

These diseases have the potential to significantly affect the welfare of our rabbits. The Animal Welfare Act 2006 makes owners and keepers of animals responsible for ensuring that their welfare needs are met, which include the need to be protected from pain, injury, suffering and disease. It is therefore my opinion that the approach that would seek to prevent disease rather than reacting when it occurs, which is really only common sense, has now become law. I think that this is best provided through a health plan.

Welfare needs

1. A suitable environment
2. A suitable diet
3. To be able to perform normal behaviour
4. To be housed with, or apart from, other animals as appropriate
5. To be protected from pain, injury, suffering and disease

Welfare health, happiness, prosperity and well-being in general

Health plan

provides the assurance that health and welfare are being monitored and addressed, with specific protocols and records reviewed at least annually for routine and preventative care

This would need to be produced in consultation with a vet, and all aspects of keeping animals healthy would need to be considered, as well as treating and preventing any disease which has occurred recently within the rabbitry.

This concept of formal written health plans is familiar to most mixed practice and farm animal vets, but rather less so to small animal vets, and it will also require good knowledge of rabbit medicine and disease. This combination of expertise or experience is likely to be limited to a minority of vets.

In the context of myxomatosis and VHD I would expect health plans to include vaccination amongst a range of measures, in all but the rarest circumstances.

Owen Davies graduated from Bristol University in 1991 as a veterinary surgeon, although his interest in rabbits began earlier than this. He has since worked in mixed and small animal practices in various locations, and is currently the senior vet of a long established three vet practice in Yorkshire. In 2008 he was awarded a MSc with merit in Livestock Health and Production from London University, having selected all the rabbit study options. He is a life member of the BRC, and as Cranley Stud is interested in Meissner Lops; traditional British rabbit breeds; and utility poultry. His veterinary interests include surgery; reproduction; training; and of course rabbit medicine

Next month veterinary practices will be taking part in the vaccination campaign for pet owners as part of National Vaccination Month, when owners of unprotected rabbits will be offered vaccination against the killer disease myxomatosis for their pet, with the second inoculation due in December provided free of charge. See our June issue for further information.