



Common Rabbit Pathogens

Encephalitozoon Cuniculi

Encephalitozoonosis is caused by *Encephalitozoon cuniculi*. About 80% of healthy rabbits carry the pathogen, without any clinical signs developing. Clinical disease can present with the following clinical signs: torticollis, ataxia, uveitis, posterior paresis and urinary incontinence. Other clinical signs can occur depending on the particular organs involved (such as hepatic and renal disease).

Transmission is by infectious spores excreted primarily in the urine but also in the faeces and transmission can occur both orally and nasally. A pregnant doe can pass the pathogen on to her offspring in utero. The disease is a zoonosis and is an emerging human pathogen.

Detection is now available by two methods both the traditional serology, giving antibody titres, to enable monitoring of clinical cases or detection of active shedding by PCR.

The options available to help diagnose *E. cuniculi* are:

Serology An IgG titre is the most commonly used test, this indicates long term exposure. Levels continue to rise steadily from 30 days post primary infection until they peak at 70 days. An IgM titre is now also available and can be used in conjunction with the IgG. IgM indicates early exposure and new infection in the initial 35 days prior to IgG detection. The sample required is serum (not from a gel tube).

PCR No special medium is required for this test, a sample of urine, CSF or faeces simply needs to be placed in to a sterile universal tube. The sensitivity of this test is 96%, the specificity has yet to be measured. *E. cuniculi* can be intermittently shed, so a 3 day pooled sample should be taken. A positive result is conclusive of infection but not necessarily disease.

Rabbit Haemorrhagic Disease

Rabbit Haemorrhagic Disease is caused by a calicivirus, which is highly infectious and virulent affecting rabbits 8 weeks or older, however, rabbits up to the age of 8 weeks can excrete the virus. Morbidity is 70-80% of rabbits in an infected colony within 36 hours of viral entry.

Symptoms which may occur are fever, anorexia, depression, cyanosis and haematuria. In the final stages of the disease, rabbits may have epistaxis and develop convulsions.

The virus itself is very stable in the environment and may survive for many months. The virus is excreted in almost all secretions and excretions, therefore transmission can be carried out directly through the oral/faecal route, via contaminated feed and other items and biting insects.

A PCR test is now available that will detect both strains of RHD and also differentiate between RHD1 & RHD2, the sample required is either Liver, Faeces, Intestinal Contents, EDTA or Oral/Rectal Plain Swab.

Myxomatosis

Myxomatosis is a severe viral disease of rabbits that decimated the wild rabbit population when it arrived in Britain 50 years ago. Domestic rabbits are also susceptible to the disease and deaths occur in both indoor and outdoor kept pets. Myxomatosis is spread by biting insects carrying the myxoma virus, transmission by direct contact usually only plays a role in high population density.

After an incubation period of 4-10 days, the myxoma virus produces an acute generalized disease with severe conjunctivitis and oedema of the ears, eyes, lips, genitalia and anus is present.

Difficulty breathing or swallowing leads to a loss of appetite and anorexia. The mortality rate is between 25% and 90%. Severely affected rabbits should be euthanased.

Diagnosis of disease in an individual animal is based on PCR testing. The sample required is a plain conjunctival swab.



Treponema cuniculi

Treponema cuniculi is a specific venereal disease of wild and domestic rabbits and hares and is not zoonotic. Symptoms include lesions around the face and genital area that develop within 3-6 weeks of exposure. If left untreated, the rabbits may remain carriers after symptoms have cleared. Also, extensive prolonged infection may result in sterility. *T. cuniculi* occurs in both sexes and is transmitted through sexual contact and from mother to offspring.

T. cuniculi is also known as Rabbit Syphilis, Vent Disease or Venereal Spirochetosis.

A serology test is available, but a positive result only develops approximately 8-12 weeks after exposure. The sample required is a serum sample (not from a gel tube).

Alternatively a PCR can be performed, the sample required is a nasal/vaginal plain swab.



Passalurus Ambiguus

Passalurus ambiguus (the common pinworm) is the most common helminth in domestic rabbits. The adult worms inhabit the caecum and colon, occasionally infested rabbits are obsessed with overgrooming of the rectal area. The worms are passed in faeces; reinfection occurs by ingestion of eggs. The worms can be seen in fresh faeces or eggs can be seen microscopically in faecal floats.



Coccidiosis

Coccidiosis is a disease of rabbits caused by a class of single-celled organisms known as protozoa. Coccidiosis is predominantly caused by the *Eimeria* species of protozoa of which there are twelve or more species, these primarily infect the intestinal tract.

Coccidiosis is spread through a rabbit eating the oocysts of the parasite which have been excreted by an infected rabbit. The oocysts can remain active for more than a year and thrive in warm, humid conditions. Common sources of infection are grass or green foods contaminated by infected wild rabbits.

Adult rabbits are often passive carriers of coccidiosis without showing any symptoms themselves.

Diagnosis of coccidiosis can be based on demonstration of oocysts in faecal flotations.

Speciation of *Coccidia* is available upon request.

