



SUMMARY OF PARTS 1 AND 2 OF 'RHDV2 EPIDEMIC IN PET RABBITS' PUBLISHED IN JSAP REPORTING AND DISCUSSING SOME RESULTS FROM THE SUDDEN OR UNEXPECTED DEATH IN PET RABBITS INVESTIGATION (2016-2018)

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[RHDV2 epidemic in UK pet rabbits. Part 1: clinical features, gross post mortem and histopathological findings](#)

[RHDV2 epidemic in UK pet rabbits. Part 2: PCR results and correlation with vaccination status](#)

CONCLUSIONS DRAWN FROM BOTH PAPERS:

- ▶ **RHDV2 is a common cause of death** in the UK pet rabbit population, especially in unvaccinated rabbits or those that are only vaccinated against RHDV1.
- ▶ Rabbits can die within hours of behaving normally
- ▶ **RHD can be diagnosed from a *post-mortem* examination carried out by a veterinary practitioner** if samples are collected for histopathology and PCR testing. Other causes of sudden death may be determined by the macroscopic and microscopic appearance of the tissues.
- ▶ **Histopathology** alone is a reliable tool for the diagnosis of RHD. **Additional PCR** testing is necessary to identify the RHD serotype. Occasional false negative results are possible.
- ▶ **Vaccination** against both RHDV1 and RHDV2 is **strongly recommended for all pet rabbits**.
- ▶ **The investigation results support the efficacy of inactivated viral vaccines** against this disease.
- ▶ **Vaccine failures against RHDV2 were rare in rabbits that received inactivated RHDV2 vaccines** especially if more than 10 days had elapsed since inoculation.

INTRODUCTION:

An investigation into sudden or unexpected death in pet rabbits coincided with an epidemic of rabbit haemorrhagic disease (RHD) and yielded much information about the disease in a naturally occurring outbreak. The investigation gave insight about the prevalence and scale of RHD and how it is diagnosed. Case histories, macroscopic post-mortem findings and histopathology results were available from 300 rabbits that died suddenly. Of these, 185 rabbits were diagnosed with RHD from characteristic microscopic liver changes. These rabbits came from all parts of UK. A variety of breeds and crossbreeds were represented with a broad age range.

OBSERVATIONS:

Although many papers or articles describe peracute, acute and chronic stages of RHD, these stages could not be differentiated in the investigation. 'Sudden death' was the description that was provided in 74 of the 185 cases of RHD. More information was available for the remaining 111 cases. Examples of the clinical history given by vets/owners in the field scenario are given overleaf:

- ▶ Although three owners said their rabbit was 'off colour' or a little subdued, most owners reported that their rabbit was eating and apparently normal when it was last seen alive.
- ▶ Twenty- five rabbits were found dead in the morning after appearing to be well the night before.
- ▶ One rabbit was seen eating 30 minutes before death. Another died 2 hours after eating normally.
- ▶ Two rabbits died with food in their mouth.
- ▶ One rabbit had passed a health-check by a veterinary surgeon 90 minutes before death.
- ▶ Two others died within 3 hours of a health-check and vaccination.
- ▶ Twelve rabbits died on the way to the veterinary surgery.
- ▶ Two died in the waiting room and one in the consulting room.

Although the number of rabbits in the household was not specified in the clinical history, in 121/185 (65%) cases, death of additional rabbits was reported. In 50 households, both of a bonded pair of rabbits died. These examples illustrate how quickly rabbits can die from RHD and how devastating it can be for the owners and veterinary staff who are caring for the rabbit. The tragedy of RHD is that families can see their rabbit alive, apparently fit and well only to find it dead or dying a few hours later. The family may need to deal with the loss of more than one pet in a short period of time.

PCR results matched histopathological findings in 185 of 195 (96%) cases that were tested. The remaining seven cases showed equivocal PCR test results, all of which showed typical histopathological features of RHD but three tested PCR-negative and four PCR results conflicted between laboratories. RHDV2 was the serotype detected in all PCR-positive cases.

Both histological features of RHD and PCR positive test results were found in 125 rabbits; 51 unvaccinated, 56 in-date with Nobivac Myxo-RHD and 13 vaccinated against RHDV2 – although nine of these were vaccinated within 10 days of death. These results highlight the importance of vaccination against RHDV2 before rabbits meet the disease. Most of the vaccine failures occurred because there was insufficient time for the vaccine to be effective. Although RHDV2 is the serotype that is currently prevalent in UK pet rabbits, vaccination against both RHDV1 and RHDV2 is still recommended.

POST MORTEM EXAMINATION BY THE VETERINARY PRACTITIONER IS VALUABLE:

The sudden and unexpected death investigation highlighted the value of post mortem examination by a practitioner. The PME can be carried out promptly after death (<6 hours), which reduces the effect of autolysis on both the macroscopic and microscopic appearance of the organs. The practitioner can inspect the internal organs and collect tissue samples to fix for histopathological examination. Fresh liver samples can be frozen and stored for PCR testing for RHDV1 or RHDV2, which will confirm the diagnosis and identify the genotype although, very occasionally, false negative PCR test results can occur. During the PME, there may or may not be macroscopic evidence of RHD, such as hepatomegaly, splenomegaly or haemorrhages but a diagnosis of RHD can be made from the histopathological findings. There is characteristic hepatocellular necrosis, often accompanied by glomerular thrombosis. Although histopathology is often diagnostic for RHD, it does not always feature highly in recommended diagnostic procedures for RHD. More emphasis is placed on PCR testing which is regrettable as histopathology can yield valuable information about other causes of death and concurrent disease.

Perhaps if PME is done by a pathologist more macroscopic findings would be spotted.... But by waiting to send the specimen to the pathologist we compromise on histology results because autolysis takes place rapidly in rabbits. So although GP vets may be less experienced at doing PME, the benefit gained from accurate **FRESH** histology far outweighs the lack of experience.

If an owner wishes to know whether their rabbit died from RHD, PCR on liver tissue is all that is necessary. If an owner wishes to know why their rabbit died, post mortem examination with histopathology is essential.

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