



# Letters & Notices

## CORONAVIRUS

### **Can companion animals become infected with Covid-19?**

THE veterinary community has been following the evolution of the global pandemic of Covid-19 to identify risks to animals and possible zoonotic transmission. With some exceptions, most coronavirus (CoV) infections in domestic animals are predominantly associated with gastrointestinal disease. Their genetic diversity and variety of hosts are likely to be connected to their high mutation frequency and their RNA instability.<sup>1,2</sup> This makes CoVs a public health concern with future outbreaks being predicted.<sup>1</sup>

On 28 February 2020 the Agriculture, Fisheries and Conservation Department (AFCD) of Hong Kong released a statement that a dog had tested positive to the SARS-CoV-2.<sup>3</sup> That statement raised many questions from clients and colleagues about how potential pet infections could affect us, not only here in Hong Kong but also, worldwide.

The case was a 17-year-old Pomeranian dog, which had multiple comorbidities, and was referred to the AFCD after the owner had tested positive for Covid-19. Oral, nasal and rectal samples were collected for testing as is suggested for human

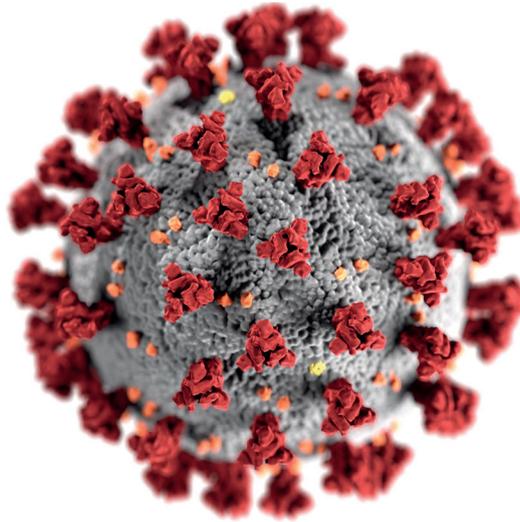
cases.<sup>4</sup> The dog had serological, culture and RT-PCR tests, the latter of which is regarded as the most sensitive test for the diagnosis of Covid-19.<sup>5</sup>

Samples from the oral and nasal cavity tested weakly positive to Covid-19 in five successive separate tests over a two-week period. A potential human-to-animal contamination was ruled out by the persistent weakly positive PCR results, and re-exposure to the virus from infected people between testing periods was also ruled out as the dog was confined in quarantine at government kennels. These results suggest a true infection, as agreed by virology and infectious disease experts from the University of Hong Kong, the City University of Hong Kong and the World Organisation for Animal Health (OIE).

Although the PCR results were always positive, it is important to note that the dog also had culture and serological tests that were both negative. That would suggest that the virus was unable to grow even when the best possible medium was provided. Also, the dog never seroconverted to create antibodies against the virus. These results suggest that the dog was never contagious to other pets or people, and the weak infection was not causing an immune response in the dog. The AFCD stated that the dog never had any relevant clinical signs.

After two consecutive negative PCR results on 12 and 13 March, the dog was released from the quarantine centre and returned home to the recovered owner; at this point both were free of Covid-19 infection. However, the dog died three days later. Unfortunately the owner did not allow a postmortem examination, but as reported, the death of the dog was very unlikely to have been associated with Covid-19.

Since then, another dog has tested positive to Covid-19, a two-year-old German shepherd dog, also owned by a patient with Covid-19 infection.<sup>6</sup> Results of further RT-PCR, serology and viral culture will hopefully shed more light soon. So far, several other dogs and cats have been tested with negative PCR results. Research



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**There is no evidence that dogs or cats could become sick or infect people**

studies are being planned in Hong Kong to better understand the risks and consequences of SARS-CoV-2 infections in domestic animals.

As in the previous SARS-CoV outbreak in Hong Kong in 2003, where a number of pets were infected but never became sick, there is no evidence that dogs or cats could become sick or infect people.

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#### References

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