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CORONAVIRUS DISEASE 2019 UPDATE (30): CHINA (HONG KONG) ANIMAL, DOG, SUSPECTED, SEROLOGY PENDING
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A ProMED-mail post
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[1]
Date: Thu 5 Mar 2019 08:33 CST
Source: Caixin [edited]
https://www.caixinglobal.com/2020-03-05/a-hong-kong-dog-tested-positive-for-coronavirus-and-thats-all-anyone-can-agree-on-101524525.html

A pet Pomeranian that repeatedly tested "weak positive" for the virus that causes COVID-19 most likely got it from its owner, raising questions about whether the animal could serve as a host and infect others, or whether the traces found in its body were even viable.

Many experts who discussed the case in Hong Kong agreed the virus came from the dog's owner, who tested positive for COVID-19, but cautioned against jumping to other conclusions. The Hong Kong Agriculture, Fisheries and Conservation Department [AFCD], which first announced the case last week [29 Feb 2020], also stressed that there is still no evidence to show pets can transmit the virus, adding that owners need not worry too much and should certainly not consider abandoning their animals.

The dog was tested several times, and results repeatedly showed traces of SARS-CoV-2, the virus that causes COVID-19, the department said in a statement issued late on [Wed 4 Mar 2020]. The dog was first tested on 26 Feb 2020, yielding low-level positives from nose and mouth swabs, the department said. Similar tests on 28 Feb 2020 and 2 Mar 2020 found the same results.

The same "weak positive" result from repeated tests based on different swabs indicated that the dog was infected rather than just showing surface contamination of virus particles spread by its owner, according to Dr Thomas Sit Hon-chung, assistant director of inspection and quarantine at the AFCD, on Thursday [5 Mar 2020]. "If it was contamination, the dog's nasal or oral mechanism should have a way to clean the viruses," Sit said. "It would not stay for that long."

Officials in Hong Kong concluded that it was a case of "low-level infection" after consulting international experts, he said, although the blood test results are still pending. A blood sample was taken from the dog [3 Mar 2020], which will be able to

confirm infection by detecting antibodies. It often takes 5 to 7 days for the results [see comment].

A department official told Caixin the dog in question was a Pomeranian and was taken into the department's care on [26 Feb 2020] with none of the COVID-19 symptoms experienced by humans, such as cough, runny nose, or difficulty breathing. "Experts from the School of Public Health of The University of Hong Kong, the College of Veterinary Medicine and Life Sciences of the City University of Hong Kong and the World Organisation for Animal Health have been consulted, and unanimously agreed that these results suggest that the dog has a low-level of infection and it is likely to be a case of human-to-animal transmission," the department said in a statement.

It added it will continue testing the dog and only return it to its owner when the results are negative. An official from the Hong Kong Centre for Health Protection previously told Caixin that the dog's 60 year old owner was diagnosed with the virus on 25 Feb 2020. She started coughing on 12 Feb 2020, was hospitalized on 24 Feb 2020, and is now in a stable condition. Her brother and sister-in-law also tested positive, though neither showed any symptoms.

The multiple weak positives showed the dog had been infected, and perhaps could serve as a potential intermediate host for cross-species transmission of the new coronavirus, Zhu Huachen, associate director of the Joint Institute of Virology at Hong Kong University told Caixin. She said the dog's lack of symptoms showed the virus could live inside it, allowing the animal to secrete and spread the virus at the same time.

Other experts disagree. The 2003 outbreak of SARS also saw a small number of animals show low levels of that virus, but none became sick and none could spread the virus to humans, Vanessa Barrs, chair professor of companion animal health and disease at City University's Jockey Club College of Veterinary Medicine and Life Sciences said on Wednesday [4 Mar 2020].

AFCD's Sit said researchers at the HKU are analyzing the genetic map of the virus found in the dog, and would compare samples from the owner to figure out whether the dog contracted the virus directly from the owner and whether the virus had mutated. Others pointed out that it's far too early to jump to any conclusions without a blood test result, and that it's not clear whether the viral material found in the dog was viable. "All the (tests) tell us is that there is some genomic material from the virus that's been detected (in the dog)," said Sanjaya Senanayake, a virus expert at the Australian National University. "So it's not living virus necessarily, it's not the whole virus, it's just a little bit of virus -- it could be dead virus."

He said the dog's infected owner would likely have been spreading virus particles around her apartment, "coughing, sneezing, wiping her nose, touching surfaces," and that the dog would have been, "as dogs do, sniffing surfaces, licking surfaces, licking her hands, all sorts of things, and could easily pick up some virus." It was unclear what would happen if a dog contracted COVID-19, or what kind of symptoms it would show, Senanayake said. "But I think you would want to find live virus in the dog's nose, throat or respiratory tract before you start saying it's infected," he said, adding that would require researchers to isolate the virus from a swab and grow it in the lab.

Jonathan Ball, a professor of molecular virology at the University of Nottingham, also stressed the importance of differentiating between a real infection and simply the presence of the virus, and emphasized the need not to overreact. "I still think it's questionable how relevant it is to the human outbreak as most of the global outbreak has been driven by human-to-human transmission," he said. "We need to find out more, but we don't need to panic -- I doubt it could spread to another dog or a human because of the low levels of the virus. The real driver of the outbreak is humans."

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[2]

Date: Wed 4 Mar 2019 21:08 HKT
Source: The Government of the Hong Kong Special Administration Region, press release [edited]
https://www.info.gov.hk/gia/general/202003/04/P2020030400658.htm

A spokesman for the Agriculture, Fisheries and Conservation Department (AFCD) said today [4 Mar 2020] that a pet dog had repeatedly tested weakly positive for COVID-19 virus, which indicates a low-level of infection with the virus.

The AFCD first collected samples from the dog for tests on 26 Feb 2019, and detected low levels of COVID-19 virus from its nasal and oral cavity samples on 27 Feb 2019. The department repeated the test on 28 Feb 2020 and 2 Mar 2020, and the dog's nasal and oral cavity samples, and nasal samples, respectively, tested weakly positive for the virus. Experts from the School of Public Health of The University of Hong Kong, the College of Veterinary Medicine and Life Sciences of the City University of Hong Kong and the World Organisation for Animal Health (OIE) have been consulted, and unanimously agreed that these results suggest that the dog has a low-level of infection and it is likely to be a case of human-to-animal transmission. The dog has not shown any signs of disease related to COVID-19. It is currently under quarantine at the animal keeping facility at the Hong Kong Port of Hong Kong-Zhuhai-Macao Bridge.

There are 2 dogs under quarantine at the animal keeping facility at the Hong Kong Port of Hong Kong-Zhuhai-Macao Bridge at the moment, which are staying in individual rooms. The other dog tested negative for COVID-19 virus. The department has stepped up cleansing and disinfection of the facility.

The department will continue to closely monitor the dog which tested weakly positive for COVID-19 virus and repeat the test later. It will only be returned to its owner when the test result is negative. The other dog which tested negative for the virus will be tested again before release. To ensure public and animal health, the department strongly advises that mammalian pet animals including dogs and cats from households with persons confirmed as infected with COVID-19, or close contacts of COVID-19 infected persons, should be put under quarantine in AFCD facilities.

COVID-19 is a newly emerged disease and the situation is still evolving. The AFCD will continue to work together with the Department of Health in handling relevant cases. The spokesman reminded pet owners to adopt good hygiene practices (including handwashing before and after being around or handling animals, their food, or supplies, as well as avoiding kissing them) and to maintain a clean and hygienic household environment. People who are sick should restrict contacting animals. If there are any changes in the health condition of the pets, advice from a veterinarian should be sought as soon as possible. The spokesman emphasised that there is currently no evidence that pet animals can be a source of infection of COVID-19 or that they become sick. Apart from maintaining good hygiene practices, pet owners need not be overly concerned and under no circumstances should they abandon their pets.

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[As stated in item [1] above, a blood sample was taken from the Pomeranian with suspected infection on 3 Mar 2019, to test the dog's serum for COVID-19 antibodies which, if detected, may finally establish the diagnosis. Results are expected very soon.

Serological tests have recently been added to China's arsenal of tests applied for the diagnosis of COVID-19 in man. This was published on Wed 4 Mar 2020, in the website of the National Commission of Health, which presented the "7th edition of the New Coronavirus Pneumonia Diagnosis and Treatment Scheme" (coined "Seventh Scheme"), issued by the National Health Commission on 3 Mar 2020 (The Seventh Scheme is available, in Chinese, at http://www.gov.cn/zhengce/2020-03/04/content_5486710.htm). In article 5 "Diagnostic criteria", the added tests are for the detection of "COVID-19-specific IgM antibodies" and "COVID-19-specific IgG antibodies."

In a press release which followed on Thu 5 Mar 2020, it was stated that the tests for IgM levels usually indicate a recent infection,

while elevated IgG levels suggest the patient has entered the recovery stage or has completely recovered. "High IgM levels usually indicate a recent infection, while elevated IgG levels suggest the patient has entered the recovery stage or has completely recovered. No matter how you cut it, if you find antibodies it proves there's been an infection." The press release is available at https://www.caixinglobal.com/2020-03-05/latest-coronavirus-diagnostic-plan-adds-new-tests-to-beat-false-negatives-101524535.html.

For a reference describing the initial field application of the serological tests, see ref 1.

Proposal of conventional serologic assays for COVID-19 diagnosis and infection monitoring (see ref 2).

WHO's interim guidance "Laboratory testing for coronavirus disease 2019 (COVID-19) in suspected human cases" (last update, 2 Mar 2020), includes the following comment: "paired serum samples (in the acute and convalescent phase) could support diagnosis once validated serology tests are available... commercial and noncommercial serological tests are currently under development" (see ref 3).

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HealthMap/ProMED-mail map of Hong Kong SAR: https://promedmail.org/promed-post?place=7057595,52692.]

See Also

COVID-19 update (25): China (Hong Kong) animal, dog, susp, OIE 20200302.7040373
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Novel coronavirus (40): animal reservoir, pangolin poss intermediate host, RFI 20200210.6972104
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Novel coronavirus (22): reservoir suggested, bats 20200129.6930718
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