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COVID-19 Spread Through Petting - A Review

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ABSTRACT

Aim and Objective: The main aim of this study is to analyse whether COVID 19 can spread through pet animals to humans.

Background and Discussion: Coronavirus belongs to the RNA group of family viruses. Coronaviruses can cause cold-like illness in people and some might cause illnesses in certain animals. Certain viruses like canine and feline coronavirus affect or infect only animals and do not infect humans. Certain coronavirus which infects animals can sometimes spread to humans. This caused an impact on the current issue of the outbreak of COVID-19. COVID 19 spreads primarily from person to person but also there's a chance that it might spread from people to animals or vice versa. Certain studies show that people who are infected but don't have symptoms most likely play a role in the spread of coronavirus. The risk of animals spreading COVID-19 to people is considered to be low severe acute respiratory syndrome and Middle East respiratory syndrome are some examples of disease caused by a coronavirus.

Conclusion: This review discussed the nature of COVID-19 viral spread through domestic pet animals and there is no evidence to suggest that any animals including pets or livestock can spread COVID infection to people.

Key Words: COVID, Dog, Cat, Petting, Spread, Zoonotic infections

INTRODUCTION

Coronaviruses belong to a large RNA group of family viruses. It causes illnesses like cold like flu in people ¹. While some other coronaviruses cause illness in certain types of animals, such as cattle, dogs, and bats ². Certain viruses like canine and feline coronavirus infect only animals and do not infect humans ³. The first infections were discovered in the animal market, but the virus spreads disease from person to person ⁴. The virus that causes COVID-19 spread mainly from person to person through respiratory droplets ⁵. Certain studies showed that people who are infected but do not show symptoms, likely also play a role in spreading the COVID virus ⁶. The risk of animals spreading COVID-19 to people is considered to be low severe acute respiratory syndrome and the Middle East respiratory syndrome are some examples of disease caused by coronavirus ⁷. Environmental contamination through surfaces appears to be a secondary route of transmission and the virus survives mostly on smooth surfaces, such as countertops and doorknobs. Porous materials, such as pet fur, tend to absorb and trap pathogens, making

it harder to contact them through touch ⁸. There is no sufficient evidence that pets can spread the virus that causes COVID-19 to people ⁹. Cats are mostly infected with the coronavirus that causes COVID-19 and easily transmit it to other cats, but dogs are not really susceptible to the infection. A case of SARS-Cov-2, the virus that causes COVID-19 in humans, was diagnosed in a tiger at Bronx Zoo on April 5 ¹⁰. The first publicly recorded instance of a pet diagnosed with COVID-19 happened in Hong Kong in late February, and Hong Kong's Agriculture, Fisheries and Conservation Department along with expert veterinary doctors at the World Organization for Animal Health concluded it to be a case of human-to-animal transmission ¹¹. It is advisable that pet owners and veterinarians strictly observe hand washing and other infection control measures as outlined by the CDC when handling the humans ¹². The pet dog belongs to someone who had the virus, so it is believed that the dog contracted the virus from its owner ^{13,14}. A case in New York showed the cat's owner had diagnosed positive for COVID-19, then it started to spread to humans without any symptoms then it

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should be an asymptomatic carrier¹⁵. It has been suggested that some groups of domestic animals can be infected with the SARS-COV-2 in laboratory settings¹⁶. Pets fur was one of the modes of spread, previously believed but there is no evidence showing the spread¹⁷. Currently, there are no reported cases of people catching the coronavirus from animals¹⁸. If the owner of the pet seems positive to COVID, CDC prefers to isolate the owner from their pets¹⁹.

Risk of animals spreading virus that causes COVID19 to humans

In the Bronx zoo, four tigers and three lions have tested positive for the virus that causes COVID-19²⁰. Primarily from person to person but also there is a chance that it can spread from animals to people or people to animals²¹. Different animals were affected by COVID-19. Both wild and domestic cats had been known to be susceptible to feline coronavirus²². Chinese study shows that cats are able to infect each other²³. Fomite infection is any inanimate object that is contaminated or infected with infectious agents that can transfer disease to the new host²⁴. Cough can distribute virus particles on animal fur²⁵. Severe Acute Respiratory Syndrome (SARS) and MERS are caused by corona to animals and may spread from animal to person²⁶. The first infection was infected in animals in the animal market spreading from people to people²⁷. There is no sufficient evidence that pets spread coronavirus to people²⁸. No evidence of animals that play a major role in spreading COVID-19. No direct evidence that cats spread COVID to other cats²⁶. Cats and dogs should be prevented from contacting the infected owner. Viral RNA exposed cats, virus droplets spread from breath out of infected cats. CDC mainly focuses on the control and reduces the risk of COVID-19 transmission²⁹. SARS-COV related coronavirus causes severe acute respiratory syndrome and causes widespread to house cats to humans. Some concern that COVID-19 can be spread prior to the development of symptoms but this is not confirmed.

Mode of transmission

The transmission of this disease is through the respiratory droplets which are packed with the virus particles, spread from the infected patients to other people or to animals³⁰, who are infected through the cough or sneezes of the infected people which leads to the mode of transmission. There are no specific antibiotics described for the virus. The affected patients need to get supportive care to breathe. There is no specific vaccine updated for this disease³¹. The corona virology is the science which has been advanced significantly for the past few years. SARS epidemic is an animal coronavirus which was now spotlighted³². Coronavirus is associated with both upper and lower respiratory tract. CDC provides the use of standards that shows the contact through airborne and the given particular precautions as prevention from the

hospitalized patients thus the preventive measures have to be followed³³.

Zoonotic infections

Table 1: The infection which had been recorded the spread from animals to humans³³.

Host	Infections
chimpanzee	Ebola virus
Vampire bats	Rabies
Fruit bats	Nipah virus
Migratory Birds	Avian influenza
Fox	Rabies
Antelope	Rift valley fever
Masked palm civets	SARS
Turtles	salmonellosis
Snake	E.coli
Pig	Nipah virus
Monkey	Monkeypox
Rabbits	Tularemia
Prairie dogs	plague
Rat	Hantavirus
African Squirrel	Monkeypox
crow	West nile

Stay healthy around animals

No evidence that animals play a significant role in the spread of coronavirus³⁴. All animals can carry the germs that can make people sick. CDC trying to minimize the number of animals getting infected with the virus³⁵. Animals were deliberately given high care because of the virus spreading to pet animals like cats and dogs, because they are in close contact. humans lockdown Wuhan, china had been reported that many pet owners had abandoned their pet animals³⁶. Relied on them for care and safety measures, pets adoption may raise an impact of coronavirus on animals especially cats and dogs. Only limited data is available for potential SARS-COV-2 infection world wide³⁷. A previous study shows a low level of infection with the virus. Certain dog owners in the USA kept their dog in quarantine for a few days. A german shepherd tested positive for infection with SARS-COV 2³⁸.

People guidance

Veterinarians always question whether pets' health gives the owner a guide to spread infection. Practice good and proper pet hygiene and clean the pets up properly^{39,40}. Many efforts are taken to prevent SARS-COV-2 spread among the cats and to eliminate it. Infected cats produce antibodies against

SARS-COV-2. The SARS pandemic about SARS-COV is recorded widespread among the house cats⁴¹. Viral SARS-COV-2 RNA remains vital in the feces and vomit of domestic cats⁴² where the cats have been presented with respiratory and digestive symptoms. The animals owners who are involved in tufts study helps scientists to better understand the spread⁴³. The limitations found were, this study mainly focused on the coronavirus spread due to petting animals like cats, dog, etc. It hasn't included domestic animals and birds⁴⁴. This study is conducted with particular geographical areas where pet animals are frequently spotted⁴⁵ where it does not include the virus control and other ways of spreading⁴⁶. Reviews have not focused on the spread of the virus from humans to animals. Only limited information is available up-to-date.

CONCLUSION

This review is necessary as of now since the prevalence of COVID-19 is almost gone to a hedge. The mortality rate seems to be high in the case of COVID-19 when compared to other pandemic issues. The only way to control the mortality rate is to prevent and control its widespread. Recent reviews have revealed that viruses are transferred from people to animals in some situations. Infected animals also show the same symptoms like respiratory illness. At this time there is no evidence to suggest that any animals including pets or live-stock can spread COVID infection to people. In this rapidly evolving situation, this review helps to control and prevent the spread of COVID.

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