

Monkeypox in animals

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Abstract

With more than 31,000 confirmed cases of monkeypox worldwide, health authorities are warning that it's not just people who are at risk from the disease even pets can get monkeypox, too. With monkeypox spreading in humans throughout the world, veterinarians have begun to worry about the increased risk of monkeypox spreading from humans to animals. If monkeypox spreads to wildlife species, the virus could become endemic in the places, where it has historically been absent, resulting in more frequent outbreaks. The recent report of a greyhound in Paris which was infected with monkeypox from its owner, has underscored the possibility of a viral reservoir in animals. This article provides a general overview of the disease in animals especially dogs, along with information on how to diagnose and treat them.

A species-jumping virus

Monkeypox virus is an enveloped double-stranded DNA virus that belongs to the *Orthopoxvirus* genus of the *Poxviridae* family. Monkeypox is a *Poxvirus* in the same family as variola, the virus that causes smallpox and cowpox viruses and likely evolved in animals before jumping to humans. Monkeypox is a zoonotic disease, which means that it can spread between animals and people. But just because an animal can get infected with monkeypox doesn't mean they can pass it on. There is a difference between accidental hosts and a reservoir. Accidental hosts are often dead ends for the virus. A true reservoir species must be able to pass the virus from animal to animal, and then sometimes to humans they encounter.

There are two distinct genetic clades of the monkeypox virus: the central African (Congo Basin) clade and the west African clade. The Congo Basin clade has historically caused more severe disease and was thought to be more transmissible.

Natural host of monkeypox virus

Various animal species have been identified as susceptible to monkeypox virus. This includes rope



squirrels, tree squirrels, Gambian pouched rats, dormice, non-human primates and other species.

Monkeypox in pets and other animals

About 80 percent of the potential new hosts for monkeypox are rodents or primates, the researchers predict. But domestic animals like dogs and cats were also predicted to be susceptible to infection. Red foxes and brown rats are two potential monkeypox hosts. Monkeypox virus can infect a wide range of mammal species, including monkeys, anteaters, hedgehogs, prairie dogs, squirrels, shrews and dogs. There has been a single report of sick people transmitting Monkeypox virus to animals (a dog).

- Now for the first time, a case of a pet dog getting monkeypox has been documented.
- The evidence shows the virus caused real canine disease and highlights the need for infected people to isolate themselves from their pets.
- A dog in Paris has caught monkeypox from one of its owners, both of whom were infected with the virus, according to a scientific paper published on Aug. 10, 2022. The dog was an Italian greyhound. This is the first case of a dog contracting the monkeypox virus through direct contact with skin lesions on a human.
- These examples show which animals can be infected with Monkeypox virus. It also indicates that not all animals of this type are susceptible, this may vary by species, and variety or strain of the animal.

Here is a list of animals likely to get affected:

- Prairie dogs
- Squirrels
- Marmots and groundhogs
- Chinchillas
- Giant-pouched rats
- Dogs
- Monkeys
- Apes

Modes of transmission

WHO, has added: It's the first time, so it means that dogs can be infected, but it doesn't mean that the dog can transmit the disease and infect other dogs, nor does it mean that the dog can re-infect human if it is infected.

- i. Infected animals can spread Monkeypox virus to people, and it is possible that people who are infected can spread Monkeypox virus to animals through close contact, including petting, cuddling, hugging, kissing, licking, sharing sleeping areas, and sharing food.



- ii. Monkeypox virus can be found in the rash caused by monkeypox (scabs, crusts, fluids) and infected bodily fluids, including respiratory secretions, and potentially in urine and feces.
- iii. The monkeypox virus is also present in saliva.
- iv. The Centres for Disease Control and Prevention says Monkeypox can spread by touching fabrics like bedding.

Signs, symptoms of monkeypox in pets

The CDC said potential signs of illness among pets include

- Fatigue, lack of appetite, coughing, nasal secretions or crust, bloating, fever and conjunctivitis (aka pink eye)
- Monkeypox's distinctive lesions, which may appear as a pimple- or blister-like rash
- If a rash or two other clinical symptoms appear on a pet within 21 days of exposure, the CDC urges people to notify their veterinarian to get a professional assessment.
- Signs of monkeypox in dogs include development of a new rash, which to date has been located on the abdomen and anus.

However, it's important to keep in mind those are common symptoms of a lot of respiratory diseases or viral infections.

What to do if a pet shows signs of monkeypox

- i. Do not surrender, euthanize, or abandon pets just because of a potential exposure or Monkeypox virus
- ii. Do not wipe or bathe your pet with chemical disinfectants, alcohol, hydrogen peroxide, or other products, such as hand sanitizer, counter-cleaning wipes, or other industrial or surface cleaners.
- iii. Get your pet tested if they have had close contact with a person with probable or confirmed monkeypox and they have a new rash or two other clinical signs. Call your



veterinarian if you notice an animal appears sick within 21 days of having contact with a person who has probable or confirmed monkeypox.

- iv. Separate the sick pet or animal from other animals and minimize direct contact with people for at least 21 days after becoming ill or until fully recovered.
- v. Wash your hands often and use personal protective equipment (PPE) when caring for and cleaning up after sick animals. PPE includes wearing gloves, using eye protection (safety glasses, goggles, or face shield), wearing a well-fitting mask or respirator (ideally a disposable NIOSH-approved N95 filtering facepiece respirator), and wearing a disposable gown.
- vi. Bedding, enclosures, food dishes, and any other items in direct contact with infected animals must be properly disinfected
- vii. Frequent hand washing is also recommended when handling the pet.

Treatment

Precautions: If you have monkeypox, isolate at home in a separate room from family and pets until your rash and scabs heal. There is no specific treatment approved for monkeypox. Health care providers may treat monkeypox with some antiviral drugs used to treat smallpox, such as tecovirimat (TPOXX) or brincidofovir (Tembexa).

Vaccines: The effectiveness of the Imvanex® smallpox vaccine in preventing monkeypox has only been studied in animals.

