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Feline Calicivirus Infection

What is feline calicivirus?

Feline calicivirus (FCV) is a virus that is an important cause of upper respiratory infections and oral disease in cats. This virus infects cats throughout the world, and can cause disease in both domestic and exotic species of the cat family. There are at least 40 different strains of FCV, and the *virulence* or severity of the disease caused by different strains may vary significantly.

Although several different viruses and bacteria can cause respiratory disease in cats, calicivirus is one of the more common infectious agents isolated in cats with a respiratory infection. Information about other infectious agents that can cause an upper respiratory infection in cats can be found in separate handouts in this series of client education materials (refer to "Feline Upper Respiratory Infection" or specific disease handouts).

What are the symptoms of a calicivirus infection?

The typical symptoms of an upper respiratory infection involve the nose and throat, causing symptoms such as sneezing, nasal congestion, conjunctivitis (inflammation of the membranes lining the eyelids), and discharges from the nose or eyes. The discharges may be clear or may become purulent (containing pus).

"....cats with a calicivirus infection often develop ulcers..."

In addition to these typical symptoms, cats with a calicivirus infection often develop ulcers on the tongue, hard palate, gums, lips or nose; cats with ulcers in the mouth will usually salivate or drool excessively. Symptoms that are not specific for an upper respiratory infection include anorexia, lethargy, fever, enlarged lymph nodes and blepharospasm (squinting).

Cats infected with FCV will show a great variability in symptoms, depending on the strain of calicivirus involved in the infection. In some cases, the only symptom of FCV may be oral or nasal ulcers, but usually there are other typical symptoms of an upper respiratory infection. Some strains of FCV may cause an infected cat to develop sudden painful lameness in one or more joints; this lameness occurs more frequently in kittens.

One very virulent strain of FCV, referred to as "Virulent Systemic Feline Calicivirus" or VS-FCV, causes severe generalized disease. With this strain of FCV, the initial symptoms involve the eyes, nose and mouth, but the infected cat quickly develops a high fever, severe depression, edema of the legs and/or face, jaundice, and symptoms of multiple organ disease. The VS-FCV strain is highly infectious, and the mortality rate is reportedly up to 67%. Fortunately, this particular strain of disease is very rare, with only a handful of outbreaks reported in the US since 1998.

How does a cat get a calicivirus infection?

Calicivirus is highly contagious, and infected cats can shed viral particles in saliva or secretions from the nose or eyes. If an infected cat sneezes, airborne viral particles can be sprayed several meters through the air. It is speculated that the virus may also be shed in urine or feces, but this is not considered to be a major source of infection.

"Susceptible cats can get an infection by direct contact with another infected cat or by environmental exposure to objects that have been contaminated with infectious secretions."

The virus may survive for up to one week in a contaminated environment (and possibly longer in a cool, damp location). Susceptible cats can get an infection by direct contact with another infected cat or by environmental exposure to objects that have been contaminated with infectious secretions. People that have touched contaminated objects or an infected cat can also spread the virus to susceptible cats.

Although all susceptible cats may develop a calicivirus infection, symptoms tend to be more severe in young kittens. However, the VS-FCV strain appears to affect adult cats more severely.

How long does a typical calicivirus infection last?

Once a cat is exposed to calicivirus, it will go through an incubation period of 2-6 days before developing symptoms. If the infection is uncomplicated, it will typically last for 14-21 days, depending on the particular disease agent. During this entire time, the cat will potentially be infectious to other cats.

At a minimum, infected cats will shed virus in their bodily secretions for 2-3 weeks. Following apparent recovery from the disease, as many as half of all infected cats may develop a carrier state, in which they will continue to shed viral particles intermittently or constantly. In some of these cats the carrier state may only last for a few months, but in a small percentage of cats the carrier state may persist for life. Carrier cats may or may not show any symptoms of infection when they are actively shedding virus particles, and they serve as an important source of infection to susceptible cats. Female cats that are carriers of this virus can pass the infection on to their newborn kittens.

How is a calicivirus infection diagnosed?

In most cases, a presumptive diagnosis of a calicivirus infection is based on the characteristic clinical signs, especially if ulcers are present. A definitive diagnosis of FCV is not always necessary, but will be recommended for breeding animals or if an individual cat has an infection that is poorly responsive to treatment.

Diagnosis may be confirmed by collecting samples of cells and discharges from the mouth, nose or eyes and submitting these samples to a laboratory for specialized testing such as viral isolation, identification by a PCR (Polymerase Chain Reaction) test or immunohistochemical staining. If the infection has spread to the lungs, samples may be collected for examination by a procedure called a *transtracheal wash.* If a cat is showing sudden signs of lameness, x-rays may be recommended to rule out other causes such as an injury.

If a cat has persistent respiratory symptoms, your veterinarian will recommend additional diagnostic testing such as chest or skull x-rays, blood tests, or culture and sensitivity testing of abnormal discharges.

How is a calicivirus infection treated?

"Most cats with an uncomplicated calicivirus infection can be treated symptomatically at home."

Most cats with an uncomplicated calicivirus infection can be treated symptomatically at home. Your veterinarian may prescribe an eye medication to be applied topically if your cat has a purulent eye discharge. Although viral infections do not respond to antibacterial drugs, broad spectrum antibacterial drugs may be prescribed in an effort to prevent secondary bacterial infections from complicating the disease, particularly in kittens. Anti-inflammatory medication may be prescribed to relieve symptoms of lameness. Cats that have persistent ulcers may benefit from treatments that modulate or support the immune system.

Cats with nasal or airway congestion may benefit from increased environmental humidification, such as being taken into a steamy bathroom for 10-15 minutes several times per day. To minimize irritation from discharges, it is often helpful to wipe them away from the cat's face or eyes with a moist tissue. Since cats with a respiratory infection will have a decreased sense of smell, they often have a decreased appetite - feeding a highly palatable canned food may help improve their appetite. In some cases, an appetite stimulant may be prescribed.

If a cat is dehydrated, depressed, or has a severe case of illness, your veterinarian will recommend hospitalization for more intensive treatment, including intravenous fluids and other supportive treatments.

How can calicivirus infections be prevented?

Since calicivirus is a highly infectious disease and apparently healthy cats can be carriers of the disease, it can be difficult to prevent your cat from exposure to the virus. Boarding facilities, humane societies, animal shelters, and cat shows are all places where susceptible cats can be readily exposed to calicivirus.

Preventing direct contact between your cat and other cats will greatly minimize the chance that your cat will pick up an infection, while following good sanitation and hygiene practices, such as washing your hands thoroughly before and after petting another cat will reduce the likelihood that you will spread the disease to your cat.

Susceptible cats can get an infection by direct contact with another infected cat or by environmental exposure to objects such as brushes, food bowls, litter boxes, cat toys, or blankets that have been contaminated with infectious secretions. Objects that have been contaminated with calicivirus can be disinfected by soaking for at least 10-15 minutes in a solution of bleach and water (1 part bleach to 32 parts water).

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The standard 'core' vaccines that are given to cats include immunization against calicivirus and will help reduce the severity of disease and shorten the length of the illness if your cat is exposed. Kittens require several boosters of this vaccine between the ages of 6 and 16 weeks, and at least one other booster a year later. After this initial series, the vaccine will also need to be boostered on a regular basis every 1-3 years. It is particularly important to give your cat a booster vaccine before he or she is placed in a high risk situation such as boarding, grooming, going to a cat show, or otherwise being exposed to cats that could be potential carriers of calicivirus. Your veterinarian will advise you on the recommended booster schedule for your individual cat.

Are other cats in the household at risk of infection?

A cat that has an acute calicivirus infection will be infective to other cats during the incubation period and for at least 3 weeks after developing symptoms. A cat that is a carrier of calicivirus may always be infective to other cats (see question "*How long does a typical calicivirus infection last?").* Cats that are unvaccinated, are young, or have chronic underlying problems are more susceptible, and may develop a serious illness. For most strains of calicivirus, adult cats that are more than 3 years old, or cats that have been adequately vaccinated will likely only develop a mild case of illness, which may resolve without treatment.

It is always prudent to isolate a new cat from the other cats in your household for at least 1-2 weeks to minimize transmission of calicivirus or any other infectious diseases.

Is my family at risk?

Calicivirus is very species specific and does not represent any risk to people or other species of animals.

This client information sheet is based on material written by: Cheryl Yuill, DVM, MSc, CVH