

# Feline Infectious Peritonitis

## ABOUT THE DIAGNOSIS

Feline infectious peritonitis (FIP) is an extremely serious viral disease that affects cats but not dogs, humans, or any other species. It is caused by a coronavirus, meaning that it is spread mainly through the digestive tract, and is contracted by cats when they are in contact with the feces (stool, excrement) or bodily fluids of infected cats. FIP is usually rapidly fatal in cats, so identification of infected cats is important.

There are many coronaviruses that infect the gastrointestinal tracts of different animals, and they fall into two broad categories: enteric coronaviruses, which cause mild, brief signs of digestive upset and are relatively harmless, and mutated coronaviruses such as the FIP virus. An example in the first category, feline enteric coronavirus, is a virus that is commonly found in cats, is restricted to the gastrointestinal tract, and does not cause significant illness at all. By contrast, some variants, or strains, of this virus, such as feline infectious peritonitis virus, fall into the second category, do cause significant illness, and are responsible for FIP. These viral variants are able to travel out of the digestive tract, through the bloodstream, to other parts of the body where they may persist indefinitely and cause severe symptoms that can become life-threatening.

FIP is a disease that most frequently appears in young cats less than 2 years old but can occur in cats of any age. Almost any part of the body may be affected by the spread of the FIP virus, including the liver, kidneys, lungs, nervous system (brain and spinal cord), and eyes.

While coronaviruses in general are highly contagious, the number of exposed cats that actually contract FIP is low. In most cats, coronaviruses remain confined to the intestinal tract and will not cause FIP. It appears that a combination of virus mutation and a trigger within the cat (possibly with an underlying genetic component) cause otherwise harmless enteric coronaviruses to transform into FIP virus. It is of critical importance to realize that because of this, testing cats for exposure to coronaviruses is of no use in identifying FIP, because a large proportion of the feline population has enteric coronaviruses with no adverse consequences. Once a cat has been confirmed to have FIP (which requires analysis of fluid and/or tissue- see below), the possibility of contagion is very low since the virus is no longer in the gastrointestinal tract and thus is not shed in the feces. Nevertheless, there is some small degree of risk and precautions such as separation of an infected cat from other cats, and basic hygiene including handwashing and litter box hygiene, are recommended.

Affected kittens may have stunted growth and fail to thrive. They will often be thin and have a rough, dull haircoat. Although there is significant overlap, a simplistic way to look at infection is that there are two different subforms of FIP, a “wet” and a “dry” form. The “wet” form causes fluid accumulation in the abdomen (belly) or the chest; abdominal fluid accumulation can give a potbellied appearance that is often mistaken for intestinal parasites, whereas fluid accumulation in the chest may cause difficulty breathing due to fluid compression of the lungs. Cats with the “dry” form of FIP may slowly lose weight and have appetite loss, lethargy, and unexplained fever. The onset of disease is usually very gradual with the dry form. Older cats almost always contract the dry form of FIP. This form of FIP can also cause a variety of nervous system symptoms, including seizures or blindness. In reality, a single cat can have manifestations of both wet and dry forms.

The diagnosis of FIP is complicated by the fact that blood tests cannot distinguish between harmless, nonpathogenic feline enteric coronaviruses and the devastating strains that cause FIP. Often, suspicion is based on history (for instance, kittens obtained from animal shelters or catteries are often exposed to the coronavirus), clinical signs, and physical examination. Other tests, including blood tests and imaging tests (x-rays or ultrasound) can lend support, as can analysis of any abnormal fluid in the chest or abdomen. Often, for the wet form of FIP, these tests are enough to feel confident in the diagnosis. However, positive diagnosis of the dry form of FIP can be a challenge. If there is a high suspicion that dry FIP is responsible for a cat’s symptoms, surgery is often required to obtain biopsy samples from various organs. Tests (immunohistochemistry) performed on the biopsy samples can confirm the diagnosis, and tissue biopsy, typically of the intestine, is the gold standard for diagnosis of FIP if any uncertainty remains from the results of less invasive tests.

## LIVING WITH THE DIAGNOSIS

If your cat is diagnosed with FIP, you should prevent his/her coming in contact with new cats since the virus is potentially contagious. However, there is no need to isolate him or her from other cats in the household with which he or she has already been in contact. All of the household cats are likely to have already been exposed to the virus, so isolation will not prevent spread of the virus and may, in fact, have a negative impact on the health of the cats due to the additional stress it causes. Most cats exposed to the virus will not develop FIP.

## TREATMENT

There is no cure for FIP, and symptoms tend to worsen over days to weeks (sometimes months) until fatal. Therefore, treatment of FIP is aimed at making an affected cat comfortable. The cat should be encouraged to eat, and stress should be avoided. Treatments with immunosuppressive drugs, such as corticosteroids, or immunomodulators are often used, but the benefits are limited. FIP is devastating and virtually every cat with confirmed FIP dies of the disease, although some can live for several months with supportive treatment. Many cat owners make the difficult but reasonable choice to have an affected cat or kitten euthanized (killed by humane lethal injection) after the diagnosis is established.

## DOs

- Be sure that the diagnosis is accurate since FIP is devastating, and false results (false positive or false negative) are common. Specialists in veterinary internal medicine, who are experts in current diagnosis and treatment of this type of illness, are known as Diplomates of the American or European College of Veterinary Internal Medicine. They can provide a very helpful second opinion, since symptoms of FIP can be imitated by so many other, unrelated disorders. They may also be aware of new treatment opportunities as this disease remains under investigation, with some promising results recently reported. These specialists can be found in most large North American and European cities (directories: [www.acvim.org](http://www.acvim.org) or [www.vetspecialists.com](http://www.vetspecialists.com) for North America; [www.ecvim-ca.org](http://www.ecvim-ca.org) for Europe).
- If the diagnosis of FIP is confirmed and your cat is showing symptoms of illness such as loss of appetite, tempt your cat to eat with his or her favorite foods.

- Avoid stressful situations for the cat (unnecessary transport, extremes of temperature, etc.), which can allow the disease to worsen.
- Consult your veterinarian for information on other supportive treatments that may be appropriate.

### **DON'Ts**

- Do not allow your cat to roam outdoors or otherwise have contact with uninfected cats, to help prevent spread of the virus.

### **WHEN TO CALL YOUR VETERINARIAN**

When treating a cat that has had FIP confirmed:

- If your cat will not eat or drink or becomes extremely debilitated.
- If your cat develops rapid, shallow breathing or begins to breathe through its mouth (panting like a dog), which is abnormal in cats (exceptions: when traveling or when the weather is hot, in which case even healthy cats may pant).

### **SIGNS TO WATCH FOR**

As signs warranting an immediate recheck, including after hours/emergency:

- Rapid, difficult breathing or open-mouth breathing. This can be a sign of fluid buildup around the lungs and is an emergency. Be careful to not stress your cat if it shows these signs, but rather telephone the veterinary hospital and proceed calmly.

### **ADDITIONAL INFORMATION**

- Cats diagnosed with FIP usually live in, or have originated from, multiple-cat households (more than five cats) or breeding catteries. Breeders and owners of multiple cats should consult their veterinarian for more information on the control of FIP in these situations.
- A vaccine is available for FIP. However, it is not generally recommended for household cats and has not proved to be very effective in preventing the disease.

Practice Stamp or Name & Address

Also available in Spanish.