

# FELINE INFECTIOUS PERITONITIS (FIP)

## BASICS

### OVERVIEW

- A generalized (systemic), viral disease characterized by subtle onset of signs, persistent fever that does not respond to treatment, inflammatory nodular tissue reaction with the presence of pus (known as “pyogranulomatous tissue reaction”), accumulation of inflammatory fluids in body cavities, and high mortality

### SIGNALMENT/DESCRIPTION of ANIMAL

#### Species

- Cats—domestic and exotic

#### Breed Predispositions

- Some families or lines of cats appear more susceptible to feline infectious peritonitis (FIP)

#### Mean Age and Range

- Highest incidence of disease—in kittens 3 months to 3 years of age
- Incidence of disease decreases sharply after cats reach 3 years of age

### SIGNS/OBSERVED CHANGES in the ANIMAL

- A wide range of signs, depending on the strain of virus, effectiveness of the cat’s immune response, and organ system affected
- Two classic forms—“wet” or “effusive” form, targets the body cavities; “dry” or “non-effusive” form, targets a variety of organs
- Subtle onset of signs
- Gradual weight loss and decrease in appetite
- Gradual increase in the size of the abdomen, giving the cat a potbellied appearance
- Persistent fever—fluctuating; antibiotic unresponsive
- Depression
- Poor condition
- Stunted growth
- Dull, rough hair coat
- Yellowish discoloration to the gums and other tissues of the body (known as “jaundice” or “icterus”)
- Build-up of fluid in the abdomen (known as “abdominal effusion”) and/or in the space between the chest wall and lungs (known as “pleural effusion”)
- Palpation of the abdomen—abdominal masses (nodular masses with or without pus) on the surface of various organs, especially the kidney, and within the intestinal wall; lymph nodes may be enlarged
- Eyes—inflammation of the front part of the eye, including the iris (known as “anterior uveitis”); aggregates of inflammatory cells adhering to various areas of the inner lining of the cornea (known as “keratic precipitates”); color change to the iris (the pigmented part of the eye); and irregularly shaped pupil (the circular or elliptical opening in the center of the iris of the eye)
- Nervous system signs, determined by the location (for example, brain or spinal cord) involved

### CAUSES

- Two types of feline coronavirus—feline coronavirus-1 (FCoV-1) that causes perhaps 85% of infections and feline coronavirus-2 (FCoV-2)

### RISK FACTORS

- Contact with a feline coronavirus-positive cat
- Breeding catteries or multicat facilities
- Less than 3 years of age
- Feline leukemia virus (FeLV) infection

## TREATMENT

### HEALTH CARE

- No treatment routinely is effective
- Inpatient or outpatient, depending on stage and severity of disease and owner’s willingness and ability to provide good supportive care
- Therapeutic tapping of a body cavity to remove fluid (known as “paracentesis”)—to relieve pressure from excessive fluid build-up in the abdomen (abdominal effusion) or in the space between the chest wall and lungs (pleural effusion)
- Important to encourage the affected cat to eat

## ACTIVITY

- Restrict to prevent exposure of other cats, although greatest degree of virus shed occurs before the patient shows signs

## DIET

- Any food that will entice the patient to eat

## SURGERY

- Generally none
- Rarely, inflammatory abdominal disease from feline coronavirus may cause intestinal blockage or obstruction; abdominal surgery may be required

## MEDICATIONS

Medications presented in this section are intended to provide general information about possible treatment. The treatment for a particular condition may evolve as medical advances are made; therefore, the medications should not be considered as all inclusive.

- Medications to decrease the immune response (known as “immunosuppressive drugs”), such as prednisolone and cyclophosphamide—limited success
- Steroids injected under the moist tissues of the eyes (known as “subconjunctival steroid injection”)—may help eye involvement
- Interferon—limited success in treatment; a recombinant interferon reported to have some success in Japan
- Antibiotics—ineffective because generally not associated with secondary bacterial infections
- No antiviral drugs proven to be effective

## FOLLOW-UP CARE

### PATIENT MONITORING

- Monitor for development of large quantities of fluid build-up in the space between the chest wall and lungs (pleural effusion)

### PREVENTIONS AND AVOIDANCE

- Modified live virus (MLV) intranasal vaccine—available against feline coronavirus/FIP virus; effectiveness of vaccine is low; cannot rely on vaccination alone for control; may produce antibody-positive cats, complicating monitoring in catteries or colonies—talk to your cat’s veterinarian about this vaccine
- Mother/offspring—main method of transmission appears to be from mother cat (“the queen”) that is carrying the virus, but does not have signs of disease (known as an “asymptomatic carrier queen”) to her kittens at 5 to 7 weeks of age; break cycle of transmission by early weaning at 4 to 5 weeks of age and isolating litter from direct contact with other cats, including the queen
- Routine disinfection—premise, cages, and water/food dishes; readily inactivates virus; reduces transmission
- Introduce only feline coronavirus antibody-negative cats to catteries or colonies that are free of virus
- Restrict household cats to indoor environments

### POSSIBLE COMPLICATIONS

- Fluid build-up in the space between the chest wall and lungs (pleural effusion) may lead to breathing difficulties and require tapping of the chest and removal of fluid (known as “thoracocentesis”)
- Intestinal blockage or obstruction from inflammatory abdominal disease
- Central nervous system disease
- Death

### EXPECTED COURSE AND PROGNOSIS

- Most feline coronavirus-positive cats have subclinical infection or mild, localized nodular inflammatory disease that is not diagnosed as feline infectious peritonitis (FIP); a “subclinical infection” is one in which the animal is infected, but has no signs of disease
- Patients with generalized and typical signs of feline infectious peritonitis almost invariably die
- Clinical course—a few days to several months
- Prognosis grave once typical signs occur; mortality nearly 100%

## KEY POINTS

- Feline infectious peritonitis (FIP) has a grave prognosis
- Feline coronavirus infection is common; however, likelihood of developing actual clinical disease is low; less than 10% of feline coronavirus antibody-positive cats less than 3 years of age eventually develop clinical disease