Feline Respiratory Disease Complex (Feline Viral Rhinotracheitis, Feline Calicivirus)

Feline respiratory disease complex is a set of respiratory illnesses caused by a group of organisms that can cause infection alone or together. It includes those illnesses with signs including inflammation of the nasal and sinus linings, inflammation of the eye lining (conjunctivitis), excessive tear production, salivation, and mouth sores. The principal diseases are **feline viral rhinotracheitis** (also called **feline herpesvirus type 1**) and **feline calicivirus**, although other diseases may also be involved **Feline Respiratory Disease Complex** :

-Feline viral rhinotracheitis (FVR), also called feline herpesvirus type 1 (FHV-1)
Accounts for the majority of acute upper respiratory infections in cats; tends to affect eyes and nose;

-Feline calicivirus (FCV)
Often hard to distinguish from feline viral rhinotracheitis; tends to affect mouth and lungs
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***-Chlamydia* infections (*Chlamydia felis and Chlamydia psittaci*)**
Conjunctivitis, sneezing, eye discharge, fever may develop; rarely causes pneumonia (feline pneumonitis); of lesser importance than FHV-1 and FCV

***-Mycoplasma* infections**
Conjunctivitis and inflammation of the nasal lining (rhinitis); of lesser importance than FHV-1 and FCV
-Feline infectious peritonitis virus
May cause signs of mild upper respiratory tract infection; usually causes body-wide illness
-Reoviruses
Virus replicates in respiratory tract; may not always cause respiratory signs

The majority of feline upper respiratory infections are caused by feline viral rhinotracheitis, feline herpesvirus 1 (FHV-1).

CAUSE

This condition is caused by an infection with the feline herpesvirus 1 infection. It is common in multicat households or animal kennels due to overcrowding. Poor ventilation, poor sanitation, poor nutrition, or physical or psychological stress are other important risk factors for acquiring FHV-1.

Cats of all ages are susceptible, but kittens are at a higher risk and may be infected at about five weeks of age. Pregnant cats or those suffering from a lowered immunity due to a pre-existing disease are also at higher risk.

although the incidence of feline calicivirus may be higher in some populations of cats. Infection with both these viruses at once may occur.

Natural transmission of these agents :

-occurs through small droplets in the air (such as from a sneeze) and

- It is passed to other cats through sneezing, coughing, grooming and generally being in close contact with an infected individual.

- contaminated objects, which can be carried to a susceptible cat by a handler. Recovering cats may spread the virus for many months.

-Stress may trigger a relapse.

signs

The onset of **feline viral rhinotracheitis** is marked by fever, frequent sneezing, inflamed eyes (conjunctivitis), inflammation of the lining of the nose (rhinitis), and often salivation. Excitement or movement may cause sneezing.

- The fever may reach 105°F (40.5°C)(normal range of 99.5-103.5 f((39.7° C)) but subsides and then may absent .

-Initially, the disease causes a clear discharge from the nose and eyes; it soon increases in amount and contains mucus and pus.

-At this point, depression and loss of appetite become evident.

- Severely affected cats may develop mouth inflammation with sores,

- - and inflammation of the cornea (Superficial inflammation and swelling of the cornea (superficial keratitis), inflammation and swelling deep within the cornea (interstitial keratitis), and inflammation and swelling of the cornea with slow-healing sores (ulcerative keratitis), can all occur in cats.) occurs in some cats,and Spasm of the eyelid muscle resulting in closure of the eye (*blepharospasm*).

Signs may persist for 5 to 10 days in milder cases and up to 6 weeks in severe cases. The outlook is generally good except for young kittens and older cats.

-When the illness is prolonged, weight loss may be severe.

-Bacteria often infect cats that are already ill with feline viral rhinotracheitis. After the signs resolve, the virus usually remains in an inactive state in the cat's body for the rest of its life. The virus can reactivate and cause flares of infection, especially during times of stress.

Feline calicivirus

most often affects the lining of the mouth and the lungs. There are many related strains of feline **caliciviruses**.

-Some caliciviruses cause few or no signs.

-Some strains cause sores in the mouth,

-while others produce fluid buildup in the lungs (pulmonary edema) and pneumonia.

It is often impossible to distinguish feline viral rhinotracheitis from feline calicivirus infection.

-Two feline calicivirus strains may produce a transient “limping syndrome” without mouth sores or pneumonia. These strains produce a short fever, leg lameness, and pain on handling of affected joints.

-Signs occur most often in 8- to 12-week-old kittens and usually improve without treatment.

Epidemiology

- Clinically recovered cats frequently become carriers of the virus and act as a source of infection to other susceptible animals.
- Vaccination does not eliminate nor prevent development of the carrier state. The syndrome may occur even in kittens that have been vaccinated against feline calicivirus, because no vaccine protects against both of the particular strains that produce the “limping syndrome.
- The majority of cats will still be shedding virus 30 days after infection although some cats are then able to eliminate the virus, and there is an exponential fall off in the number of cats remaining carriers.
- A few cats will remain carriers longterm for months or years. Re-infection is possible and is likely to be common in groups of cats.

Pathogenesis

Predisposing factors ,General

- Following oronasal infection the virus multiplies in the tissues of the oropharynx and the respiratory tract. Oral ulcers which are a frequent feature of the disease begin as thin-walled vesicles which quickly ulcerate. Less commonly the lower respiratory tract has signs of pathology with the development of areas of acute exudative pneumonia.

- In some cats the joints are a site of viral infection causing an acute synovitis with thickening of the synovial membrane and increased quantities of synovial fluid.

- The pathogenesis of the more recently reported hemorrhagic/hepatic syndrome includes vasculitis, coagulopathy and necrosis of skin with clinical lesions of edema, skin necrosis and coagulative necrosis of hepatic tissues and pathology in the pancreas.

signs

-Calicivirus has also been found in cats with inflammation of the gums and mouth. The lesions heal rapidly, and the infected cat regains appetite 2 to 3 days after onset, although the course of disease may last 7 to 10 days. Fever, poor appetite, and depression are common signs. Nasal and eye inflammation also can occur.

Diagnosis

-The veterinarian's initial diagnosis is based on the typical signs as described above. These characteristics may be difficult to sort out when more than one infection is present.

- A definite diagnosis is based on isolation and identification of the organism through appropriate tests and

- microscopic examination of samples from the oral and nasal mucous membranes, nostrils, or conjunctival sacs.

-However, diagnosis of feline viral rhinotracheitis may be difficult because the virus is shed only periodically, and because even cats without symptoms can show presence of the virus.

Treatment and Prevention

Treatment is largely directed toward the signs of illness, but broad-spectrum antibiotics are useful if secondary bacterial infections are involved.

-Antihistamines may be prescribed early in the course of the disease.

- Nose and eye discharges should be removed frequently for the comfort of the cat.

-Treatment with a mist (nebulization) or saline nose drops may be recommended to help remove hard secretions.

- Nose drops containing a blood vessel constrictor and antibiotics are sometimes prescribed to reduce the amount of nasal secretion.

-Eye ointment containing antibiotics may also be prescribed to prevent corneal irritation produced by dried secretions from the eye.

- If corneal ulcers occur in feline viral rhinotracheitis infections, eye preparations containing antiviral medication may be prescribed, in addition to other antibiotic eye preparations.

- If the cat has great difficulty breathing, it may be placed in an oxygen tent.

- injection fluids if cat is dehydrated. Cats that are unwilling to eat may require additional medications or a feeding tube.

-**Vaccines** that protect against feline viral rhinotracheitis and feline calicivirus are available. One type is injected; the other is given as drops in the nose.
- Cats that have received the nasal vaccine may sneeze frequently for a few days after vaccination;
- Vaccines against *Chlamydia* are also available; these vaccines are generally used in catteries or on premises where infection has been confirmed.
-A combination of recommended vaccinations and control of environmental factors (such as exposure to sick cats, overcrowding, and stress) provide good protection against upper respiratory disease

It is important to minimize or remove any stress, which may lengthen the course of the disease.

- set up a place in the house where cat can rest comfortably and quietly, away from other pets,

-It is also important that isolate r cat from any other cats in order to prevent the spread of the virus to other cats.

- During the recovery period, offer easily chewed and easily digestible food at regular times throughout the day, along with plenty of water. Proper diet is the single most important factor for determining the outcome of the disease, and some patient may die due to inadequate nutritional and fluid support. Dehydration, especially, can lead to a fatal condition very quickly. cat stops eating for a number of days, veterinarian will need to use a stomach tube to force nutrient to cat's body.

In most cases, and given that there is not a secondary bacterial infections, symptoms improve within 7 to 10 days.