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Feline Viral Rhinotracheitis

*Arthur L. Lage

INTRODUCTION

The only confirmed viral diseases of cats prior to 1957 were rabies, feline panleukopenia, and feline pneumonitis. Various research workers have described feline virus pneumonia, feline influenza, and viral encephalopathy as other viral diseases; however, with the possible exception of feline influenza, these latter three have not been confirmed. To date, the feline viral respiratory diseases include feline pneumonitis, feline viral rhinotracheitis (FVR), and many other upper respiratory viruses not yet completely characterized but similar to FVR.

Feline viral rhinotracheitis is an acute, infectious upper respiratory disease characterized by conjunctivitis with lacrimation, and a nasal discharge accompanied by coughing and sneezing.

ETIOLOGY

There are at least three specific feline rhinotracheitis viruses and all belong to the herpes group; in addition, 31 cytopathic agents have been isolated from the nasopharyngeal region of the cat. There are many viral agents which cause—by themselves or in combination with other viruses—the clinical condition of viral rhinotracheitis; however, the main etiological agents at present are the feline rhinotracheitis viruses. This group of viruses will produce acidophilic intranuclear inclusion bodies in feline kidney cell cultures. More important, because of their diagnostic value, intranuclear inclusion bodies may be found in the epithelial cells of the trachea, turbinates, tonsils, and nictitating membrane.

The cytopathogenic features of this group of viruses are: 1. development of intranuclear inclusion bodies, 2. formation of giant cells, and 3. a slight reduction in the metabolic rate of infected cells.

INCIDENCE AND OCCURRENCE

The feline rhinotracheitis virus has been isolated on both the east and west coasts of the United States. It is suggested that this disease is quite widespread in the U.S. because natural cases have been reported from many different geographic regions. To date, there are no known areas where this disease is necessarily more prevalent than other areas.

EPIZOOTIOLOGY AND SYMPTOMATOLOGY

Feline viral rhinotracheitis often appears suddenly and in epizootic proportions in an area. Morbidity may be extremely high, while the mortality rate usually remains quite low. According to Dr. R. L. Ott, Washington State University, mortality rates of less than ten per cent in kittens under four months of age and less than two per cent in older cats are typical. Kittens are especially vulnerable,
but cats of all ages are quite susceptible to this disease.

In an outbreak that I witnessed, both kittens and older cats displayed the same general signs. The following symptomatology and progression was recorded: The first signs noticed were usually sneezing. Next, and within a period of 24 hours, there was moderate lacrimation and a serous nasal discharge. Within 48 hours of the initial signs of persistent sneezing, a slight cough developed with the lacrimation and nasal discharge increasing in volume. Often there was an increase in salivation with saliva hanging from the mouth. Anorexia and failure to drink were present in almost 100 per cent of the cases; this proved to be one of the greatest obstacles to overcome in treatment. Severe dehydration, depression, and secondary bacterial invasion were seen in all animals not brought in for treatment until about the fifth day after the first signs of sneezing were noticed by the client. Almost without fail, the clients would describe portions or all of the above signs in the progression of the disease; however, many did not bring their cats in for treatment until the disease had a good start and was complicated by bacteria.

Other characteristics often include purulent rhinitis and conjunctivitis and ulcerative glossitis. There may be a temperature increase initially, and with bacterial invaders there is often an additional temperature increase. When the cats were severely dehydrated the temperature was usually subnormal. Ott states that there is no detectable leukopenia with this disease, but that there is a leukocytosis. This was also usually found to be true in the outbreak previously described.

The disease is highly infectious and all cats directly associated with each other come down with the disease at approximately the same time. With treatment, the course seems to run between two and three weeks. It has been recorded that the disease may vary from just a few days in mild cases to one month or six weeks in severe cases. Some cats never seem to completely recover.11

**PATHOLOGY**

The lesions are confined to the conjunctiva, nasal cavities, pharynx, larynx, and trachea. Rarely are the lungs involved and when they are it is usually due to chronicity and secondary invasion. The exudates from inflammatory processes involving the above structures are serous or mucous; however, suppuration sometimes develops. Histological lesions include vacuolation and ballooning of the cytoplasm of affected epithelial cells with microscopic areas of necrosis. As previously stated there are acidophilic intranuclear inclusion bodies in the respiratory epithelium.1,10,12

**DIAGNOSIS**

As far as treatment is concerned, any strictly upper respiratory disease in cats characterized by conjunctivitis and rhinitis may be considered to be rhinotracheitis until a definite cause can be found.11 A definitive diagnosis is aided by finding acidophilic intranuclear inclusion bodies in the epithelial cells of the trachea, turbinate, tonsils or nictitating membrane. Feline pneumonitis, however, presents psittacosis-lymphogranuloma elementary bodies in the cytoplasm of mononuclear cells within the pneumonic lung areas.

**TREATMENT AND PROPHYLAXIS**

FVR is usually chronic and very debilitating. Antibiotics do not destroy the actual viruses causing this disease, but they do help prevent the establishment of secondary invaders. Broadspectrum antibiotics do seem to directly combat Miyagawanella felis (the cause of feline pneumonitis). Since in the early stages of the disease it is difficult or impossible to differentiate between FVR and feline pneumonitis, broadspectrum antibiotics should be used immediately upon diagnosing an infectious respiratory disease in cats. Ott suggests chlorotetracycline or oxytetracycline at 25 mg. per pound of body weight orally in divided doses b.i.d. or
mg. per pound parenterally.11

Symptomatic relief and supportive therapy are extremely important. Nasal and ophthalmic exudates should be removed at least three times a day. Anorexia is nearly 100 per cent complete in most cases; therefore, force-feeding via stomach tube is often required. The orogastric route is preferred in cases of upper respiratory disease. A mixture of one jar of strained egg yolk and one jar of water has been shown to be most satisfactory for the oral feeding of cats. Other mixtures using Karo syrup and/or corn oil with egg yolk and water have also proven to be good. These diets should be given at the rate of about one oz. per pound of body weight per day. This may be divided or given all at once. In addition, parenteral vitamin B complex should be given each day while the animal is in an anorectic state.2 If additional support is needed, 2.5 per cent dextrose in half isotonic strength electrolytes may be given subcutaneously.

In many cases Benadryl® seems to be of value by providing some symptomatic relief. Further work needs to be done in order to determine proper dosage and to find out its actual efficacy in the cat with FVR. Benadryl Elixir should probably be avoided; my experience has been that it causes extreme salivation in many cats. In all cases of FVR, antibiotic therapy should be continued for at least five days following recovery.

In severe cases, cats may be placed in vaporizer cages which help to break up the exudate and allows easier breathing—an oxygen cage may also be needed. Cats with rhinotracheitis should be handled with understanding and gentleness; all stressful situations should be avoided.

After severe signs have been alleviated, cats may be discharged if owners are able to treat their animals. The following have been shown to be effective in convalescent cases which may be showing minor symptoms—Delta Albaplex,®® Benadryl, palatable food and water hand fed if necessary, and rest with absence of stress in a warm and draft-free area.

At present, there is no effective vaccine for feline viral rhinotracheitis. Any cat hospitalized with upper respiratory problems should be placed in an isolation room or ward or, preferably, an isolation building. It should be realized that clinically recovered cats may relapse with feline viral rhinotracheitis.

* Benadryl—Parke, Davis and Company
A brand of diphenhydramine hydrochloride. Adult human dose is one 50 mg. Kapseal three or four times a day.

** Delta-Albaplex—Upjohn Company
Each tablet contains 60 mg. tetracycline hydrochloride, 60 mg. novobiocin, and 1.5 mg. prednisolone. Mature cat dose is one tablet every 12 hours.