

Treatment of Calicivirus Infection in Cats with Azitronite, Miramistin and Vinylin

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Abstract. This article discusses one of the ways to treat cats with calicivirus infection. In the treatment, the antibacterial drug azitronite from the group of macrolides is used, the oral cavity and damaged parts are treated with antiseptic agents miramistite and vinylin. For the treatment of cats with calicivirus infection, there are no drugs with proven effectiveness. Supportive symptomatic treatment is given, and antibiotics are given to prevent secondary infection. Supportive care and plenty of fluids help cats fight off calicivirus. In this article, we will analyze a step-by-step method for treating cats.

1 Introduction

Relevance. Feline calicivirus (FCV) is an important and very common pathogen. It belongs to the Caliciviridae family, which includes other pathogens of importance to humans and animals (M.M. Rakhmanina, 1994; V.N. Syurin, 1998; A.N. Krylov, 2000; J.E. Sykes, 1998; A.D. Radford, 2007). The virus was first isolated from the gastrointestinal tract of a cat in 1957 by L. Fastier [4].

Feline calicivirus is an infectious disease characterized by damage to the upper respiratory tract, but can also affect other organs. The causative agent is an RNA virus of the Caliciviridae family, ubiquitous in the cat population. The virus is highly contagious (highly contagious). Easily transmitted from one animal to another [1].

The virus is shed for about 30 days, some cats become carriers of the virus for life. The calicivirus virus is species-specific (transmitted only from cat to cat). In humans, it manifests itself as gastroenterocolitis, but cats cannot transmit it to humans. A high level of morbidity is observed in crowded areas [5].

Three forms of infection have been described: acute feline calicivirus infection, chronic feline calicivirus infection, and virulent systemic feline calicivirus disease. Although acute and chronic infections are usually caused by vaccine-susceptible strains of feline calicivirus infection, virulent systemic disease feline calicivirus disease is caused by at least two different, highly virulent, vaccine-resistant strains of feline calicivirus infection (FCV-ARI and FCV-KAOS) [9].

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While acute feline calicivirus infection is common, chronic feline calicivirus infection is a rare consequence of acute feline infection. Virulent systemic feline calicivirus disease is rare and is characterized by acute outbreaks of a rapidly spreading, often fatal infection among cats in shelters, veterinary clinics, experimental cat colonies, and multi-cat households. Acute feline calicivirus infection is typically a transient, self-limiting, vesicular disease [1,3,8].

Oral ulcers are common and may be the only clinical symptom. Ulcers usually involve the tongue, but can occur anywhere in the mouth (palate, gums), on the lips, or the area between the base of the nose and the upper lip. Ulcers in other parts of the body are rare. Other symptoms may include depression, fever, easy sneezing, conjunctivitis, discharge from the eyes and nose, arthropathy (limping) and, rarely, pneumonia. In facilities with multiple cats, asymptomatic carrier cats are common [2,7].

Chronic feline calicivirus infection is characterized by the development of chronic, progressive, plasmacytic or lymphocytic proliferative or ulcerative gingivitis and stomatitis. Clinical signs may include halitosis, difficulty swallowing, excessive salivation, anorexia, and weight loss. Virulent systemic feline calicivirus infection can result in no apparent disease (asymptomatic carriage), mild or moderate illness, or severe illness and death [5,6].

Affected cats usually develop acute symptoms within one week of infection and, depending on the severity of their illness, have a moderate to severe fever. Skin lesions include oral ulcers; variable expressed alopecia; crusts; ulcers of the muzzle, auricles, paw pads and nostrils; as well as subcutaneous swelling of the muzzle or limbs. Other symptoms include lethargy, anorexia, nasal discharge, shortness of breath, eye discharge or conjunctivitis, lameness, jaundice, pleural effusion, diarrhea, vomiting, and sudden death [3].

The aim of the work is the treatment of one of the topical methods of treating cats with calicivirus infection using antiseptic agents.

2 Materials and methods

The antiseptic agents miramistin and vinylin, the antibiotic azitronite and sick animals were used as the material. Upon admission to the clinic, the animals had a high temperature (39.5-40.5), lethargy, lack of appetite, mouth ulcers, lameness. The method consisted in absolute rest to the animal, plentiful drinking, lowering the temperature with a lytic mixture, treatment of the affected areas in the mouth, intramuscular injection of azitronite in cats at a dose of 0.1 ml/kg of the animal's body weight. The antibiotic is administered every 12 hours for 5 days, if there is an advanced form, treatment can be extended up to 7-10 days.

3 Results and discussion

Feline calicivirus infection (FCV) is a highly contagious disease with an acute course characterized by fever, discharge from the eyes and nose, and mouth ulcers.

Etiology and pathogenesis. The causative agent is a virus of the Caliciviridae family. Medium-sized, in its composition it has a single-stranded RNA molecule, there are no shells. This virus is able to quickly mutate, which leads to the constant formation of its new varieties (strains). They differ in their properties, clinical manifestations and the degree of their severity.

Usually, calicivirus occurs in a latent form and does not cause obvious clinical signs. Despite this, by infecting the mucous membrane, the virus is able to open the way into the body for pathogens of other viral diseases, bacteria and mycoplasmas, which can be

dangerous to the life of your pet. There are also especially dangerous strains of calicivirus, which are severe and systemic in nature, but they are extremely rare.

In the environment, the pathogen can exist for about 1 month, is weakly resistant to disinfectants.

The source of the disease are sick or already ill animals. The virus can be released into the external environment with expiration from the eyes, nostrils, saliva. The pathogen enters the body through the mucous membranes of the nose, mouth, conjunctiva of the eye.

Transmission routes:

- direct contact with secretions from the upper respiratory tract of a sick cat or a carrier cat with systemic calicivirus;
- transmission through any discharge from skin lesions through care items, cages, personnel through fleas and their feces (remains in feces for up to 8 days).

The gates of infection are the mucous membranes of the nose, mouth, conjunctiva. Incubation period (from infection to symptom onset) is 2 to 10. Feline calicivirus, a small, underdeveloped RNA virus, is one of the most common viral pathogens in cats. Feline calicivirus is endemic in most catteries, shelters, and large households with multiple cats, where one in four cats may orally shed the virus at any given time.

An animal becomes infected with calicivirus through direct contact with sick or recovered individuals, along with food consumed, by airborne droplets and indirectly through clothing or care items.

Susceptible cats of all breeds and ages, however, a higher risk of developing the disease in kittens 8-12 weeks of age, debilitated animals or unvaccinated individuals.

Clinical signs. Symptoms of the disease depend on the strain of the virus and the age of the cat. The first clinical signs appear approximately 10 days after the virus enters the animal's body. In adult cats, body temperature rises to 40-40.5 °C. At the onset of the disease, clear liquid discharge from the eyes and nose, sneezing, and coughing are observed.

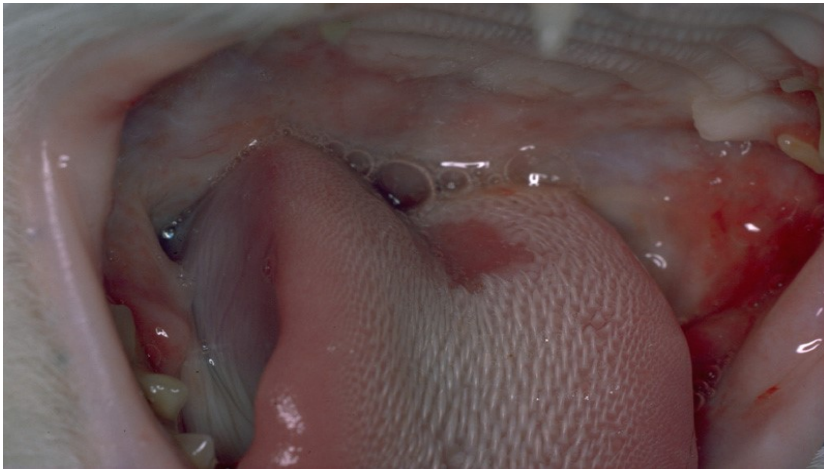


Fig. 1. Mouth ulcers.



Fig. 2. Calicivirus infection of cats. Cortical, erosive lesions of the skin of the fingers.



Fig. 3. Calicivirus infection of cats. Ulcer between base of nose and upper lip.

In the future, the appearance of ulcerative lesions in the oral cavity - hard palate, tongue, gums. All this is accompanied by profuse salivation. In some cases, ulcers may form on the nose.

In kittens, the disease is severe with the development of viral pneumonia. In this case, there is a strong depression, fever, severe shortness of breath.

Some varieties of calicivirus cause intermittent claudication in animals, while typical clinical signs may not be observed.

In the case of infection with highly pathogenic strains of the virus, severe fever, apathy, ulceration in the head and limbs, skin edema and jaundice can be observed.

Complications. Pneumonia can be suspected on auscultation of the lungs, which is very dangerous for the animal. Another specific sign of calicivirus, which is often ignored by the owners, is arthritis, which is manifested by lameness. As a rule, the owners think that the cat jumped unsuccessfully and began to limp, so you need to be attentive to your pets.

In terms of diagnosis, this disease of cats can also be masked as other viral infections, such as herpesvirus infections, chlamydia, bordetelle. In this regard, it must be remembered that a clinical blood test is not informative for verifying the diagnosis. For accurate

diagnosis, it is necessary to take swabs from the mucous membranes of the oral cavity and examine by PCR.

When treating a calicivirus infection, it is pointless to use antiviral drugs, since they do not work. The main emphasis in the treatment of calicivirus in the veterinary clinic "Aibolit" is on complex treatment, since only it gives good results, it includes the following:

- providing the maximum nutritious and easily digestible diet;
- in the absence of appetite, cats are prescribed intravenous infusions to avoid dehydration;
- prevention of secondary infection through the use of broad-spectrum antibiotics;

The most important aspect in the treatment of calicivirus infection is the care and hygiene of the sick animal.

Diagnosis is often based on history and clinical findings. Unfortunately, there are no specific drugs for the treatment of viral diseases. The therapeutic effect is achieved through immunostimulants for cats and immunomodulators, as well as symptomatic and supportive therapy.

The clinic received animals from 1 to 4 years of different breeds, non-castrated and not sterilized.

The means of symptomatic therapy include local treatment of ulcerative lesions of the oral cavity with antiseptics. In case of severe exhaustion and dehydration, the animal is given a dropper or nutrient solutions are injected subcutaneously.

It is mandatory to use broad-spectrum antibiotics to prevent the development of a secondary bacterial infection.

During the treatment period, the animal is given soft odorous food to increase its palatability. If the animal is not able to consume food on its own, it is fed through a food tube.

Fluorescent antibody test (conjunctival swabs): detection of calicivirus antigen.

Dermatohistopathology (virulent systemic feline calicivirus infection): epithelial necrosis and ulceration with minimal inflammation. Superficial skin edema or vasculitis may be present.

Serological testing: seropositive for antibodies against feline calicivirus.

Viral culture or PCR method (oropharyngeal swabs, tissue samples): isolation of calicivirus on viral culture with identification of a specific strain using PCR analysis.

Animals (10 cats) with obvious clinical signs of calicivirus infection were admitted to the Aibolit clinic for the period March-April 2022. Ulcers of various sizes were observed in the mouth, some animals showed lesions on the paw pads, some were severely emaciated.

Upon admission of the animals to the clinic, an anamnesis of the animal is taken, the temperature is measured, an examination of the mucous membranes is carried out, if sores in the mouth are detected, a viral culture or PCR method (smears from the oropharynx, tissue samples) is sent to the laboratory. If the result is positive, the animal is hospitalized in the clinic, the veterinarian draws up a treatment plan for the animal.

The animal is given complete rest, given a plentiful drink, the first day the antibacterial drug azitronite is prescribed intramuscularly at a dose of 0.1 ml/kg of the animal's body.

The affected areas are treated with miramistin, after 3 hours alternating with vinylin.

The antibiotic is administered every 12 hours for 5 days. With advanced forms, treatment is extended up to 10 days. With timely treatments, the sores on the mucous membranes begin to heal on the third day, on the fourth day the cats begin to move actively, appetite gradually appears.

On the fifth day, the animals developed an appetite. Some animals (3 cats) had to extend the course of antibiotics due to the fact that their organisms were affected more extensively.

Due to the fact that severely malnourished animals needed a longer rehabilitation period, in addition to antibiotics and antiseptics, they had to connect droppers for a full recovery.

1 cat out of 10 died from kidney failure and severe wounds on the body, which were noted upon admission to the clinic.

The remaining 6 cats quickly began to recover, on the 3rd-4th day they began to eat, the body temperature returned to normal, on the 7-8th day they began to actively play and move.

The active virulence of the disease in March-April is that cats begin estrus during this period. The best way to protect an animal from calicivirus is to vaccinate it in time. Of the 10 received animals, 9 were on the mend on days 7-8 and 14-15 days, the weakest and most emaciated. Thanks to timely assistance and timely treatment, 9 cats were saved.

4 Conclusions

1. Timely vaccination is the main method for preventing cats from calicivirus infection. Vaccination is carried out for kittens at 8-12 weeks of age with revaccination after 3 weeks. Revaccinate adult animals every year.

2. During the period of the disease, give the animal comfortable conditions, intramuscularly inject the antibiotic azitronite at a dose of 0.1 ml / kg to prevent secondary infections, treat the affected areas with miramistin alternating with vinylin every 3 hours.

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