

# **A case study on Giardiasis in eight months old Persian cat**



**A clinical report submitted in partial satisfaction of the  
requirement for the Degree of Doctor of Veterinary Medicine  
(DVM)**

**Submitted By:**

**Monirul Islam**

**Roll No: 16/60**

**Reg No: 01681**

**Intern ID: 62**

**Session: 2015-16**

**Faculty of Veterinary Medicine**

**Chattogram Veterinary and Animal Sciences University**

**Khulshi, Chattogram – 4225, Bangladesh.**

# **A case study on Giardiasis in eight months old Persian cat**



**A clinical report submitted in partial satisfaction of the requirement for the Degree of Doctor of Veterinary Medicine (DVM)**

**Approved by:**

---

**Dr. Sazeda Akter**

**Assistant Professor**

**Department of Medicine and Surgery**

**Faculty of Veterinary Medicine**

**Chattogram Veterinary and Animal Sciences University**

**Khulshi, Chattogram – 4225, Bangladesh.**

# Table of Contents

List of figures.....	4
Abbreviations.....	4
Abstract.....	5
Introduction.....	6
Case Presentation.....	7
Diagnosis .....	8
Treatment.....	10
Result & Discussion .....	11
Conclusion.....	13
Reference .....	14
Acknowledgements.....	16
Biography .....	17

## List of figures

<b>Figure</b>	<b>Title</b>	<b>Page</b>
<b>Figure 1</b>	Watery feces in floor	07
<b>Figure 2</b>	Feces attach in back region	07
<b>Figure 3</b>	Giardia kit test	08
<b>Figure 4</b>	Recovered cat	11

## Abbreviations

CVASU= Chattogram Veterinary and Animal Sciences University.

TTPHRC=Teaching and Training Pet Hospital and Research Center.

## Abstract

This study discussed about the clinical management of Giardiasis in cat. An eight-month-old Persian cat having body weight 4.10kg was presented to Teaching and Training Pet Hospital and Research Center, CVASU, Purbachal, Dhaka, Bangladesh, on August 07, 2022. With a history of chronic intermittent diarrhea and fatty stool, weight loss, reduce appetite, and hair fall. Clinical examination revealed the body temperature was 102.5°F, and laboratory diagnosis was done by direct smear and commercial Giardiasis Kit Test. There were no internal parasites and any eggs and Kit test became positive within 5 minutes. Depending upon the history, clinical and laboratory examination the case was diagnosed as Giardiasis and accordingly therapy was given. As medication Metronidazole @ 20mg/kg B.W (Syp. Filmet @ 0.5 ml/kg B.W.) orally twice daily for 7 days, Fenbendazole @ 40mg/kg B.W. (Liq. Fenazol vet 1ml/5kg B.W. orally twice daily for 7 days ORS/Rice saline (50 ml/kg B.W) 200ml daily for 7 days, feeding had been withheld for 12 hours and for hair fall use Vitamin B complex and Zinc (Syp. Bicozin 1.5 ml/4 kg B.W.) daily twice for three weeks, Cap. OMG-3 1drops/kg B. W. mixed with the feed and orally administrate daily twice 15 days and Dancel shampoo bath once a week for three weeks has been suggested. Animal had responded to the treatment and there was an uneventful recovery within 7 days.

**Keyword:** Giardiasis, Cat, Kit test, clinical sign, treatment,

## Introduction

Nowadays, the percentage of the population living in the urban areas has been increased and people are interested to keep pets for their own company which removes their loneliness (Stanley et al., 2014). The protozoan flagellate parasite *Giardia* spp. causes the intestinal infection known as giardiasis. *G. duodenalis*, a species complex with several genotypes that frequently exhibits host specificity, can cause infections in production animals, companion animals, and wildlife. Giardiasis often results in steatorrhea, diarrhea, and other gastrointestinal problems infection with *G. duodenalis* occurs everywhere (Yaoyu & Xiao, 2011).

Giardiasis is a significant contributor to outbreaks in childcare centers, foodborne and waterborne sickness, and traveler illness. This is the first documented human outbreak of giardiasis in Italy (Resi et al., 2021). Numerous studies shown that cats exhibit specific or zoonotic *Giardia* assemblages (Zanzani et al., 2014) and (Ryan & Cacciò, 2013). Due to the fact that it is frequently disregarded as a cause of human gastroenteritis, its research has brought to light the challenges associated with the prompt diagnosis and therapy of this parasite.

Globally widespread *Giardia* parasites grow in cold, humid conditions, particularly those with standing water. The cysts can be destroyed by boiling contaminated water, filtration, and disinfection but are resistant to freezing and municipal water chlorination (CAPC, 2014). The environment, polluted water, fomites (such as fur and contaminated dwellings), and the fecal-oral route are always that the parasite *Giardia* spreads (CAPC, 2014).

Cats can readily get an infection again since infections don't provide long-lasting immunity (Wernimont et al., 2020). Nevertheless, cats with subclinical infections may infect other cats (CVM, 2018). There are no symptoms in cats with subclinical illnesses. Clinical symptoms for kittens and anxious adults often include acute, watery, pale, and foul-smelling diarrhea with mucous (Marks, 2016). Many dogs and cats will be asymptomatic carriers of the disease; they never show any symptoms. Clinical symptoms are more likely to appear in younger animals (Comstock & Moyal, 2022).

## Case Presentation

An eight-month-old Persian cat having body weight 4.1 kg was presented to Teaching and Training Pet Hospital and Research Center, CVASU, Purbachal, Dhaka, Bangladesh on August 07, 2022. With a history of chronic intermittent diarrhea and fatty stool, weight loss, reduce appetite, and hair fall. Clinical examination revealed that there were body temperature 102.5°F. The animal suspected as Giardiasis and the fecal sample was collected from the rectum and examined in copromicroscopic examination and Giardia kit test.

In copromicroscopic there was no *Giardia* cyst or trophozoites and internal parasite or their eggs found. But positive result found in Giardia kit test that was indicated the animal was affected with giardiasis.



Figure 1: Feces of the cat



Figure 2: Wet anal region

# Diagnosis

Diagnoses was made on the basis of a patient's medical history, clinical findings and fatty laboratory diagnosis that are confirmed to Giardiasis.

## Direct smear

Small amount of fresh feces mixed with 2 to 3 drops of saline was placed on a clean microscope slide with a cover slip on top. A darker field (lower the condenser to prevent burning through fragile objects on the slide) has been used and viewed the slide at 40x and 100x. Motile trophozoites can occasionally be seen, but cysts are more commonly seen but there was no giardia and internal parasite found. Identification can be enhanced by mixing the sample with Lugol's iodine. Presence of cysts or trophozoites indicates a definitive diagnosis of giardiasis, but their absence does not indicate a negative diagnosis (Wortinger, 2021).

## Kit Test

Sampling swab have to be removed from the dilution chamber of the Sample Dilution Device. Then coating sampling swab with a thin layer of fecal material or saturating the swab if the sample is liquid should be done. Next returning the sampling swab back into the dilution chamber.

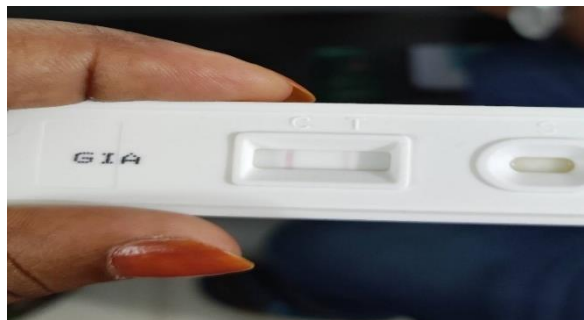


Figure 3: Rapid kit test for Giardiasis

After that breaking the seal of the Extraction Buffer storage bulb located on the top of the Sample Dilution Device by bending the bulb back and forth until the internal blue stick breaks at its base. Then squeezing the bulb 5 - 6 times to thoroughly mix the sample with the Extraction Buffer. Then removal of a Test Device from the protective pouch and placing it on a flat surface. Using the buffer storage bulb and the sampling swab as a pipette, transferring 1-2drops of the diluted sample into the round sample well of the Test Device. Holding the pipette vertically to ensure proper sample volume. Then we need to start timing.



Reading the results between 5 to 10 minutes. Strong positive results may appear as soon as 1 minute, and weak positive results may take up to 10 minutes to appear. After 10 minutes, discard off the Test Device because the results are no longer valid (SA scientific U.S.A).

Pink line 'C' indicates the control line and pink line 'T' indicate the test result. If cat was not affected in *Giardia* the 'C' line was pink and the 'T' line not in mark or no pink color. In our study sample there was 'C' and 'T' line marked in pink color that was indicated the animal was infected with *Giardia* spp.

## **Treatment**

For medication Metronidazole @ 20mg/kg B.W (syp. Filmet @ 0.5 ml/kg B.W.) orally twice daily for 7 days, Fenbendazole @ 40mg/kg B.W. (Liq. Fenazol vet 1ml/5kg B.W. orally twice daily for these drugs have a synergistic effect, 7 days ORS/Rice saline (50 ml/kg B.W) 200ml daily for 7 days, feeding off for 12 hours and for hair fall use Vitamin B complex and Zinc (Syp. Bicozin 1.5 ml/4 kg B.W.) daily twice for three weeks, Cap. OMG-3 1drops/kg B. W. mixed with the feed and orally administrated daily twice 15 days and Dancel shampoo bath once a week for three weeks. Animal responded to the treatment and the animal had an uneventful recovery within 7 days.

## Result & Discussion

*Giardia* is a simple, single-celled parasite species that may infect both humans and animals and cause giardiasis, a digestive ailment.

In areas like shelters and pet stores with large cat populations, it could arise suddenly. Kittens and elderly cats with compromised immune systems are more likely to develop it (Robertson, 2021). In the world, the prevalence of diseases ranges from 10.5 to 50% (Mosallanejad et al., 2010). Around 12% of diarrheal cats are in the USA, whereas 50% are in Iran. Mortality is quite low, although morbidity might reach 50%. There may be sporadic diarrhea.

*Giardia* is spread by the oral-fecal pathway. Cysts are excreted in the feces and become infectious right away (Epe et al., 2010). Cysts may be consumed directly from an affected host, through contaminated food or drink, or by environmental fomites (Gerba, 2009). When a cyst enters the small intestine, two trophozoites arise from each cyst (excystation). The harmful stage of the parasite is called trophozoites. They divide via longitudinal binary fission and may stay free in the lumen or adhere to the mucosa utilizing a ventral sucking disc, leading to



Figure 4: Recovered cat

malabsorption and steatorrhea. As they approach the colon, trophozoites go through encystation and create new cysts (Mohammed, n.d.).

The feces include sporadic excretions of the environmentally resilient cysts. Occasionally, trophozoites may also be discharged in diarrhea, although they are not contagious and do not linger in the environment. *Giardia* in cats has a prepatent phase of 5 to 16 days, and cyst shedding is frequently cyclical. It's vital to remember that cats in particular may consume cysts from their infected fur when being groomed. *Giardia* is difficult to completely eradicate because cysts spread infection quickly after they are shed, greatly increasing the likelihood of

reinfection (Saleh et al., 2019). Therefore, preventing fecal contamination of the environment is crucial to preventing reinfection.

Bathing to remove fecal debris containing cysts from the fur is recommended. Therefore, avoiding environmental fecal contamination is essential to preventing reinfection. Bathing is advised to eliminate cyst-containing fecal material from the fur. It's also advised to clean the cattery or house thoroughly, including the crates, litter boxes, and bedding. Quaternary ammonium treatments, boiling water, and chlorine are all said to be useful against cysts (Saleh et al., 2019). Domestication and changes in human diets as a result of agricultural activities have caused a shift in dog and cat diets. The majority of Americans (69%) own at least one pet, with dogs (45%), cats (35%), and fish (9%) being the most popular among US adults. 88% of pet owners in the United States consider their pets to be members of their family (Ballard, 2019).

There are many causal agents which caused diarrhea in cat and giardia is one of them. In clinical examination, fecal examination, PCR performed for the diagnosis of internal parasite, bacteria, viral or food habit. The feeding history had no changed and there were no abnormalities found. Diagnosis of giardiasis from fecal samples can be performed by different methods such as copromicroscopic examination, fecal flotation test and giardia kit test. The Giardia kit test is highly sensitive and within short time needed. But after 10 minutes if result is positive that also an invalid result. In our study the feces were collected from the rectum by using swab and mixed with the buffer solution. After complete mixture two drop of mixture placed into the kit and wait 5 minutes and after 5 minutes the test line colored (pink color) that was indicated the animal was infected with giardiasis.

There are combined Metronidazole and helminthicide drug fenbendazole have a synergistic effect in giardiasis and in our study case we used both of them. Only metronidazole is enough for giardiasis (Da Silva et al., 2011) and for parasitic infection use fenbendazole.

In present case, antibiotic Metronidazole and helminthicides fenbendazole were given to prevent the giardiasis and they act as a synergistic effect. Some vitamin (vit B complex) and zinc given for increase appetite and reduce hair fall. Shampoo Dancel used for ectoparasite remove from the body. After receiving the aforementioned therapies, the cat recovered from its initial condition in 15 days.

## **Conclusion**

The giardiasis in cat is characterized by intermittent or fatty diarrhea, weight loss. The impact of this disease in pet animal is inquietude for the pet owners. However, the specific treatment (metronidazole and fenbendazole) and proper management prevent the complication of this disease and animals are cure in 15 days.

## Reference

- Ballard, J. (2019, December 13). *Most pet owners say their pets are part of the family* | YouGov. <https://today.yougov.com/topics/society/articles-reports/2019/12/13/how-americas-pet-owners-feel-about-their-furry-fri>
- CAPC. (2014). *Companion Animal Parasite Council recommendations*. <https://capcvet.org/guidelines/giardia/>
- Comstock, J., & Moyal, M. (2022). *Giardia in Cats: Everything You Need To Know About this Parasitic Infection* | Daily Paws. <https://www.dailypaws.com/cats-kittens/health-care/feline-parasites/giardia-in-cats>
- CVM. (2018). *Gastrointestinal Parasites of Cats* | Cornell University College of Veterinary Medicine. Cornell University College of Veterinary Medicine. <https://www.vet.cornell.edu/departments-centers-and-institutes/cornell-feline-health-center/health-information/feline-health-topics/gastrointestinal-parasites-cats>
- Da Silva, A. S., Castro, V. S. P., Tonin, A. A., Brendler, S., Costa, M. M., Jaques, J. A., Bertoletti, B., Zanette, R. A., Raiser, A. G., Mazzanti, C. M., Lopes, S. T. A., & Monteiro, S. G. (2011). Secnidazole for the treatment of giardiasis in naturally infected cats. *Parasitology International*, 60(4), 429–432. <https://doi.org/10.1016/J.PARINT.2011.06.024>
- Epe, C., Rehker, G., Schnieder, T., Lorentzen, L., & Kreienbrock, L. (2010). Giardia in symptomatic dogs and cats in Europe—Results of a European study. *Veterinary Parasitology*, 173(1–2), 32–38. <https://doi.org/10.1016/J.VETPAR.2010.06.015>
- Gerba, C. P. (2009). Environmentally Transmitted Pathogens. *Environmental Microbiology*, 445. <https://doi.org/10.1016/B978-0-12-370519-8.00022-5>
- Marks, S. L. (2016). Rational Approach to Diagnosing and Managing Infectious Causes of Diarrhea in Kittens. *August's Consultations in Feline Internal Medicine, Volume 7*, 7, 1. <https://doi.org/10.1016/B978-0-323-22652-3.00001-3>
- Mohammed, A. A. (n.d.). *Diagnostic Parasitology*.
- Mosallanejad, B., Avizeh, R., Jalali, M. H. R., & Alborzi, A. R. (2010). Prevalence of Giardia duodenalis Infection in Household Cats of Ahvaz District, South-West of Iran. *Iranian Journal of Parasitology*, 5(3), 27. [/pmc/articles/PMC3279840/](https://pubmed.ncbi.nlm.nih.gov/23279840/)
- Resi, D., Varani, S., Sannella, A. R., De Pascali, A. M., Ortalli, M., Liguori, G., Benvenuti, M., Re, M. C., Pirani, R., Prete, L., Mazzetti, C., Musti, M., Lorenzo Pizzi, Tiziana Sanna, & Simone, M. C. (2021). A large outbreak of giardiasis in a municipality of the Bologna province, north-eastern Italy, November 2018 to April 2019. *Euro Surveillance : Bulletin Europeen Sur Les Maladies Transmissibles = European Communicable Disease Bulletin*,

26(35). <https://doi.org/10.2807/1560-7917.ES.2021.26.35.2001331>

- Robertson, L. (2021, November). *Giardiasis in Animals - Digestive System - MSD Veterinary Manual*. <https://www.msdtvetmanual.com/digestive-system/giardiasis-giardia/giardiasis-in-animals>
- Ryan, U., & Cacciò, S. M. (2013). Zoonotic potential of Giardia. *International Journal for Parasitology*, 43(12–13), 943–956. <https://doi.org/10.1016/J.IJPARA.2013.06.001>
- Saleh, M. N., Lindsay, D. S., Leib, M. S., & Zajac, A. M. (2019). Giardia duodenalis assemblages in cats from Virginia, USA. *Veterinary Parasitology: Regional Studies and Reports*, 15. <https://doi.org/10.1016/J.VPRSR.2018.100257>
- Stanley, I. H., Conwell, Y., Bowen, C., & Van Orden, K. A. (2014). Pet ownership may attenuate loneliness among older adult primary care patients who live alone. *Aging and Mental Health*, 18(3), 394–399. <https://doi.org/10.1080/13607863.2013.837147>
- Thompson, R. C. A., Palmer, C. S., & O’Handley, R. (2008). The public health and clinical significance of Giardia and Cryptosporidium in domestic animals. *Veterinary Journal (London, England : 1997)*, 177(1), 18. <https://doi.org/10.1016/J.TVJL.2007.09.022>
- Wernimont, S. M., Radosevich, J., Jackson, M. I., Ephraim, E., Badri, D. V., MacLeay, J. M., Jewell, D. E., & Suchodolski, J. S. (2020). The Effects of Nutrition on the Gastrointestinal Microbiome of Cats and Dogs: Impact on Health and Disease. *Frontiers in Microbiology*, 11. <https://doi.org/10.3389/FMICB.2020.01266>
- Wortinger, A. (2021, May 21). *Giardiasis in Cats | Today’s Veterinary Nurse*. <https://todaysveterinarynurse.com/parasitology/giardiasis-in-cats/>
- Yaoyu, F., & Xiao, L. (2011). Zoonotic potential and molecular epidemiology of Giardia species and giardiasis. *Clinical Microbiology Reviews*, 24(1), 110–140. <https://doi.org/10.1128/CMR.00033-10>
- Zanzani, S. A., Gazzonis, A. L., Scarpa, P., Berrilli, F., & Manfredi, M. T. (2014). Intestinal parasites of owned dogs and cats from metropolitan and micropolitan areas: prevalence, zoonotic risks, and pet owner awareness in northern Italy. *BioMed Research International*, 2014. <https://doi.org/10.1155/2014/696508>

## **Acknowledgements**

I am most grateful to Almighty Allah and also very grateful to my honorable supervisor Dr. Sazeda Akter, Assistant professor, Department of Medicine and Surgery, Chattogram Veterinary and Animal Sciences University (CVASU) Chattogram, for her guidance and encouragement to complete the report.

I would also want to express my gratitude to Professor Dr. Goutam Buddha Das (VC) of CVASU and Professor Dr. Mohammad Alamgir Hossain (Dean, Faculty of Veterinary Medicine), Professor Dr. AKM Saifuddin (Director, External Affairs) of CVASU.



## **Biography**

I am Monirul Islam, intern student of the Faculty of Veterinary Medicine in Chattogram Veterinary and Animal Sciences University from Nikli, Kishoregonj. I completed my Secondary School Certificate (SSC) and Higher Secondary Certificate (HSC) examination in 2012 and 2014 respectively from Dhaka and Chattogram Board. As a future veterinarian after completing my DVM degree, I would like to be a private practitioner and pursue a post-graduation in the field of pet animals and contribute to the world with my knowledge and skills.