

A Case Report on Feline Infectious Peritonitis (wet form) of a Persian cat



A Clinical Report

Submitted by

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Reg no: 01833

Intern id: 11

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ABSTRACT

Feline infectious peritonitis, a disease of cat which is very common in condition of Bangladesh. Though it has a lots of typical clinical sign sometimes it makes complexity to diagnose. It is caused by the FCoV .There are mainly two types of FCoV virus

1. FECv and
2. FIPv .

We can classified this disease in two condition

1. Dry form and
2. Wet form.

The present case report was done on focussing the wet form of Feline Infectious Peritonitis in Cat .A Persian Cat with high fever, anorexia, ascitis ,weight loss, diarrhoea with eye lesion was brought to Teaching And Training Pet Hospital and Research Centre ,Purbachol ,Dhaka . The check up was done on the patients by clinical history ,sign ,blood test : CBC, and liver functioning test :SGOT,SGPT , Kidney test : Creatinine ,phosphorus level ,and Rivalta test , rapid kit test ,ultrasound for fluid detection , serum test to count total protein , albumin globulin ratio for accurate conformation.

KEY WORDS: FECv, FIPv, Wet form, Ascitis, Rivalta test.

INTRODUCTION

The causal agent of FIP, Feline Corona Virus is classified under the family coronaviridae, genus of Alphacoronavirus is a life threatening agent causes Feline infectious peritonitis in Cat. This virus has a wide range of host including human causes Covid 19, also in Chicken causes infectious bronchitis, gastroenteritis in dog. It is a single stranded positive sense enveloped rNA virus .FCoV has two major biotypes ,Feline Enteric Corona Virus and Feline Infectious Peritonitis Virus. FIP Virus usually can present either as wet and dry form and it cause fatal illness to the host with or without showing any specific clinical sign. [[Sharif et al 2010](#)] . Dry form of FIP cause nervous damage and eye problem . And wet form causes distended abdomen, icterus, diarrhoea. Distension of abdomen due to accumulation of fluid in the abdomen covering the intestine ,liver,kidney ,spleen, which are pathognomonic lesion.After following entry through the fecal oral route of FCoV it accumulates in the intestine ,multiplies,causes diarrhoea .Antigenically it has two form FECV and FIP .FECV can convert into FIP in several condition through mutation. FCoV phagocytized by macrophages and multiplies in that cell and lymphnodes .By spreading throughout the body by blood it makes antigen antibody complex and activate many vasoactive substances which leads to the fluid accumulation in peritoneal cavity and abdomen to make a obvious sign of wet form of FIP.[[Pederson et al 1995](#)]

CASE DESCRIPTION

A 1.4 year Persian cat was brought to the TTPHRC weighing 2.5 kg. Clinical examination found with ascitis, anorexia, weight loss, diarrhoea, dehydration. Temperature, heart beat and respiration rate are respectively 105°F, 137 beat/min, 29 breath /min. Other test CBC, Blood serum profile, Rivalta test, Rapid kit test, blood protein albumin globulin ratio are recorded.

CBC Test

Parameters	Results	Normal ranges
Red blood cell 10^{12} g/L	3	5-10
Packed cell volume %	25	30-45
Hemoglobin g/dl	6	8-15
Mean corpuscular volume [MCV]	55	39-55
Mean corpuscular hemoglobin [pg]	16	13-17
Mean Corpuscular hemoglobin concentration [10 g/L]	21	30-36
White blood cell [10^9 /L]	27	5.5-19.5
Neutrophil	93	35-75
Lymphocyte	7	20-55
Monocyte	1	1-4
Basophil	1	1-4
Eosinophil	1	2-12

References value from the mark veterinary manual 9th edition

Serum biochemistry

Parameters	Result	Normal range
AST	46	9.2-40
ALT	27	8.3-5.3
Albumin[g/dl]	2.1	2.4-3.8
Globulin[g/dl]	4.9	2.4-3.7
Alkaline Phosphatase	47	39-40
Creatinine[mg/dl]	5	.5-1.9
Blood Urea Nitrogen	37	15-31

References value from the mark veterinary 9th edition.



Figure 1: Rivalta test positive



Figure 2: Ultrasound fluid detection

DISCUSSION

Although cats of any ages and gender are susceptible to FIP male and kitten are more susceptible to FIP. Above described patient having ascitis ,anorexia , dehydration is diagnosed with FIP by different test. Blood test shows low RBC and high amount of WBC. And also reduce the MCV,MCHC, Hemoglobin indicating lower RED blood cell marking slight anemia. Serum biochemistry test evaluation : Normal albumin globulin ratio in blood is more than .6 . In this patient this ratio is .43 which is a indicator of FIP. Increase amount of ALP, Creatinine ,BUN indicating dysfunction of kidney. Rivalta test showing positive result within 15 seconds which is a strong indicating mark of FIP. Rapid kit test also showing positive result.Ultrasound shows accumulation of fluid in the abdomen which is sticky in nature. This disease is present all over the world having more susceptibility in pure breed cat than hybrid cat. It has no proper treatment .Only Supportive treatment and management is the way to not spreading the virus to other animal. Affected animal can spread the disease for whole life . This virus has the capability to survive in the environment upto 8 weeks. Proper disposal of litter material and isolating the affected animal is the only way to control the disease.[Addie and Jarret] However Remidiser is a viral drug which is used in treatment FIP. 84 constant dose should be maintained regularly. Many animal have been cured after using .Different environmental factor like, stress , sharing litter box with infected cat is highly responsible cause for mutation of FECV[Diaz and POMA 2009}. Mechanism of mutation due to vigorous unprotective humoral immune response and causing the monocyte to get infected and transformFECV to FIPV[Cornelissen et al 2007; Pederson 2009,2014 a]. Then infected monocyte subsequently release cytokine such as TNF alpha and IL 1 which enhance the inflammatory response due to cytokine during the time infection thus lead to vasculitis which increase the permeability of cell which in return cause leakage of fluid into the peritoneal cavity. After depositing the antigen antibody complexes in the endothelium of blood vessel, after activating the complement vasoactive agents will be released which causes protein and fluid loss leads to ascitis [Gelberg 2016]. The most predominant infected cell is monocytes and macrophages which are found in pyogranulomatous lesion or effusion [Paltrinieri et al 1999]. Apoptosis because of inflammatory cell aggravate TNF alpha to decrease of the humoral response creating a escape mechanism from the body to detect the presence of viral antigens[Takano et al 2007]

CONCLUSION

In summary it is a wet form of FIP after proper diagnosis based on clinical history ,sign ,blood and serum test, rapid kit and rivalta test .Though it is a fatal disease having not any proper treatment, supportive antibiotic treatment is applied. Remdisivir is a antiviral drug which is induce for 84 dose constantly without interruption may be a life saving way of treatment . But it is not a definite way for survival. There is some case of survival of FIP by using Remdisivir. Vaccination is not a proper a way of prevention due its complexity of antibody enhancement phenomena. Infected animal may be the life long carrier . Also virus can survive in the environment more than 8 weeks. So managemental factor is the only way to reduce the spreading of infection . Cleaning of litter box , proper disposal litter box , isolation of infected animal is the way to survive the healthy ones. Minimizing the stress is another factor not to get infection and prevent mutation .

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AUTHOR CONTRIBUTION

The Author Contribution in sample collection, blood test, serum biochemistry analysis, Rivalta test and rapid kit test analysis , diagnosis. Also writing the manuscript and reviewing the data

REFERENCES

- Addie D, Belák S, Boucraut-Baralon C, Egberink H, Frymus T, Gruffydd-Jones T, Hartmann K, Hosie MJ, Lloret A, Lutz H, Marsilio F, Pennisi MG, Radford AD, Thiry E, Truyen U, Horzinek MC (2009). Feline infectious peritonitis. ABCD guidelines on prevention and management. *J. Feline Med. Surg.*, 11(7): 594-604. <https://doi.org/10.1016/j.jfms.2009.05.008>
- Arshad SS, Lee WW, Hassan L, Kamaruddin AIM, Siti Farawahida AW, Cheng NABY (2004). Serological Survey of Catteries for Cats Infected with Feline Coronavirus. *J. Vet. Malaysia*, 17(1): 19-22.
- Cornelissen E, Dewerchin HL, Van Hamme E, Nauwynck HJ (2007). Absence of surface expression of feline infectious peritonitis virus (FIPV) antigens on infected cells isolated from cats with FIP. *Vet. Microbiol.*, 121(1-2): 131-137. <https://doi.org/10.1016/j.vetmic.2006.11.026>
- Diaz JV, Poma R (2009). Neurology neurologie diagnosis and clinical signs of feline infectious peritonitis in the central nervous system. *Can. Vet. J.* 50: 1091-1093.
- Gelberg HB (2016). Alimentary system and the peritoneum, omentum, mesentery, and peritoneal cavity. 6th Edition, pathologic basis of veterinary disease expert consult, elsevier Inc. pp. 324-411. <https://doi.org/10.1016/B978-0-323-35775-3.00007-2>
- Hoong LW, Yasmin AR, Mummooorthy K, Arshad SS, Omar AR, Anand P, Kumar K (2019). Molecular investigation of Feline Coronavirus (FCOV) in local pet cats. *J. Vet. Malaysia*. 31(2): 13-18.
- Licitra BN, Millet JK, Regan AD, Hamilton BS, Rinaldi VD, Duhamel GE, Whittaker GR (2013). Mutation in spike protein cleavage site and pathogenesis of feline Coronavirus. *Research*. 19(7): 1066-1073. <https://doi.org/10.3201/eid1907.121094>
- Paltrinieri S, Parodi MC, Cammarata G (1999). In vivo diagnosis of feline infectious peritonitis by comparison of protein content, cytology, and direct immunofluorescence test on peritoneal and pleural effusions. *J. Vet. Diagn. Invest.*, 11(4): 358-361. <https://doi.org/10.1177/104063879901100411>
- Pedersen NC (2009). A review of feline infectious peritonitisvirus infection: 1963-2008. *J. Feline Med. Surg.*, 11: 225–258. <https://doi.org/10.1016/j.jfms.2008.09.008>
- Pedersen NC (2014a). An update on feline infectious peritonitis: virology and immunopathogenesis. *Vet. J.*, 201: 123-132. <https://doi.org/10.1016/j.tvjl.2014.04.017>
- Pedersen NC (2014b). An update on feline infectious peritonitis: diagnostics and therapeutics. *Vet. J.*, 201: 133-141. <https://doi.org/10.1016/j.tvjl.2014.04.016>
- Sharif S, Arshad SS, Hair-Bejo M, Omar AR, Zeenathul NA, Fong LS, Rahman NA, Arshad H, Shamsudin S, Isa MK (2010). Descriptive distribution and phylogenetic analysis of feline infectious peritonitis virus isolates of Malaysia. *Acta Vet. Scand.*, 52(1): 1-7. <https://doi.org/10.1186/1751-0147-52-1>
- Sharif S, Arshad SS, Hair-Bejo M, Omar AR, Zeenathul NA, Rahman NA and Alazawy A (2011). Evaluation of feline coronavirus viraemia in clinically healthy and ill cats with feline infectious peritonitis. *J. Anim. Vet. Adv.*, 1(10): 18-22. <https://doi.org/10.3923/javaa.2011.18.22>
- Takano T, Hohdatsu T, Hashida Y, Kaneko Y, Tanabe M, Koyama H (2007). A “possible” involvement of TNF-alpha in apoptosis induction in peripheral blood lymphocytes of cats with feline infectious peritonitis. *Vet. Microbiol.*, 119(2- 4): 121-131. <https://doi.org/10.1016/j.vetmic.2006.08.033>