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Research Article

Suspicion of Feline Infectious Peritonitis in Cats with Uveitis: Diagnostic Value of Coronavirus Antibodies and Blood Parameters

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Abstract

This study aimed to discuss the suspicion of FIP in cats presenting solely with uveitis as a clinical finding but with positive coronavirus antibody tests by evaluating antibody test results, complete blood count and some biochemical parameters. The study consisted of 94 cats of different breeds, ages, and genders with discoloration, opacity, or vision loss in one or both eyes. Coronavirus-specific antibody test results were categorized. Complete blood count, serum total protein, and albumin/globulin tests were carried out. The predominant ocular symptom was iris hyperemia. No significant changes were observed in neutrophil, eosinophil, lymphocyte and monocyte. A positive, statistically significant relationship was found between RDW and the antibody score. A negative, statistically significant correlation was observed between total protein and antibody score. The difference in A/G ratios between antibody titers was statistically significant. In conclusion, no direct correlation was identified between the types or symptoms of uveitis and antibody levels, albumin/globulin ratio, or complete blood count parameters. Stress leukogram, which is used in differential diagnosis by many researchers, was found to be completely ineffective, with even the lowest lymphocyte count observed in animals with S1 antibody titer. The results of RDW parameters obtained in cats suspected of FIP suggest that this simple parameter could be used as a cost-effective and reliable marker for FIP with further studies.

Keywords: Antibody, Blood parameters, Eye, FIP, RDW

Introduction

Feline coronavirus (FCoV) is an RNA virus capable of adapting to various mammalian and avian species, causing digestive and respiratory infections. Its prevalence in the global feline population is high, with viral positivity rates exceeding 90% in multi-cat environments like production farms and shelters [1,2]. FCoV is classified into two biotypes: feline enteric coronavirus (FECV) and feline infectious peritonitis virus (FIPV), which differ in pathogenicity and clinical presentation [3].

FECV typically causes mild and latent infections, and while it primarily replicates in the intestinal tract, the virus can persist in feces for up to 15 weeks, contributing to its highly contagious nature [4-7]. FIPV, a mutated form of FECV, leads to feline infectious peritonitis (FIP), a complex disease with effusive, non-effusive, and mixed forms [8-11]. Ocular inflammation, particularly uveitis, is a prominent feature of the non-effusive form [12,13]. Ocular inflammation results from increased blood vessel permeability caused by disturbances in endothelial cells, leading to the focal or diffuse distribution of macrophages, lymphocytes, plasma cells, and neutrophils [14-16].

Laboratory findings, such as hyperproteinemia, hyperglobulinemia, and hypoalbuminemia, are frequently associated with FIP diagnosis [17-19]. Changes in the albumin-to-globulin ratio and blood profiles, including non-regenerative anemia and lymphopenia, further support diagnosis [20,21]. Despite ongoing research, a definitive diagnostic test and vaccination program for FIP remain elusive, marking it as a significant disease in veterinary medicine that demands further study [3,22].

This study aimed to discuss the suspicion of FIP in cats presenting solely with uveitis as a clinical finding but with positive coronavirus antibody tests by evaluating antibody test results, complete blood count and some biochemical parameters. It is believed that the results obtained will

serve as a supportive resource in interpreting FIP infection in live cats

Material and Methods

Ethical Statement

The required ethics committee report for the study was obtained from Animal Experiments Local Ethics Committee of Ankara University (Approval No: 2024-08-62). An "Informed Consent Form" was obtained from the animal owners before examination of animals.

Animals

The study cohort comprised 94 cats of diverse breeds, ages, and genders, presented at Ankara University Faculty of Veterinary Medicine Animal Hospital between April 2021 and April 2024. These cats exhibited complaints such as color change, opacity, blepharospasm, or vision loss in one or both eyes.

Study Design

A comprehensive clinical examination of the eyes was conducted for all animals, incorporating ophthalmoscopy, slit lamp biomicroscopy, fluorescein staining, and pupillary light reflex examination. During the initial assessment of the overall appearance of the eye in the clinical examination, slit lamp biomicroscopy was employed to evaluate the cornea, anterior chamber, and iris, while ophthalmoscopy was utilized to assess the lens, vitreous, and fundus.

Eye symptoms were classified as acute or chronic based on their duration, and as unilateral or bilateral based on their occurrence. The presence of uveitis was evaluated based on iris hyperemia, aqueous flare, and the formation of keratic precipitates. Additionally, uveitis was classified as granulomatous or non-granulomatous based on type, and as anterior uveitis (inflammation of the anterior chamber, affecting the iris and anterior ciliary body), posterior uveitis (inflammation of the retina or choroid) or panuveitis (inflammation of the anterior chamber, vitreous and retina or choroid) according to anatomical classification.

Ultrasonography was performed to evaluate intraocular structures in all cats. A 7.5 MHz convex probe was used for B-mode ultrasonography, generating detailed images of the lens, vitreous, and retina. In cats with uveitis in both eyes, the eye with the most severe symptoms was included in the study.

A volume of 1 mL of blood was collected from all cats for the measurement of complete blood count, serum total protein, albumin and globulin values. Additionally, an ELISA test (ImmunoComb FCoV Antibody Test Kit, Biogal) was conducted to detect the FCoV antibodies. The results of the test were categorized as S1, S2, S3, S4, S5, and S6 based on the severity of the antibody level, as outlined in *Table 1*.

Table 1. *Evaluation of ImmunoComb FCoV antibody test kit results according to level coding (Biogal Galed Labs)*

Scale (S)	Test Results
S1	Non specific reaction - considered negative
S2	Low positive reaction - FIP unlikely
S3	Medium positive reaction - FIP possible
S4	Positive reaction - FIP possible
S5	High positive reaction - greater likelihood with FIP
S6	Very high positive reaction - significantly increased likelihood with FIP

***FIP:** Feline infectious peritonitis*

Statistical Analysis

Descriptive statistics for the data were calculated. Before proceeding with the significance tests, the data were examined using the Shapiro-Wilk test for normality, one of the assumptions for parametric tests, and the Levene test for homogeneity of variances. Since the assumptions for parametric testing were not met, the Kruskal-Wallis test was employed to assess the statistical significance of FCoV antibody scores in relation to blood parameters. In cases where a significant difference was found, the Dunn-Bonferroni test was used for post-hoc analysis. A criterion of $P<0.05$ was used for all statistical comparisons. Data

Fig 1. Severe iris hyperemia and discoloration were observed in the left eye of an 8-year-old male mixed breed cat. The case exhibited an FCoV antibody level of S5 and an A/G ratio of 0.25

Fig 2. Severe uveitis in the left eye of a 2-year-old male tabby cat. The pupil cannot be seen clearly due to aqueous flare and hyphema in the anterior chamber. This cat was brought with S3 antibody titer and 0.31 A/G ratio

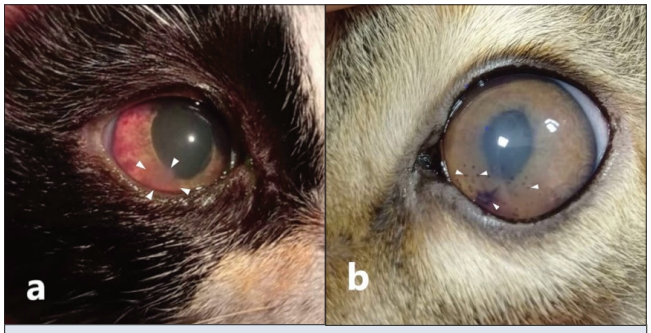

Fig 3. a- Uveitis in the right eye of a 3-year-old mixed breed female cat. Severe hyperemia was noted in the iris and aqueous flare *(arrow heads)* in the anterior chamber. The cat's FCoV antibody level was S1, with an A/G ratio of 0.21; **b-** Keratic precipitates *(arrow heads)* in a 1-year-old male tabby cat with uveitis. The antibody level was S1, and the A/G ratio was 0.39

analysis was conducted using the SPSS 21 software package.

Results

The study included a total of 94 cats, with a breakdown as follows: 32 mixed breeds, 32 tabby cats, 13 British Shorthairs, 8 Scottish Folds, 4 Tuxedos, 2 Van cats, 2 Persians, and 1 Russian Blue cat. Among these, 43 were male, and 51 were female. The age range varied from 2 months to 12 years, with 71% of the animals being below 1 year of age.

The results indicated a higher prevalence of acute eye symptoms (62 cases) compared to chronic symptoms (32 cases). Unilateral eye symptoms were found in 39 cats, while bilateral symptoms were present in 55 cats. During

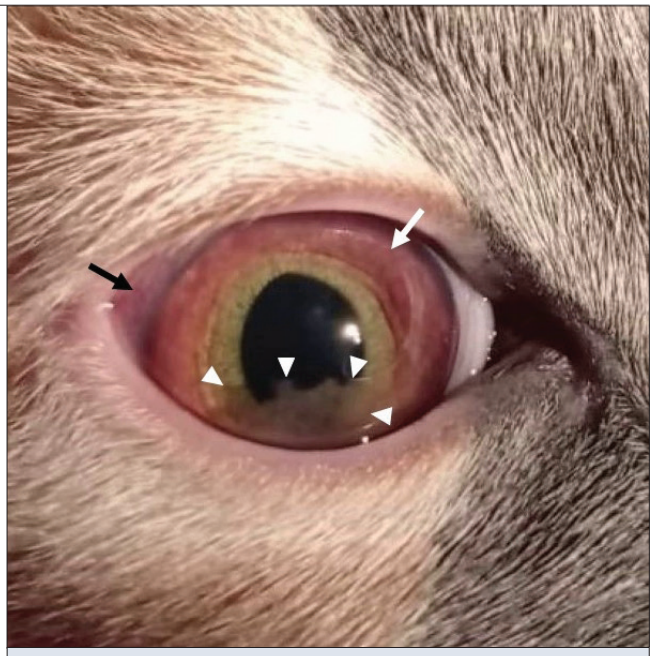

Fig 4. Granulomatous uveitis. A 4-month-old female mixed-breed cat exhibited severe inflammation in the right eye, affecting the iris extensively up to the vicinity of the pupil *(white arrow)*. Conjunctival hyperemia associated with corneal flush was observed *(black arrow)*. Concurrently, a hazy aqueous flare was notable in the ventral aspect of the anterior chamber *(arrow heads)*. This cat presented with an antibody titer of S3, an A/G ratio of 0.43, and severe lymphopenia

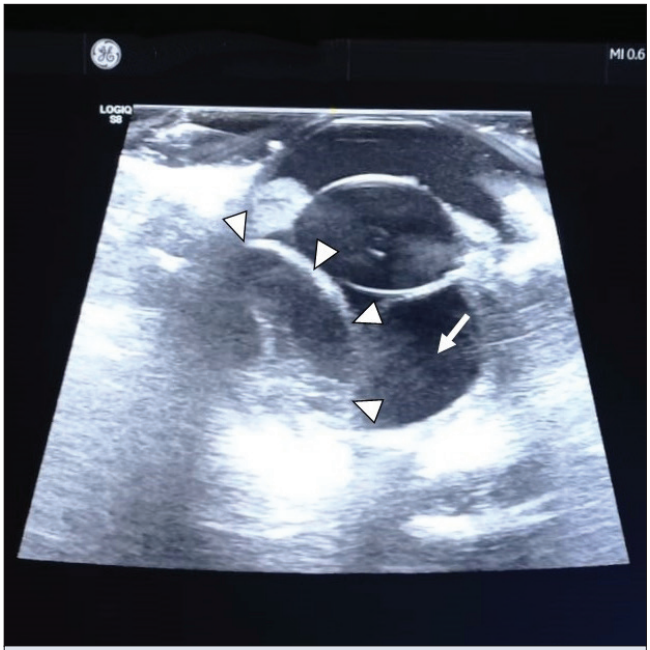

Fig 5. Ultrasonographic image of retinal detachment *(arrow heads)* and vitreal degeneration *(arrow)* in a 3-year-old male mixed-breed cat with uveitis and an FCoV titer of S5

the clinical examination, hyperemia of the iris emerged as the most frequently observed ocular manifestation, noted in 79 out of 94 cases *(Fig. 1)*. Additionally, 49 out of the 94 evaluated cats exhibited the presence of aqueous flare, while 30 cats presented keratic precipitates, both of which were common ocular findings *(Fig. 2, Fig. 3)*.

Table 2. *Comparison of FCoV scores according to blood parameters in cats. Normal reference ranges provided with Mindray BC5000 Hematology Analyzer and Randox Monaco*

Parameters	Reference Interval	FCoV Antibody Titers	Animals Examined (n)	Mean ± SEM	Median (Min-Max)	P-value
Total Protein (g/dL)	6.0-7.9	S1	6	11.92±0.26	11.79 (11.27-12.97) a	0.003
		S2	4	10.07±0.12	10.05 (9.85-10.35) b	
		S3	15	8.64± 0.23	8.78 (6.39-10.62) b	
		S4	17	9.03±0.38	8.76 (5.62-12.41) b	
		S5	21	8.96±0.32	8.92 (6.86-11.56) b	
		S6	31	8.95±0.26	8.72 (6.62-12.74) b	
Albumin (A) (g/dL)	2.8-3.9	S1	6	2.68±0.12	2.6 (2.33-3.2) c	<0.001
		S2	4	3.95±0.27	3.93 (3.4-4.56) a	
		S3	15	3.35±0.12	3.5 (2.4-3.85) ab	
		S4	17	3.52±0.13	3.6 (2.1-4.25) ab	
		S5	21	3.19±0.13	3.19 (2.2-4.68) bc	
		S6	31	2.96±0.08	3 (2.1-3.8) c	
Globulin (G) (g/dL)	2.6-5.1	S1	6	9.24±0.37	9.23 (8.18-10.64) a	0.002
		S2	4	6.12±0.27	6.03 (5.62-6.81) b	
		S3	15	5.29±0.22	5.07 (3.99-7.42) b	
		S4	17	5.51±0.29	5.16 (3.52-8.51) b	
		S5	21	5.77±0.32	5.34 (4.16-9.18) b	
		S6	31	5.99±0.28	6.03 (3.93-10.64) b	
A/G	-	S1	6	0.29±0.03	0.28 (0.21-0.39) c	<0.001
		S2	4	0.65±0.07	0.66 (0.49-0.78) a	
		S3	15	0.64±0.03	0.66 (0.37-0.79) ab	
		S4	17	0.65±0.02	0.66 (0.45-0.79) a	
		S5	21	0.56±0.04	0.62 (0.17-0.78) ab	
		S6	31	0.51±0.03	0.52 (0.08-0.78) b	
White blood cell count (WBC) (10^9/L)	5.5-19.5	S1	6	11.08±2.91	9.5 (4.2-24.6)	0.269
		S2	4	15.55±6.08	13.9 (2.5-31.9)	
		S3	15	8.28±1.34	6.3 (2.1-22)	
		S4	17	7.86±1.32	6.5 (1.1-22.7)	
		S5	21	10.16±1.37	8.3 (2.8-27.85)	
		S6	31	10.09±0.92	8.6 (1.8-29.1)	
Lymphocytes (10^9/L)	1.5-7.0	S1	6	1.5±0.67	0.6 (0.2-4)	0.351
		S2	4	1.6±0.37	1.9 (0.5-2.1)	
		S3	15	1.88±0.34	1.76 (0.3-4.8)	
		S4	17	2.29±0.46	1.4 (0.6-7.56)	
		S5	21	2.73±0.43	2 (1-8.3)	
		S6	31	2.03±0.26	1.4 (0.2-4.7)	
Monocytes (10^9/L)	0.2-0.9	S1	6	1.05±0.51	0.8 (0.1-3.5)	0.831
		S2	4	1.13±0.32	1 (0.5-2)	
		S3	15	0.97±0.23	0.6 (0.1-3.3)	
		S4	17	0.79±0.12	0.7 (0.1-2)	
		S5	21	0.71±0.1	0.6 (0.17-2)	
		S6	31	0.78±0.1	0.7 (0-2.69)	

Table 2. *Comparison of FCoV scores according to blood parameters in cats. Normal reference ranges provided with Mindray BC5000 Hematology Analyzer and Randox Monaco (continued)*

Parameters	Reference Interval	FCoV Antibody Titers	Animals Examined (n)	Mean ± SEM	Median (Min-Max)	P-value
Neutrophils (10^9/L)	2.8-13.0	S1	6	6.55±2.04	5.25 (2.6-16.4)	0.448
		S2	4	12.03±5.46	9.7 (1.4-27.3)	
		S3	15	5.11±0.95	4.3 (1.06-14.3)	
		S4	17	5.03±1.1	4 (0.3-19.6)	
		S5	21	6.31±1.19	5.04 (1-23.73)	
		S6	31	6.15±0.67	5.6 (0.39-16.3)	
Eosinophils (10^9/L)	0-0.8	S1	6	0.52±0.09	0.5 (0.2-0.8)	0.075
		S2	4	0.8±0.29	0.8 (0.1-1.5)	
		S3	15	0.32±0.06	0.3 (0-0.73)	
		S4	17	0.26±0.08	0.1 (0-1.31)	
		S5	21	0.36±0.06	0.3 (0-1.2)	
		S6	31	0.39±0.06	0.3 (0-1.5)	
Red Cell Distribution Width (RDW) (%)	10.6-14.3	S1	6	15.7±0.9	15.1 (13.9-20.2) b	0.004
		S2	4	16.1±0.6	16 (14.6-17.6) ab	
		S3	15	16.3±0.4	15.9 (14.3-18.4) ab	
		S4	17	16±1.1	14.8 (11.9-32.6) b	
		S5	21	19.9±2	16.7 (13.9-53) ab	
		S6	31	18.8±0.8	17.5 (15-32.7) a	

a,b,c: *Different letters in the same column indicate statistically significant difference (P<0.05)*

Granulomatous uveitis was identified in 8 cases, while the remaining cases were characterized as non-granulomatous *(Fig. 4)*. Among the evaluated eyes, 63 were diagnosed with anterior uveitis, 29 with panuveitis, and 2 with posterior uveitis. Fluorescein staining was negative, and pupillary light reflex was slow to absent in all eyes. Ultrasonographic examination revealed vitreous degeneration as the most typical finding in the panuveitis cases *(Fig. 5)*. Upon evaluating the ocular findings, it was observed that uveitis, which presented with varying types and symptoms, showed no correlation with blood parameters and antibody titers in the animals.

Evaluation of the antibody titer levels revealed that among the 94 cats, 6 were classified as S1, 4 as S2, 15 as S3, 17 as S4, 21 as S5, and 31 as S6. When complete blood count parameters were examined, no significant changes were observed in neutrophil, eosinophil, lymphocyte and monocyte. However, it was noted that the mean and median lymphocyte counts in animals with the S1 antibody titer were lower than those with other titers. A positive, statistically significant relationship was found between RDW and the antibody score (P<0.05). As the antibody titer level increased, the most pronounced elevation in RDW value was observed in cats with S6 level antibodies. RDW was found to be above the normal range at all antibody titer levels *(Table 2)*.

A negative, weak but statistically significant correlation was observed between total protein and antibody score. Accordingly, the decrease in total protein was notable as antibody intensity increased. A negative, significant correlation was also detected between albumin value and antibody score. Total protein and globulin values of animals with S1 antibodies, and the albumin values of cats with S2 antibodies, were significantly higher than those in other groups. While the evaluations revealed the presence of hyperproteinemia and hyperglobulinemia, albumin levels were found to be within normal range at all antibody titer levels *(Table 2)*.

The difference in A/G ratios between antibody titers was statistically significant (P<0.05). The highest A/G values were observed in animals with S2 and S4 antibody scores. The lowest mean A/G ratio (below 0.4) occurred at the lowest antibody titer level, S1. This value was below 0.7 in other titers. A negative, weak, and statistically insignificant correlation was found between the A/G ratio and antibody score (P>0.05) *(Table 2)*.

Discussion

FECV establishes itself and manifests symptoms in the intestines post-infection. However, if it transforms into FIPV, the virus initiates replication in monocytes and macrophages, activating these cells and inducing inflammatory reactions. In cats with FIPV, infected macrophages transport the virus to targets such as

the kidney, pleura, uvea, and the nervous system. The role of blood monocytes, precursors of macrophages, in FIP pathogenesis remains unclear. Nevertheless, it is noteworthy that monocyte-associated viremia is also observed in healthy cats infected with FCoV [23]. The number of macrophages in FIP-related ocular inflammations is relatively low compared to other tissues, considering the eye's immune system. Studies have demonstrated the presence of viral antigen-infected macrophages in the inflammatory infiltrate around the choroidal vessels, the connective tissue of the third eyelid, and the conjunctiva following infection. Furthermore, B cells and plasma cells indicate an effective humoral response in ocular inflammation [24].

The occurrence of these reactions results in the disruption of the blood-aqueous humor barrier in the eye. With the breakdown of the barrier, the virus reacts in the vascular-rich layer of the eye. Destruction in the region causes ocular symptoms such as fibrinous exudation accumulation in the anterior chamber, pyogranulomatous uveitis, dilation of perivascular vessels, exudative retinal detachment, retinal vasculitis, and optic neuritis [24]. In the present study, the most frequently observed finding in cases was iris hyperemia, which occurred in 83% of cats (12% of which had a granulomatous character), followed by an aqueous flare in 51% of cats. Additionally, keratic precipitates were observed in 29% of cats, while retinal detachment was observed in 12%.

Diagnosing FIP in cats without effusion is extremely challenging during the antemortem period [2]. To the extent that, even in aqueous humor samples taken from cats with FIP-related uveitis, no FCoV RNA was detected, including a case with a confirmed FIP diagnosis [25]. Currently, the gold standard for diagnosing FIP is the detection of intracellular FCoV antigen in macrophages in biopsy or necropsy samples [12,26]. Additionally, the presence of intracellular FCoV might be detected in samples taken from skin lesions in some cats with dermatological problems [27]. Merely the presence of antibodies is not indicative of FIP, and conversely, their absence doesn't necessarily negate it [28]. Although serological tests are insufficient for the diagnosis of FIP, in this study, the use of serological tests as a preliminary diagnostic tool for low, possible, or probable FIP was provided by looking for FCoV antibodies in all cats with uveitis. Thus, while animals with low antibody titers were approached with suspicion of FIP, further diagnostic support was obtained considering the possible presence of FIP in cats with high titers. Another notable finding pertains to the correlation between cats presenting with varying symptoms and classifications of uveitis and their antibody levels. When evaluating the symptoms of uveitis in the study cases, there was an inconsistency noted in the antibody levels. Remarkably, a cat with S6 antibody level (high positive reaction) exhibited mild symptoms of uveitis such as mild aqueous flare or iris hyperemia, while a cat with an S1 level (non-specific reaction) presented severe symptoms such as severe iris hyperemia or hyphema. It was concluded that ocular symptoms were not directly related to antibody density.

To enhance the diagnosis of FIP in cats, numerous studies have been conducted to identify various laboratory alterations. This research continues to progress unabated today. In their study, Wegg et al.[29] employed clinical symptoms in animals, elevated coronavirus titers, and high alpha-1 acid glycoprotein values for the diagnosis of FIP, subsequently confirming their diagnoses in two cases. The changes, particularly observed in protein values, can be reflected in the blood panel as hyperproteinemia, hypoalbuminemia, and hyperglobulinemia, consequently resulting in a proportional decrease in the values of albumin and globulin. One of the most crucial biochemical abnormalities in FIP is hyperglobulinemia, believed to result from non-specific immune responses [17]. Studies have shown that hyperglobulinemia has a positive correlation with virus antibody titers. In these animals, whether effusion is present or not, hyperglobulinemia is significantly elevated [20,30]. Upon examination of the present study data, a statistically significant difference was found between globulin values and FCoV antibody titers, with hyperglobulinemia present at all titer levels. However, it is noteworthy that the significant increase in globulin was observed specifically in animals with S1 antibody levels. This finding contradicts the expected positive correlation between hyperglobulinemia and increasing antibody titer levels.

Although the presence of hyperglobulinemia and hypoalbuminemia together raises suspicion about FIP, the most important biochemical abnormality was thought to be the ratio of A/G [17,18,31]. In numerous studies on FIP, a pronounced reduction in the A/G ratio is observed in the vast majority of cats. An A/G ratio of 0.5 or lower is deemed indicative of a definitive antemortem period diagnosis of FIP. Moreover, some researchers consider a value of 0.4 or lower to be diagnostic [32]. Conversely, values of 0.8 or higher suggest a low probability of FIP [13,19,33]. In the present study, A/G ratios were found to be below 0.7 across all antibody titer levels, with the differences between antibody scores being statistically significant. However, A/G ratios of 0.4 and below, which some studies consider diagnostic for antemortem FIP, were only observed at the S1 antibody titer in this study. Although a negative relationship was noted between A/G ratio and antibody titer, the highest values within this statistically insignificant relationship were found in animals with S2 and S4 scores. These results indicate that the increase in

FCoV antibody intensity did not correspond to a similar increase in A/G ratios. Indeed, the fact that the S1 titer level, which is regarded as a negative and non-specific reaction, exhibited the lowest A/G ratio supports this finding. Some studies have interpreted this as the high amount of virus binding to the antibody, which may reduce the antibody detection and even mask its presence [5,12,34].

Research indicates that FIP virus induces distinct alterations in hematological parameters. While these alterations are not yet definitive for the virus, they are continually being examined to support the diagnosis of FIP in living animals. Some researchers have emphasized the stress leukogram as a typical finding in FIP, stating that the co-existence of lymphopenia and neutrophilia is an important factor in the diagnosis [20]. When the complete blood parameters of the study were examined, no significant changes were observed in the values of neutrophils, eosinophils, lymphocytes, and monocytes. Although the mean lymphocyte count in animals with S1 antibody titer was lower than in animals with other titers, this statistically insignificant decrease was still within the normal range of leukocyte count. The fact that this decrease in lymphocyte count, like the situation in A/G level, was most pronounced at low antibody titer, suggested that the antibody level could be masked by the high amount of virus binding to the antibody. This suggests that the stress leukogram may not be a contributing factor in the diagnosis of FIP.

A notable observation in the complete blood count changes was the positive, statistically significant correlation between Red Cell Distribution Width (RDW) and antibody score. The increase in RDW was most pronounced at the S6 titer level. RDW is a simple laboratory parameter and biomarker that reflects the variation in erythrocyte size, commonly used in the differential diagnosis of anemia [35]. RDW, utilized as a marker in numerous human diseases, has gained prominence during the global COVID-19 pandemic. It was recognized as a prognostic indicator and has been the focus of multiple studies that directly correlate its elevation in blood with mortality rates [36-38]. Numerous hypotheses have attempted to elucidate the reasons for this alteration in RDW. It has been underscored that hemolytic anemia and intravascular coagulopathy lead to secondary RBC damage, or that the persistent inflammatory response induced by the virus directly damages erythrocytes by impairing iron metabolism [39]. When the study results were examined, it was observed that the RDW value increased with antibody density in cats suspected of FIP, and that the RDW was outside the normal limits at the most severe antibody titer. Contrary to the negative correlation of protein values with antibody titers, the positive correlation of RDW suggested the hypothesis in the covid-19 pandemic and led to the conclusion that the change in this parameter may have occurred as a result of indirect damage to erythrocytes by chronic inflammation induced by the virus in cats. Nevertheless, additional research is necessary to delve deeper into this phenomenon.

In conclusion, a definitive diagnostic tool for FIP in living animals remains elusive. The goal of ongoing research has been to strengthen the ability to suspect the disease using a variety of parameters. The commonly observed alterations in blood parameters are often deemed sufficient to initiate treatment when FIP is diagnosed in cats presenting with systemic and/or ocular signs, along with positive coronavirus antibody detection. However, current research continues to seek more precise markers to improve these uncertain parameters. This study evaluated the correlation between clinical, immunological, and hematological parameters of FIP in cats with uveitis. Surprisingly, the results revealed inconsistencies with many findings in the international literature that support FIP suspicion. Notably, no significant correlation was found between key indicators of dry FIP-such as the severity and types of uveitis-and antibody levels, complete blood counts, or blood protein values. Even more striking, the most pronounced changes in protein values, considered crucial prognostic factors, were observed at low antibody levels. The stress leukogram, widely used by researchers in differential diagnoses, proved to be completely ineffective, with the lowest lymphocyte counts observed in animals with S1 antibody titers. One of the most compelling findings was the RDW value. This simple, cost-effective complete blood count parameter, which has emerged as a prognostic marker in human viral and infectious diseases, showed promise as a potential indicator for FIP. Further research may confirm RDW as a reliable and affordable marker for diagnosing FIP in cats.

Declaration

Availability of Data and Materials: The data that support the findings of this study are available on request from the corresponding author (O.O. Şenel).

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Conflict of Interest: The authors declare that there were no conflicts of interest.

Ethical Statement: The required ethics committee report for the study was obtained from Animal Experiments Local Ethics Committee of Ankara University (Approval No: 2024-08-62).

Declaration of Generative Artificial Intelligence (AI): The authors declare that the article, tables and figures were not written/created by AI and AI-assisted Technologies.

Authors' Contributions: The authors confirm a group work for interpretation and preparation of the manuscript.

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