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Research Article

RECENT OUTBREAK AND CLINICAL CASE OBSERVATIONAL STUDY ON FELINE PANLEUKOPENIA AND FELINE INFECTIOUS PERITONITIS INFECTION IN CAT IN SYLHET, BANGLADESH

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Abstract

Feline panleukopenia virus (FPV) infection and feline infectious peritonitis (FIP) are among the most common and highly fatal viral diseases affecting cats, causing substantial morbidity and mortality worldwide. Despite their clinical significance, epidemiological data on the occurrence, distribution, and impact of these infections remain scarce in Bangladesh. This study was conducted to determine the current outbreak status and clinical case observational study of FPV and FIP in cats in Sylhet district, Bangladesh. The data were collected from government veterinary hospitals and selected private pet clinics in Sylhet during June 2025 to March 2026. Out of 1,496 clinical cases, 337 cats were positive for FPV and 89 were positive for FIP, representing an overall prevalence of 22.53% and 5.95%, respectively. FPV prevalence was consistently higher than FIP and reached its peak in December (32.50%), whereas the highest prevalence of FIP was recorded in October (6.89%). FPV was more common in local cats, pet cats, male cats, younger cats (<5 months), and non-vaccinated cats, while FIP was more frequently observed in Persian cats, male cats, and older cats (>5 months). The most common clinical findings were fever, vomiting, diarrhea, dehydration, and pale mucous membranes, variation in body temperature among breeds or according to pet status, age, sex, but not significant ($p>0.05$). The findings highlighted that FPV was more prevalent than FIP among cats appeared to show marked temporal variation, with a possible seasonal increase in the late months of the year and the importance of early diagnosis, strict biosecurity, supportive treatment with improved vaccination strategies for reducing these diseases.

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Introduction

Bangladesh's growing economic development and improved veterinary services have led to a notable rise in cat ownership. Pet enthusiasts now keep both local indigenous breeds and various exotic ones, with Persian cats being the most popular among foreign breeds. Despite this rise in pet ownership, there remains a significant gap in comprehensive research regarding feline viral diseases in the country. Two of the most prominent and life-threatening viral infections affecting cats are feline panleukopenia virus (FPV) and feline infectious peritonitis (FIP) (Squires et al., 2024)

FPV is a highly infectious and potentially fatal disease, with a prevalence of 7.5% among pet cats in Bangladesh (Islam MR et al., 2014). It affects both domestic and wild felids and can also infect certain wild

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canids, such as raccoons and foxes (Sultana et al., 2016). The virus primarily spreads through the oro-nasal route (Ortega et al., 2017), with a remarkable ability to persist in the environment, remaining infectious for up to a year in contaminated organic matter (Nahat et al., 2015). Young kittens, particularly those under one year of age, experience the highest morbidity and mortality rates (Behera et al., 2015).

While unvaccinated kittens are most vulnerable, cats of any age, sex, or breed can be affected (Truyen U et al., 2013). The global prevalence of FPV has significantly declined due to widespread vaccination efforts (Stuetzer et al., 2014). However, continued vigilance in vaccination and clinical diagnosis remains essential. In addition to FPV, FIP is another severe viral disease caused by a mutation of the feline coronavirus (FCoV). Clinicopathologic abnormalities observed in FIP, such as lymphopenia, neutrophilia, anemia, hyperproteinemia, and hypergammaglobulinemia, do not serve as pathognomonic indicators of the disease (Felten and Hartmann, 2019; Scherk et al., 2013). In addition, neurotropic (neural), ocular, and mixed forms of FIP have been described, each presenting with specific clinical manifestations (Pedersen, 2009; Tasker et al., 2023). FIP is a highly fatal disease, with up to 12% of FCoV-infected cats developing FIP, especially in multi-cat households. However, only about 5% of cats in single-cat households develop FIP (Gao et al., 2023; Pedersen, 2009). Histopathologic evaluation, including immunohistochemistry (IHC) to identify intracellular FCoV antigens in macrophages, is considered the gold standard for diagnosis (Addie et al., 2022; Giori et al., 2011; Pedersen, 2009). Despite the increasing knowledge of FIP, it remains a complex and poorly understood disease, particularly in developing regions like Bangladesh.

In Bangladesh, research on FIP remains limited, and pet owners are often unaware of the disease, its symptoms, or vaccination schedules (Mamun et al., 2023). Although FPV prevalence has been studied, more research is needed to fully understand its impact. Therefore, this study aims to investigate the prevalence of FIP and FPV among pet cats and to identify key risk factors such as age, sex, breed, neutering status, and vaccination history and compare the clinical signs and prevalence of both diseases.

Material and Methods

Ethical approval

Verbal consent was obtained from the cat owners and the attending veterinarian at the pet clinic to gather the necessary information for this study.

Study area and duration

The clinical data and case observational study on FPV and FIP infection were done from Government Veterinary Hospitals in Sylhet: District Veterinary Hospital, Mirza Jangal, Sylhet and three private pet clinics in Sylhet named as Sylhet Pet Care (SPC), Vet Care Center and Pulse Pet and Vet Care, Sylhet during June 2025 to March 2026.

Study design and data collection

Before data collection, a well organized data recording sheet was designed to align with the study's objectives. Selected clinics were personally visited to gather information through face-to-face interviews with cat owners and attending veterinarians, supplemented by visual assessments. Following initial registration and history-taking, each cat underwent a comprehensive clinical examination. Clinico-epidemiological details were documented either in the hospital register or on the structured record sheet. The recorded data encompassed various parameters, including breed (local, mixed, Persian), age categories (below or above five months), sex, body weight, residential address, and cat type (pet or stray). Additionally, vaccination history against FPV and FIP was documented, covering vaccine type (live or

inactivated), the time elapsed since the last dose, and the number of booster doses received. During the study period, data were collected total 1,496 clinical cases among 337 cats were positive for FPV and 89 were positive for FIP confirmed by physical examination and using rapid test kit including pet and stray cats of various breeds from Government Veterinary Hospitals and Private Clinics. The FPV and FIP diagnosis was based on clinical evaluation, with all cases assessed by experienced veterinary professionals.

Diagnostic procedure of clinical cases

Physical examination

The animals were examined individually by taking history, close inspection, taking temperature, palpation parting of hair coat, and itch reflex. The signs, number, location, and physical characteristics of specific lesion size, shape, texture, and color location were recorded.

Using rapid test kit

The following two rapid test kits were used for confirmatory diagnosis of the positive cases for FPV and FIP. The FPV Antigen Test is a lateral flow immunochromatographic assay for the qualitative detection of feline Panleukopenia virus (FPV Ag) in feline feces. FIP Antibody Rapid Test Device is a lateral flow immunochromatographic assay for the qualitative detection of FIP antibody in feline serum or plasma.

Data management and statistical analysis

All collected data were entered into Microsoft Excel, and statistical analysis was conducted using SPSS 20.0 with an independent sample t-test. All graphs were generated using Microsoft Word.

Results and discussion

Among 1,496 clinical cases, 337 cats were positive for FPV and 89 cats were positive for FIP, representing an overall prevalence of 22.53% and 5.95%, respectively.

Status of current outbreak of FPV and FIP during the study period with associated risk factor

The month-wise distribution of total cases and disease-positive cases is presented in Table 1. The findings revealed that the prevalence of FPV was consistently higher than that of FIP throughout the study period. The prevalence of FPV showed a marked monthly fluctuation.

Table 1. Prevalence of FPV and FIP infected cases according to month within the study duration June 2025 to March 2026

Month	Total Cases	FPV(+ve) Cases	FIP(+ve) Cases	Prevalence(%) of FPV	Prevalence(%) of FIP
June	128	21	7	16.40%	5.47%
July	146	28	9	19.17%	6.16%
August	124	26	8	20.96%	6.45%
September	120	23	6	19.16%	5.00%
October	116	22	8	18.96%	6.89%
November	186	46	11	24.73%	5.91%
December	240	78	16	32.5%	6.66%
January	178	47	11	26.40%	6.17%
February	132	27	6	20.45%	4.54%
March	126	19	7	15.07%	5.55%

It increased from 16.40% in June to 32.50% in December, which was the highest prevalence recorded during the study period, and then gradually declined to 15.07% in March, the lowest value observed. In terms of absolute number of positive cases, the highest number of FPV-positive cats was also recorded in December (78 cases), followed by January (47 cases) and November 5 (46 cases). In contrast, the prevalence of FIP remained relatively stable over the study period, ranging from 4.54% to 6.89%. The highest prevalence of FIP was observed in October (6.89%), whereas the lowest was recorded in February (4.54%). The concurrent increase in total cases and FPV-positive cases particularly in November, December, and January, suggests a possible seasonal influence on the occurrence of FPV infection. The marked increase in FPV and FIP prevalence during the last 3 month of the year might be associated with seasonal factors such as lower temperatures and increased environmental stability of the virus (Decaro & Buonavoglia, 2012; Greene, 2012).

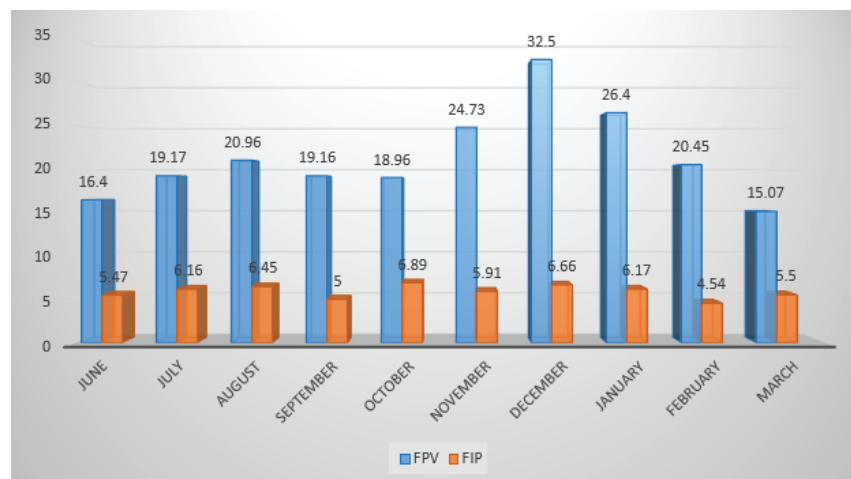


Figure 1. Month wise prevalence of FPV and FIP cases during the study duration.

Breed wise case study of FPV and FIP with associated risk factor

The breed-wise distribution (Figure 2) showed that FPV was most prevalent in local cats (46%), followed by Persian (33%) and other breeds means all the exotic breed except local and persian (21%). In contrast, FIP cases were predominantly observed in Persian cats (66%), with lower proportions in local (23%) and other breeds means all the exotic breed except local and persian (11%).

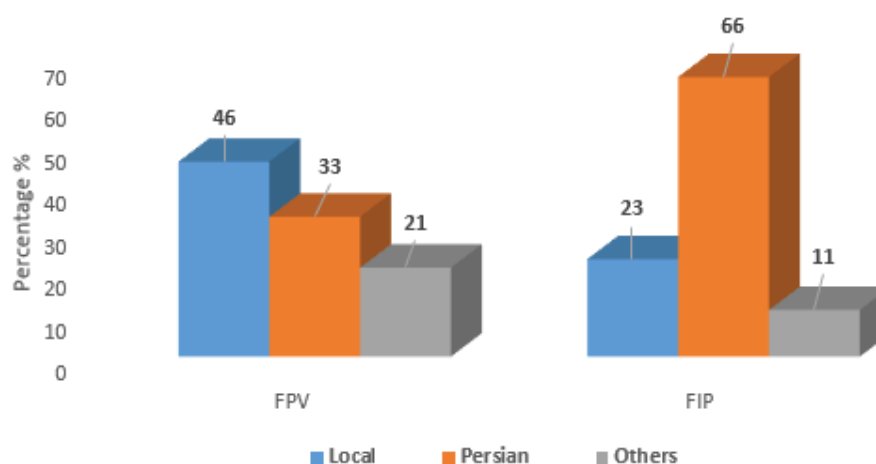


Figure 2. Breed-wise prevalence of FPV and FIP in cat.

The higher occurrence of FPV in local cats may be linked to lower vaccination coverage and greater environmental exposure, as FPV is highly contagious and environmentally persistent (Greene, 2012; Stuetzer & Hartmann, 2014). Conversely, the predominance of FIP in Persian cats may reflect genetic susceptibility and management factors associated with pedigree breeding, which can facilitate feline coronavirus transmission and mutation (Pedersen, 2014)

Breed and Sex wise distribution and associated risk factor

Table 2. Breed and sex-wise prevalence of FPV and FIP in cat of Sylhet Sadar

Breed	FPV		FIP	
	Male	Female	Male	Female
Local	29.27%	19.15%	22.95%	14.90%
Persian	22%	13.11%	27.05%	21.10%
Others	11.37%	5.10%	8.60%	5.4%

Table 2 represented the breed- and sex-wise prevalence of FPV and FIP among cats in Sylhet Sadar. FPV prevalence was highest in local male cats (29.27%), followed by Persian male (22.00%) and local female cats (19.15%), while the lowest prevalence was found in other breeds. In contrast, FIP prevalence was highest in Persian male cats (27.05%), followed by local male (22.95%) and Persian female cats (21.10%), with the lowest prevalence also observed in other breeds. Overall, male cats were more affected than female cats in both FPV and FIP, with FPV being more common in local cats and FIP in Persian cats. The higher FPV prevalence in local males may be due to greater environmental exposure and lower vaccination, whereas the predominance of FIP in Persian cats suggests genetic and management-related susceptibility. Male cats may be more prone due to roaming behavior and increased exposure to infection (Greene, 2012; Pedersen, 2014; Stuetzer & Hartmann, 2014).

Breed and age related risk factor and case distribution

The FPV prevalence was highest (Table 3) in local cats aged <5 months (27.29%), followed by Persian cats of the same age group, while the lowest was observed in older cats of other breeds. In contrast, FIP was most prevalent in cats aged >5 months, particularly in local (26.49%) and Persian (22.87%) cats, with the lowest prevalence in younger Persian cats. Overall, FPV was more common in younger cats, whereas FIP predominated in older cats.

Table 3. Percentage of FPV and FIP infected cats based on breed and age of cats

Breed	FPV		FIP	
	<5 months	>5 months	<5 months	>5 months
Local	27.29%	17.56%	15.46%	26.49%
Persian	19.87%	16.54%	11.57%	22.87%
Others	12.07%	6.74%	9.54%	14.07%

The higher occurrence of FPV in younger cats may be due to immature immunity and waning maternal antibodies, increasing susceptibility to infection (Greene, 2012; Stuetzer & Hartmann, 2014). Conversely, the greater prevalence of FIP in older cats may be linked to prolonged exposure to feline coronavirus and the time required for viral mutation and disease development (Pedersen, 2014).

Clinical observation and case study**Clinical signs and symptoms in FPV and FIP-infected cats**

The clear differences in clinical presentation between FPV and FIP showed in table 4. Vomiting was much higher in FPV cases (75.22%) than in FIP (17.2%). Similarly, diarrhea was highly prevalent in FPV (88.07%), while most FIP cats had normal feces (86.22%). Severe dehydration was common in FPV (47.70%), whereas the majority of FIP cases showed no dehydration (75.14%). Pale mucous membranes were also more frequent in FPV (77.98%) compared to FIP (10.08%).

These findings suggest that FPV primarily causes acute gastrointestinal damage leading to fluid loss, whereas FIP shows limited gastrointestinal involvement. This is supported by previous studies reporting that FPV targets intestinal crypt cells causing enteritis, diarrhea, and dehydration, while FIP is a systemic immune-mediated disease with less prominent GI signs (Greene, 2012; Pedersen, 2014). Therefore, the higher frequency of vomiting, diarrhea, dehydration, and pale mucous membrane in FPV can be considered important clinical indicators for differential diagnosis.

Table 4. Presence of different clinical signs and symptoms in FPV and FIP-infected cats

Signs	Severity	FPV infected cats (%)	FIP infected cats (%)
Vomiting		75.22%	17.25%
Dehydration	Mild	18.34%	5.36%
	Moderate	33.94%	8.00%
	Severe	47.70%	11.50%
	No dehydration	0%	75.14
Consistency of feces	Normal	11.92%	86.22%
	Diarrhea	88.07%	13.78%
Mucous membrane	Normal	22.01%	89.92%
	Pale	77.98%	10.08

Observation of body temperature of FPV and FIP infected cats among different breeds:

The average body temperatures (Table 5) for the local, Persian, and mixed-breed cats are $102.32 \pm 0.65^{\circ}\text{F}$, $102.75 \pm 0.82^{\circ}\text{F}$, and $102.12 \pm 0.45^{\circ}\text{F}$ in FPV infected cat and same as $102.15 \pm 0.87^{\circ}\text{F}$, $102.75 \pm 0.82^{\circ}\text{F}$, and $102.55 \pm 0.87^{\circ}\text{F}$ FIP infected cat, respectively.

Table 5. Observation of body temperature of FPV and FIP suspected cats among different breeds

Case Name	Breed	Mean $\pm$ SEM	P-value
FPV	Local	102.32 $\pm$ 0.65	0.69
	Persian	102.75 $\pm$ 0.82	
	Others	102.42 $\pm$ 0.45	
FIP	Local	102.15 $\pm$ 0.87	0.85
	Persian	102.75 $\pm$ 0.82	
	Others	102.55 $\pm$ 0.87	

The pattern of body temperature highlighted the elevation of body temperature is slightly lower in local breed than Persian and other mix breeds both in FPV and FIP infection but there is no significant ($p>0.005$) difference in body temperature among the three breeds of cats infected with FPV and FIP infected cats. This findings, persistent or fluctuating pyrexia has been described as a hallmark clinical feature of FIP, although its intensity and pattern may vary among affected cats (Stranieri et al., 2024; Paltrinieri et al., 2024). Moreover, recent clinical investigations have emphasized that body temperature changes in FIP cases are inconsistent and do not significantly differ across breeds, further supporting that fever is not a reliable indicator of breed susceptibility (Ansari, 2025).

Conclusion

The present study provides a comprehensive evaluation of FPV and FIP infections in cats in Sylhet, Bangladesh. FPV was identified as the more prevalent infection, affecting 22.53% of cats, while FIP was observed in 5.95% of cases. Infection risk was influenced by age, breed, sex, vaccination status, and type of cat, with young kittens (<5 months) exhibiting the highest susceptibility to FPV and older Persian cats more frequently affected by FIP. Seasonal fluctuations were noted, with FPV incidence peaking in December, suggesting environmental and management-related effects on viral transmission. Clinically, FPV-infected cats commonly presented with fever, vomiting, diarrhea, severe dehydration, and pale mucous membranes, whereas FIP cases exhibited nonspecific signs with less frequent vomiting, diarrhea and dehydration. Pet cats were disproportionately affected compared to stray cats, highlighting the role of close contact and shared resources in viral spread. These findings underscore the critical importance of regular vaccination programs, rigorous hygiene practices, and evidence-based management strategies to mitigate FPV and FIP infections.

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