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Study on prevalence of canine parvoviral diarrhoea in dogs in and around Gannavaram, Andhra Pradesh

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Abstract
The present study was conducted at Veterinary Clinical Complex, NTR Veterinary College, Gannavaram from May 2024 to December 2024. Out of 4021 dogs presented 413 cases had hemorrhagic gastroenteritis with an incidence of 10.27 per cent. Out of 32 dogs tested with Bionote Rapid CPV Ag Test Kit for canine parvovirus infection 28 dogs showed positive reactions for CPV indicating a total of 0.69 percent affection. Age, sex, immunity and breed wise prevalence of canine parvovirus infection was recorded. Dogs showed highest per cent in dogs aged between 3-6 months (71.43%) followed by dogs aged < 3 months (21.43%) and 6-9 months of age (7.14%). Gender wise occurrence of canine parvovirus infection in the present study revealed highest in male dogs (60.71%) and least in female dogs (39.28%). The breed wise prevalence of CPV enteritis showed higher prevalence in non-descript dogs (42.85%) followed by Labradors (17.85%).

Keywords: Canine Parvo virus, prevalence, Gannavaram, gastroenteritis, vaccination.

Introduction
The canine parvo viral (CPV) enteritis which is a highly contagious, virulent, acute and fatal gastrointestinal viral disease that targets primarily the pups and collapses the body's posthaste branching organs causing bloody diarrhoea amidst a high mortality and morbidity rate (Mia and Hasan, 2021) [6]. CPV belongs to the genus protoparvo virus, family parvoviridae, a single-stranded DNA virus that infects rapidly dividing cells of the gastrointestinal tract, bone marrow, lymphoid tissue and cardiac myocytes (Goddard and Leisewitz, 2010) [4]. Despite the development and widespread administration of vaccines against the CPV-2 strains the disease remains a significant concern in Veterinary medicine (Mazzaferro, 2020) [9]. Then CPV-2 targets rapidly dividing cells results in damage to the intestinal epithelial crypts, leading to vomiting and haemorrhagic diarrhoea along with nutrient malabsorption and enteric bacterial translocation. The loss of gastrointestinal fluids, that rapidly progresses to hypovolemic shock (Decaro *et al*., 2020) [3]. Taking into account of widespread occurrence, the elevated morbidity and mortality rates associated with the disease this study was aimed to study the occurrence of parvo viral enteritis in dogs.

Materials and Methods
The dogs presented to Veterinary Clinical Complex, NTR Veterinary College from May 2024 to December 2024 were screened for canine parvovirus infection. Dogs presented with complaint of anorexia, foul-smelling diarrhoea, vomiting and dehydration suspected for canine parvovirus infection were further subjected to clinical examination, screening by using Bionote® Rapid CPV Ag test kit to record the prevalence parvovirus enteritis.

Results and Discussion
A total of 3426 canine patients were presented to VCC, NTR College of veterinary science Gannavaram from May 2024 to December 2024, out of which total of 28 dogs was diagnosed with canine parvovirus infection by Bionote® Rapid ICHC kits indicating a total of 0.69 percent affection.

The age wise distribution of CPV in the current investigation indicated a predominance in puppies aged 3-6 months (71.43%), followed by those under 3 months (21.43%) and 6-9 months (7.14%) aged dogs. The results documented in this study are align with the observations of Mosallanejabad *et al.* (2008) and Panchasheel and Chawan (2024) [12], who indicated a greater prevalence of CPV in the 3-6 months age group compared to the < 3 months age group, followed by the 6-12 month and > 12 months age groups. This could be due to propensity of CPV for mitotic intestinal cells, along with changes in gut flora during weaning, insufficient maternal antibody levels might increase the risk of CPV in dogs under three months of age (Nwoha, 2011) [10].

Fig 1: CPV affected puppy showing dull, depression and recumbency

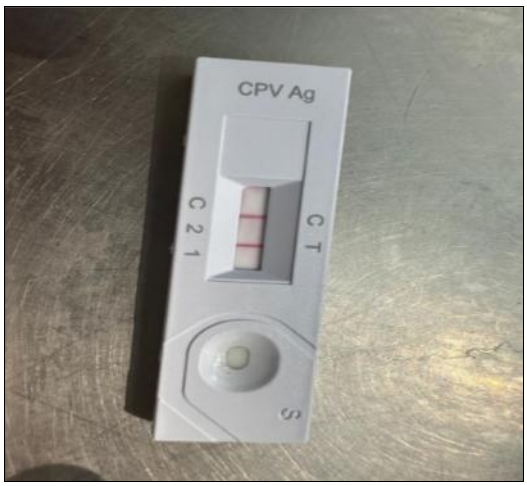

Fig 2: Rapid immunochromatographic test showing positive reaction for CPV infection

Table 1: Age wise occurrence of canine parvoviral enteritis in dogs

S. No	Age group	Number of dogs positive for CPV	Per cent of dogs affected with CPV
1	< 3 months	6	21.43
2	3-6 months	20	71.43
3	6-9 months	2	7.14
	Total	28	100

Among the breeds, the highest prevalence of CPV was seen in non-descript dogs (42.86%), followed by Labrador Retriever (17.86%), Great Dane (10.71%) and the lowest prevalence was found in German Shepherd, Doberman, Pomeranian, and Shih Tzu (7.14% each) breeds of dog. The findings of this study are in agreement with the observations of Rafiq *et al.* (2019) [13], who noted a greater frequency of CPV in Non-descript breeds, followed by Great Dane, German Shepherd, Dalmatian, Labrador, Spitz, and Doberman, in comparison to Lhasa Apso. On the contrary Sagar *et al*. (2008) noted that breeds including Labradors, German Shepherds and Spitz are at a heightened risk of parvoviral enteritis, whereas mongrels have less susceptibility. The disparity in occurrence across various breeds might be attributed to the population density of each breed, which fluctuates across different geographical regions (Archana *et al.*, 2010) [1].

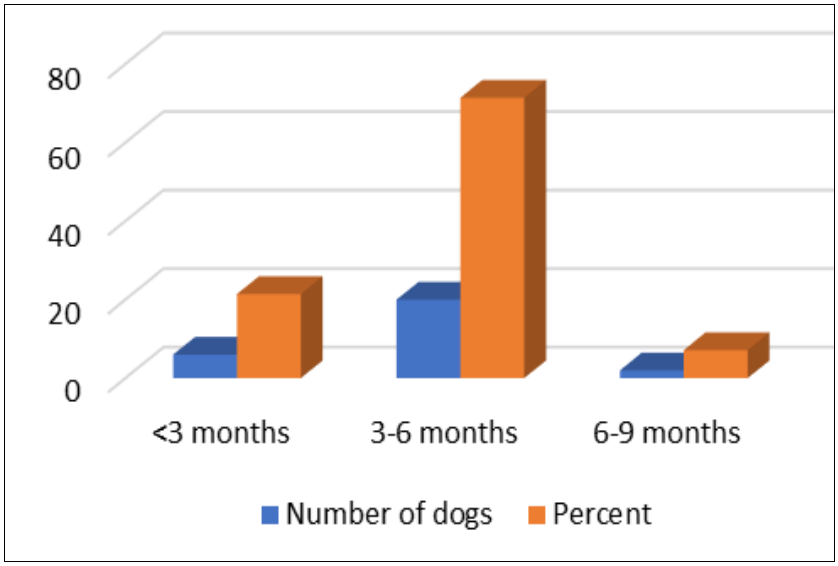

Fig 1: Age wise occurrence of canine parvoviral enteritis in dogs

Table 2: Breed wise occurrence of canine parvoviral enteritis in dogs

S. No	Parameter	Number of dogs affected with CPV	Percent of dogs affected with CPV
1	Non-Descriptive	12	42.86
2	Labrador Retriever	5	17.86
3	Great Dane	3	10.71
4	German Shepherd	2	7.14
5	Doberman	2	7.14
6	Shih Tzu	2	7.14
7	Pomeranian	2	7.14
	Total	28	100

With reference to sex, the highest prevalence of CPV was recorded in male dogs (60.71%) compared to female dogs (39.29%). The results of this study are in association with the data of Bhawani *et al*. (2023) [2] and Panchasheel and Chawan (2024) [12], who observed a greater prevalence of parvoviral infection in male dogs (54.38%) compared to the females (45.61%). This disparity in sex-specific incidence might be attributed to the predominance of male canines relative to females in the research region. Whereas, demonstrated that there is no significant link between CPV enteritis and sex, since the disease affects both males and females equally.

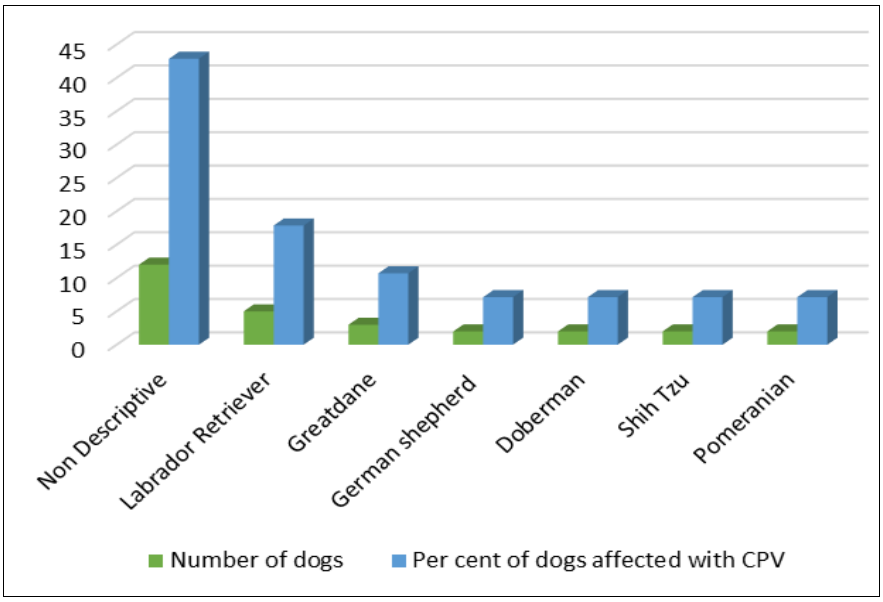

Fig 2: Breed wise occurrence of canine parvoviral enteritis in dogs

Table 3: Gender wise occurrence of canine parvoviral enteritis in dog

S. No	Gender	Number of dogs affected with CPV	Percent of dogs affected with CPV
1	Male	17	60.71
2	Female	11	39.29
	Total	28	100

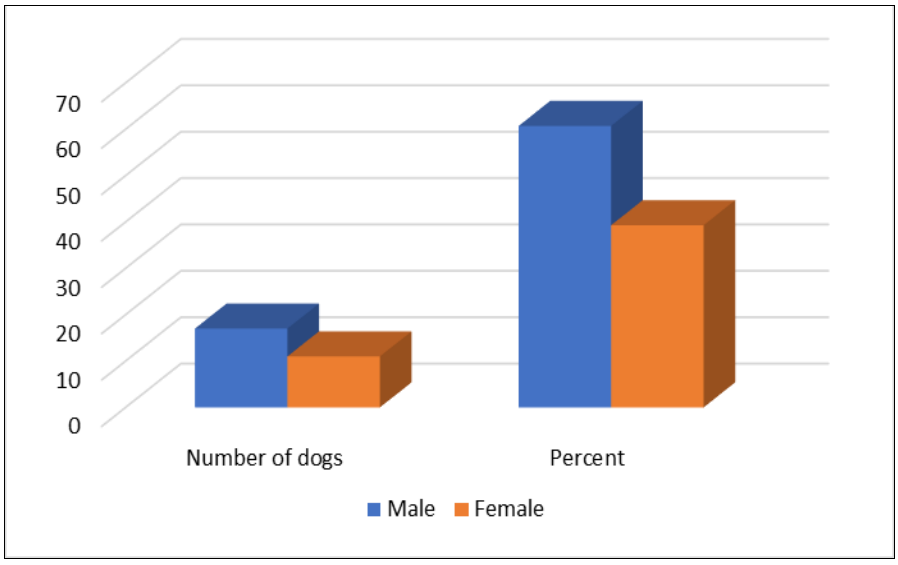

Fig 3: Gender wise occurrence of canine parvoviral enteritis in dogs

Occurrence of canine parvovirus based on vaccination status in the present study revealed that among the affected dogs, majority were not vaccinated (82.14%), (10.72%) were irregularly vaccinated and two (7.14%) were regularly vaccinated**.** The results are in accordance with the observations of Ismail and Hanedan (2024) [5], who noted a greater incidence of CPV in unvaccinated dogs (92.30%) than vaccinated dogs (50.00%) fallowed by inadequately vaccinated (31.30%). Conversely, Ogbu *et al*. (2021) [11] discovered no correlation in the prevalence of CPV between vaccinated (42.07%) and unvaccinated (48.08%) dogs. The prevalence of CPV in vaccinated dogs can be ascribed to maternal antibodies in puppies, inadequate immunizations, and suboptimal vaccination responses. The occurrence of CPV in vaccinated dogs might often come from vaccination failure caused by maternal antibody interference (Decaro *et al.*, 2020) [3].

Table 4: Occurrence of canine parvoviral enteritis based on vaccination status

S. No	Vaccination status	Number of dogs positive for CPV	Percent positive with CPV
1	Vaccinated	2	7.14
2	Unvaccinated	23	82.14
3	Irregularly vaccinated	3	10.72
	Total	28	100

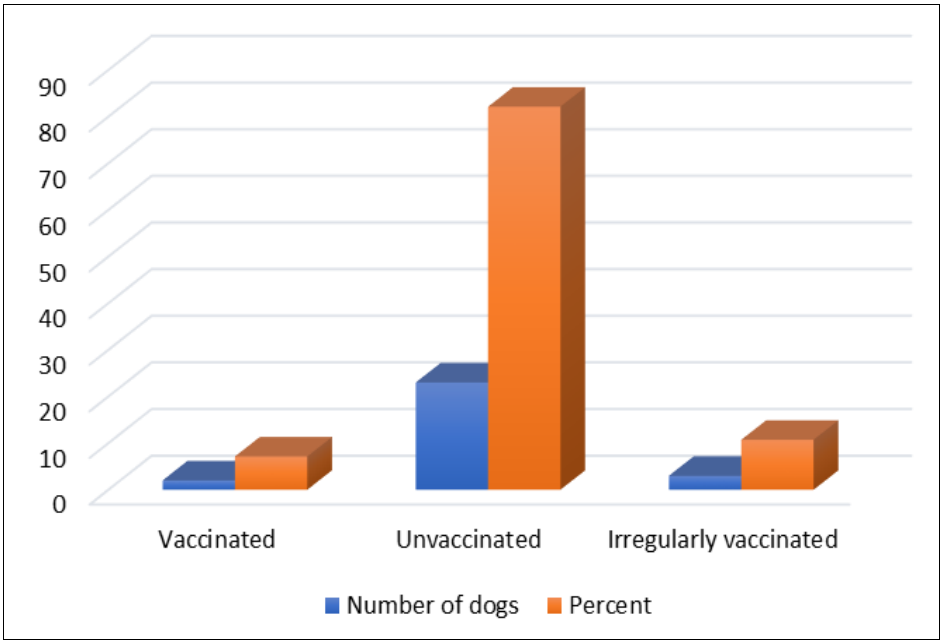

Fig 4: Occurrence of canine parvoviral enteritis based on vaccination status

Conclusion

The prevalence of CPV infection at the VCC, NTR C.V.Sc Gannavaram during the period May 2024 to December 2024 was 1.58 percent. The highest prevalence was observed in unvaccinated dogs aged 3-6 months of age. Among the breeds highest prevalence was recorded in non-descript dogs followed by Labrador retriever than other breeds of dogs, whereas sex wise prevalence was higher in male than females. Hence, from the present study it was concluded that implementation of strict vaccination measures and adoption of stray dog population may be helpful in minimizing the prevalence and spread of the disease.

Conflict of Interest

Not available

Financial Support

Not available

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