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Prevalence of Hemorrhagic Gastroenteritis in Canine Population of Garividi Region of Andhra Pradesh

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ABSTRACT

The present study was taken from March 2023 to February 2024 to determine the prevalence of hemorrhagic gastroenteritis (HGE) in dogs that were presented to Veterinary Clinical Complex, College of Veterinary Science, Garividi with the purpose to determine the prevalence and associated etiologies causing hemorrhagic gastroenteritis in the area. A total of 1292 dogs were presented to the VCC with the history of anorexia, dullness, vomiting, hematemesis, blood tinged/ brownish colored diarrhea and putrid odour feces. The overall prevalence of HGE was 19.2 per cent among the presented cases. The prevalence in young ones (< 6 months) was higher than the adult dogs (above 3 years) with prevalence ranging from 62.1 to 2.4 per cent, respectively. The prevalence was higher in male (75.8%) than female (24.2%) dogs. Mongrel breed of dogs showed high prevalence of 40.72 per cent followed by Spitz, Labrador, German shepherd and lowest in Pug, Husky and Terrier breeds of dogs with 1.21 per cent. HGE due to Canine Parvovirus infection (45.2%) followed by intestinal parasitic infestation (27.8%), combined infection of parvovirus and intestinal parasites (12.5%), other conditions (9.7%) and Isosporiosis (4.8%) were the etiologies that resulted in HGE in dogs.

Key Words: Dogs, Gastroenteritis, Hemorrhagic, Intestinal parasites, Parvovirus, Prevalence

INTRODUCTION

Gastroenteritis is the most common problem which is encountered in all age groups and breeds of canine population. It is characterized by anorexia, vomition, diarrhoea which may be hemorrhagic, dehydration, lethargy and sometimes fever. Weight loss or stunting is commonly observed in dogs that are more severely affected (Bhat *et al,* 2013). Various etiological factors have been reported to be associated with canine gastroenteritis like bacterial, viral infections, parasitic infestations, irritant drugs, dietary errors and ingestion of toxic materials (Ettinger and Feldman, 2010). But in most of the cases exact etiology remain elusive. Irrespective of etiology, it leads to electrolyte imbalance and dehydration. Earlier many prevalence studies have been done regarding gastroenteritis in dogs but the results are different in each and every study because of the differences in regional climate, breed predisposition in those particular areas, time of study etc. The purpose of this study was to present an analysis of selected data from a total number of cases of hemorrhagic gastroenteritis in dogs presented to a teaching hospital regarding breeds, age group, sex and etiology in north coastal part of Andhra Pradesh.

Hemorrhagic Gastroenteritis (HE) refers to non-specific inflammation of the gastrointestinal tract (stomach, intestines). Clinical signs often develop as an acute or chronic condition and may persist for a few days. Gastroenteritis can be highly contagious and can spread through saliva, vomit and faeces in infections. The transmission may be by direct contact with another dog or through dogs licking or sniffing surfaces (fences) or drinking from

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Table 1. Prevalence of hemorrhagic gastroenteritis in dogs.

Sr. No.	Parameter	No. of Dogs	Prevalence (%)
A.	**Age**		
1.	< 6 m	154	62.1
2.	6 m to 1 yr	61	24.6
3.	1 yr to 3 yrs	27	10.9
4.	> 3 yrs	6	2.4
B.	**Sex**		
5.	Male	188	75.8
6.	Female	60	24.2
C.	**Breed**		
7.	Mongrel	101	40.72
8.	Spitz	63	25.4
9.	Labrador	48	19.35
10.	German Shepherd	27	10.9
11.	Pug	03	1.21
12.	Siberian Husky	03	1.21
13.	Terrier	03	1.21

shared water bowls, whereas parasitic infestations results from irregular deworming schedule. The diagnosis is typically based on a dog's history or by excluding other potential causes of vomiting and diarrhoea. In most cases, a specific underlying cause is not identified, but patients respond to supportive care.

MATERIALS AND METHODS

Dogs presented to Veterinary Clinical Complex, College of Veterinary Science, Garividi during the period from March 2023 to February 2024 with signs of generalized weakness, anorexia, dullness, vomiting or hematemesis, blood tinged/ brownish colored diarrhea and putrid odour feces were considered for the study. Clinical examination of the dogs revealed pale pink mucus membranes, dehydration and sunken eyeballs in majority of animals. Temperature of 103°F and tachycardia were evident in few cases. Based on history of vaccination, change in diet, clinical signs and condition of the animal, hematology and fecal examination were carried out to rule out bacterial, viral, protozoal and parasitic infections. The data generated in the present study was analyzed using statistical analysis.

RESULTS AND DISCUSSION

A total number of 1292 dogs were presented with gastrointestinal signs were taken for the study. Out of total gastrointestinal cases, 248 (19.2%) dogs showed hemorrhagic gastroenteritis. The prevalence of gastroenteritis in dogs were reported as 12.24 per cent by Deepika *et al* (2020) and a prevalence of 23 per cent acute hemorrhagic gastroenteritis by Dupont *et al* (2021). The difference in prevalence recorded by different workers might be due to different geographical locations, difference in feeding pattern, climatic variation, genetic variation of the animals and cases presented to the clinics.

Age-wise prevalence

The highest prevalence was recorded in young ones of less than 6 months of age (62.1%) followed by dogs of age group 6 months to 1 years (24.6%) and 1 to 3 years (10.9%). Lowest prevalence is reported in dogs of more than 3 years of age (2.4%). The findings were similar to Deepika *et al* (2020) who reported 72.18 percent of gastroenteritis in dogs less than one year of age. The highest prevalence in young dogs could be due to immune suppression and/ or dietary deficiency making them prone to bacterial, viral infections and endoparasites (Table 1).

Sex-wise prevalence

Prevalence of HGE in dogs is higher in males (75.8%) than females (24.2%) which might be due to more presentation of males than females to the clinics. The findings were in accordance

Table 2. Etiological prevalence of HGE in dogs.

Etiology	No. of Dogs	Prevalence (%)
Parvoviral Infection (CPV)	112	45.2
Intestinal parasite	69	27.8
CPV + Intestinal Parasite	31	12.5
Isospora	24	9.7

with observations of many earlier studies on gastroenteritis (Bhat *et al*, 2015 and Tagorti, 2019).

Breed wise prevalence

Breed-wise prevalence of hemorrhagic gastroenteritis in dogs from March 2023 to February 2024 is depicted in Table 1. Highest prevalence of hemorrhagic gastroenteritis was recorded in Mongrel (40.72%) followed by Spitz (25.4%), Labrador (19.35%) and German shepherd (10.9%). Pug, Siberian husky and terrier breeds had lowest prevalence of 1.21 per cent each. Sayed Ahmed *et al* (2020) reported highest prevalence of HGE due to canine parvoviral infection in native dogs. The higher prevalence in non-descript breeds might be due to the higher population density of this breed. No specific comment can be made on breed susceptibility as the population density of the breed varies from one geographical area to another area.

Etiological Prevalence

Based on the hematological, biochemical, fecal examination and CPV antigen test kit (Canine Snap®), the diagnosis is made and treated as per the etiology. Canine Parvovirus infections (45.2%) followed by intestinal parasitic infestation (27.8%), combined infection of CPV and intestinal parasites (12.5%), other conditions (9.7%) and Isosporiosis (4.8%) were the etiologies reported in the present study that resulted in HGE in dogs (Table 2)

The prevalence of HGE was highest due to canine parvoviral infection. Sayed-Ahmed *et al* (2020) reported the overall prevalence of CPV infection in dogs as 59.7 per cent. The higher prevalence of CPV infection in non-vaccinated dogs might be due to a lack of protective immunity. In vaccinated dogs, CPV infection might occur due to incomplete or ineffective primary vaccination course, or a failure of vaccination. The characteristic clinical signs of CPV disease are bloody diarrhea, vomiting, and dehydration (Khare *et al*, 2019 and Inbaraj *et al*, 2023). In the present study, 27.8 per cent prevalence of HGE was noted due to intestinal parasites. Daniel *et al* (2011) and Suganya *et al* (2019) reported prevalence of 16.5 per cent and 23.72 per cent endoparasitism, respectively. Diarrhea with dark, tarry feces, anemia, loss of appetite, weight loss, and weakness develop in longterm disease with hookworms in dogs. The prevalence of intestinal parasites could be due to the nature of the environment, poor levels of hygiene and overcrowding especially in communities that are socio-economically disadvantaged and improper deworming schedules (Traub *et al*, 2014). Mixed infection of intestinal parasites and parvoviral infection is seen in 12.5 per cent of the cases. deCastro *et al* (2007) reported concurrent CPV infection and intestinal parasites and stated that the presence of intestinal parasitism act as predisposing or aggravating factor for CPV infection.

HGE due to other causes i.e., gastric ulcers, prolonged usage of NSAIDS and bleeding disorders was seen in 9.7 per cent cases in the present study. Boysen (2009) reported that the most commonly reported cause of GI hemorrhage in dogs is GI ulceration. However, the severity of GI hemorrhage associated with ulcers varies with the degree and extent of mucosal erosion. NSAIDs, hepatic disease, neoplasia, stress ulcers and inflammatory bowel disease also causes hemorrhagic gastroenteritis.

The lowest prevalence (4.8%) of HGE is caused by *Isospora* spp., in the present study. Canine intestinal coccidiosis was a cause of haemorrhagic diarrhea in young immuno-compromised dogs (Mitchell *et al*, 2007). Buehl *et al* (2006), reported 8.7% prevalence of coccidiosis in dogs, whereas Nisar *et al* (2009) reported 18 per cent prevalence of coccidiosis in dogs. This could

be attributed to irregular use of anti-coccidal drugs, breeds, geographic conditions and awareness of the owners about the disease.

CONCLUSION

The present case study determined the prevalence of hemorrhagic gastroenteritis in dogs and their contributing etiologies as it is multi-factorial which includes endoparasites, viral, bacterial, protozoal, concurrent infections, which leads to clinically generalised weakness, anemia, severe dehydration, immunosuppression, secondary bacterial infections and mortality in extreme cases.

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