

Incidence of canine parvovirus infection in and around Tirupati

Aiswarya Mohan^{1*}, Sudhakar Goud, K¹., Shobhamani, B³. and Nagendra Reddy, T⁴.

Department of Veterinary Medicine, College of Veterinary Science, Tirupati,
Sri Venkateswara Veterinary Science University, Tirupati, 517 502 , India.

^{1*}MVSc Scholar,

²Assistant Professor

³Professor and Director of Extension, CVSc Tirupati,

⁴Assistant Professor, Department of Veterinary Microbiology

Abstract

Canine parvovirus (CPV) is the most significant viral cause of acute haemorrhagic enteritis. The objective of the present study is to detect the incidence of canine parvovirus infection in and around Tirupati. A total of 154 faecal samples were collected from the dogs showing clinical signs of vomiting, diarrhoea, anorexia, dehydration and pyrexia. Out of 154 samples, 62 samples were positive for CPV 2 by PCR with an overall prevalence of 40.25 %. Occurrence of CPV infection in relation to age was highest in 0 to 3 months (45.16 %) and least was recorded in dogs above 1 year of age (9.67 %). Breed wise analysis of data indicated highest occurrence in Non-descript dogs (38.70 %). The occurrence of CPV in the present study was more in male dogs (66.12 %) than female dogs (33.87 %). Out of 62 dogs positive for canine parvoviral enteritis, 15 dogs (24.19%) were vaccinated whereas, 47 (75.80%) were non- vaccinated. The results indicate the necessity of implementing control and preventive measures to combat canine parvoviral infection..

Keywords: Canine parvovirus, incidence, Age, Breed, Sex

Canine parvovirus is a highly contagious disease caused by canine parvovirus 2. Outbreaks of CPV have been reported from many countries including India. The factors that predispose puppies to parvovirus infection are lack of protective immunity, overcrowding of animals in a small space, unhygienic, stressful environmental conditions (Dash *et al.* 2020). Survival of infected puppies has ranged from 9% in untreated to more than 90% in those treated at veterinary facilities (Kalli *et al.* 2010). This article describes the incidence of parvo viral enteritis in dogs in and around Tirupati.

In present study, faecal samples from dogs brought to the College of Veterinary Science, Tirupati from April 2024 to November 2024 showing symptoms of vomiting, haemorrhagic diarrhoea, pyrexia, inappetence and dehydration suspected for CPV gastroenteritis were collected. The DNA was extracted from faecal samples by boiling and chilling method (Vieira *et al.*, 2008) and subjected to PCR for detection of canine parvovirus-2 by using CPV 2 primers. Information on age, sex, breed was collected from the owners of the animals selected for the study.

Out of 154 faecal samples, 62 were found positive for canine parvovirus infection by PCR with an overall prevalence of 40.25% in and around Tirupati. This finding was in agreement with the studies of Reddy *et al.* (2015) and Mehta *et al.* (2017) who also reported incidence of 40 %, 33.17 % and 43.44 %, respectively for CPV gastroenteritis. In contrast, Sagar *et al.* (2008) reported higher incidence of 66.66 % and 63% respectively and Khare *et al.* (2019) reported low incidence of 7.7 % in their study. These differences in the incidence rate might be due to changes in sample sizes or from the various geographic locations where studies have been conducted.

Out of 62 parvovirus infected dogs, highest occurrence (45.16 %) was recorded in the age group of 0 to 3 months, followed by 3 to 6 months age group (32.25%), 6 to 12 months (12.90 %) and lowest occurrence was in dogs above 1 year of age (9.67 %). These findings were in agreement with Sayed-Ahmed *et al.* (2020) and Wark *et al.* (2024), who also reported a higher prevalence of canine parvoviral enteritis in dogs aged between 1 to 3 months and 0 to 3 months, respectively. In contrast to this, Vivek *et al.* (2013) and Behera *et al.* (2015) reported higher prevalence of CPV infection in dogs aged between 3 to 6 months. The

*Corresponding author : mohanaiswarya776@gmail.com

higher prevalence of CPV infection in 0-3 months of age dogs might be attributed to the higher susceptibility of enterocytes to the viral tropism (Sayed-Ahmed *et al.*, 2020). The fall in maternal antibody level after 3 months of age might be one of the predisposing factors in endemic areas, that resulted in second highest occurrence of CPV infection in 3 to 6 months age group of dogs. Further, the higher incidence of CPV infection in dogs below 6 months might be due to the affinity of the virus for rapidly multiplying intestinal crypt cells with higher mitotic index due to changes in bacterial flora as well as in the diet due to weaning (Behera *et al.*, 2015).

In the current study, highest occurrence (38.70 %) of canine parvovirus infection was recorded in Non-descript dogs, followed by Labrador (20.96 %), German Shepherds (11.29%), Shih Tzu (9.67%), Doberman (6.45 %), Golden Retriever (4.83 %) and Pomeranian (3.22 %). Lowest occurrence of CPV infection was recorded in Husky, Dachshund and Beagle (1.61 % each). The highest prevalence of canine parvoviral infection in Non descriptive dogs might be due to the higher population density of this breed making their vicinity to spread the infection and poor vaccination schedule being followed by the owners of Non descript breeds due to the lack of awareness among them (Khare *et al.*, 2019 and Sayed-Ahmed *et al.*, 2020). Labrador retriever dogs were at the second position in most affected dogs in the present

study, this might be due to the preference of dog owners for this breed in this region.

The occurrence of canine parvovirus infection in the present study was more in male dogs (66.12%) than female dogs (33.87 %). These findings were corroborated with the reports of Reddy *et al.* (2015), Tion *et al.* (2018), Vivek *et al.* (2013) and Wark *et al.* (2024) who also reported higher prevalence of CPV infections in male dogs. The higher prevalence of CPV in male dogs might be attributed to more danger of exposure to infection due to their behaviour and selective fondness of keeping male dogs as pets by the pet owners (Reddy *et al.*, 2015).

Out of 62 dogs positive for canine parvoviral enteritis, 15 dogs (24.19 %) were vaccinated whereas, 47 (75.80 %) were non- vaccinated. This was in agreement with the findings of Reddy *et al.* (2015), Tion *et al.* (2018), and Tagorti *et al.* (2018). High prevalence of CPV infection in non- vaccinated dogs might be due to lack of protective immunity and in vaccinated dogs the probable reason for occurrence of CPV infection might be due to progressive decline in maternal antibodies after 38 days (Kataria *et al.*, 2020). Moreover, vaccine failure can also occur due to poor vaccine quality, lack of maintenance of cold chain and poor storage of vaccine as a result of erratic power supply (Ukwueze *et al.*, 2018).

Table 1: Age-wise distribution of CPV positive cases

Age group	Number of dogs positive for CPV (n = 62)	Percentage (%)
0 to 3 months	28	
3 to 6 months	20	32.25
6 months to 1 year	8	12.90
Above 1 year	6	9.67

Table 2: Breed-wise distribution of CPV positive cases

Breed	Number of dogs positive for CPV (n = 62)	Percentage (%)
Non-descript	24	38.70
Labrador	13	20.96
German Shepherd	7	11.29
Shih Tzu	6	9.67
Doberman	4	6.45
Golden Retriever	3	4.83
Pomeranian	2	3.22
Husky	1	1.61
Dachshund	1	1.61
Beagle	1	1.61

Table 3: Sex-wise distribution of CPV positive cases

Sex	Number of dogs positive for CPV (n = 62)	Percentage (%)
Males	41	66.12
Females	21	33.87

Table 4: Vaccination status of CPV positive cases

Vaccination status	Number of dogs positive for CPV (n = 62)	Percentage (%)
Vaccinated	15	24.19
Unvaccinated	47	75.80

The overall prevalence of CPV infection was 40.25 % in and around Tirupati. Highest occurrence of CPV infection was noticed in Non-descript dogs between 0 to 3 months of age. Male dogs and unvaccinated were found to be more susceptible for CPV infection suggesting the necessity of implementing control and preventive measures to combat canine parvoviral infection.

Acknowledgements

Authors were greatly acknowledged to Department of Veterinary Public Health, Department of Veterinary Microbiology and Teaching Veterinary Clinical Complex, CVSc Tirupati Sri Venkateswara Veterinary University for facilities provided for the research work.

References

- Behera, M., Panda, S. K., Sahoo, P. K., Acharya, A. P., Patra, R. C., Das, S. and Pati, S. 2015. Epidemiological study of canine parvovirus infection in and around Bhubaneswar, Odisha, India. *Veterinary world*, **8(1)**: 33.
- Dash, S., Das, M., Senapati, S., Patra, R., Behera, P. and Sathapathy, S. 2020. Effect of therapeutic regimen on the survivability and mortality rates in canine Parvovirus infection. *J. Entomol. Zoology Studies*, **8**: 392-395.
- Kalli, I., Leontides, L. S., Mylonakis, M.E., Adamama-Moraitou, K., Rallis, T. and Koutinas, A. F. 2010. Factors affecting the occurrence, duration of hospitalization and final outcome in canine parvovirus infection. *Res. Vet. Sci.*, **89(2)**: 174-178.
- Kataria, D., Agnihotri, D., Jain, V., Charaya, G. and Singh, Y. 2020. Molecular occurrence and therapeutic management of canine parvovirus infection in dogs. *International J. Current Microbiol. Applied Sciences*, **9**: 1770-1779.
- Khare, D. S., Gupta, D. K., Shukla, P. C., Das, G., Tiwari, A., Meena, N. S. and Khare, R. 2019. Prevalence of canine parvovirus infection in dogs in Jabalpur (MP). *J. Entomology and Zoology Studies*, **7(3)**: 1495-1498.
- Mehta, S. A., Patel, R. M., Vagh, A. A., Mavadiya, S. V., Patel, M. D., Vala, J. A. and Parmar, S. M. 2017. Prevalence of canine parvo viral infection in dogs in and around Navsari district of Gujarat State, India. *Indian Journal of Veterinary Sciences & Biotechnology*, **13(2)**: 67-72.
- Reddy, K. B., Shobhamani, B., Sreedevi, B., Prameela, D. R. and Reddy, B. R. 2015. Prevalence of canine parvoviral infection in dogs in and around Tirupathi of India. *International J. Livestock Res.*, **5(3)**: 93-99.
- Sagar, A., Roy, S. and Roy, M. 2008. Clinico, haemato-biochemical changes and diagnosis of canine parvoviral enteritis. *Intas Polivet*, **9(2)**: 262-265.
- Sayed-Ahmed, M. Z., Elbaz, E., Younis, E. and Khodier, M. 2020. Canine parvovirus infection in dogs: Prevalence and associated risk factors in Egypt. *World's Veterinary Journal* **(4)**: 571-577.
- Tagorti, G. 2018. Prevalence of canine parvovirus infection in Grand Tunis, Tunisia. *J. Advanced Vet. Anim. Res.*, **5(1)**: 93-97.
- Tion, M. T., Fotina, H. A. and Saganuwan, A. S. 2018. A retrospective study of Canine parvovirus in Private veterinary clinic 'Health', Sumy Region, Ukraine (2015–2018). *Journal for Veterinary Medicine, Biotechnology and Biosafety*, **(4, Iss. 3)**: 5-9.
- Ukwueze, C. S., Anene, B. M., Ezeokonkwo, R. C. and Nwosuhm, C. I. 2018. Prevalence of canine parvovirus infection in South Eastern region, Nigeria. *Bangladesh J. Vet. Med.*, **16(2)**: 153-161.

Therapeutic Management of Traumatic Reticuloperitonitis in a cow

Archana.S¹, Vijayakumar, H*², Vijayanand. V³, Tamilmahan. P⁴. and Kavitha. S⁵

¹M.V. Sc Scholar, Department of Veterinary Clinical Medicine, Madras Veterinary College, Chennai-7

^{2,4}Assistant Professor, Department of Clinics, Madras Veterinary College, Chennai-07

³Professor, Department of Veterinary Clinical Medicine, Madras Veterinary College, Chennai-7

⁵Professor and Head, Department of Veterinary Clinical Medicine, Madras Veterinary College, Chennai-7

Abstract

Four -year-old Jersey cross-bred cow was brought with history of inappetence, reduced milk production and brisket oedema for the period of 10 days. Detailed clinical examination revealed fever, tachycardia, tachypnoea, positive venous stasis and dehydration. Elevated haematocrit, leucocytosis with neutrophilia, presence of a greater number of immature neutrophils and decreased lymphocyte count were noticed. Hypoproteinemia, hypophosphataemia and increased calcium and AST values were noticed. Radiography revealed the presence of linear foreign body in the reticulum. The ultrasonography revealed presence of anechoic fluid in the peritoneum, mixed echogenic mass on the serosal surface of reticulum suggestive of reticular abscess. The cow was managed medically with antibiotics, diuretics, NSAIDs and fluid therapy for three days. Subsequently rumenotomy was performed to relieve the foreign body and the cow had uneventful recovery.

Keywords: Cattle, Reticular abscess, Rumenotomy

Traumatic reticuloperitonitis, also known as hardware disease, continues to be one of the most significant digestive disorders in cattle (Mousavi *et al.*, 2007). Bovines are more prone to ingesting foreign objects than small ruminants because they do not differentiate between metallic materials in their feed, particularly those raised in urban and peri-urban areas (Aiello *et al.*, 2016). Traumatic reticuloperitonitis (TRP) occurs when a metallic foreign body is accidentally swallowed and penetrates the reticular wall, leading to acute inflammation around the reticulum, along with adhesions and abscess formation (Abdelaal *et al.*, 2009). A case of TRP in a cattle and its successful management is reported in this article.

Four-year-old Jersey cross-bred cow was brought to the Large Animal Medicine Out Patient Unit of Madras Veterinary College Teaching Hospital with history

of inappetence, reduced milk production and brisket oedema (Fig-1) for a period of 10 days. Detailed clinical examination revealed fever, tachycardia, tachypnoea, positive venous stasis and dehydration. Haematological examination showed elevated PCV, leucocytosis with neutrophilia and decreased lymphocyte count. Serum biochemistry revealed decreased protein, phosphorous levels and increased calcium and AST values than the normal range (Table-1). Radiography revealed the presence of linear foreign body in the reticulum (Fig-2). The ultrasonography revealed presence of anechoic fluid with fibrin strands in the peritoneum (Fig-3) and mixed echogenic mass on the serosal side of the reticulum suggestive of reticular abscess (Fig-4). Thoracic ultrasonography was performed to rule out pericarditis. Based on the above findings the case was diagnosed as TRP.



Fig.1: Brisket edema

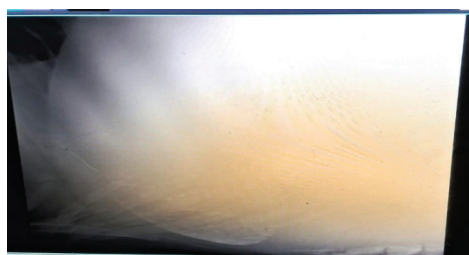


Fig.2: Linear foreign body in the reticulum