

A Serological Evidence of Minute Virus of Canines (MVC; Canine Parvovirus Type-1) in Dogs in Turkey

Serhat TORUN, Zeki YILMAZ*

Department of Internal Medicine, Faculty of Veterinary Medicine, Uludağ University,
Mudanya Cd., No: 2, Osmangazi, 16190, Bursa – TURKEY

*e-mail: zyilmaz@uludag.edu.tr

Annamaria PRATELLI

Department of Health and Animal Welfare, Faculty of Veterinary Medicine, Bari University,
Strada Provinciale per Casamassina km 3, 70010 Valenzano, Bari - ITALY

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Abstract: Serological evidence of minute virus of canines (MVC; canine parvovirus type-1) was investigated for the first time in dogs in Turkey. Dogs with various clinical symptoms including primarily gastrointestinal and respiratory system disorders were used. Immunofluorescence (IF) test was performed to determine whether anti-MVC antibodies were present in the serum samples. MVC antibodies were found in 18 out of 100 dogs (18.0%) tested, indicating that MVC is present in dogs in Turkey. The present result is additional evidence for the worldwide distribution of MVC.

Key Words: Canine minute virus, parvovirus type-1, dog

Türkiye’de Köpeklerde Canine Minute Virus’un (MVC; Canine Parvovirus Tip-1) Serolojik Varlığı

Özet: Bu çalışmada canine minute virus’un (MVC; canine parvovirus tip-1) Türkiye’de köpeklerde varlığı ilk kez araştırıldı. Çoğunluğu gastrointestinal ve solunum sistemi bozuklukları ile ilgili çeşitli klinik semptomlar gösteren köpekler kullanıldı. Serum örneklerinde anti-MVC antikor varlığını saptamak amacı ile immunofloresans (IF) testi uygulandı. Test uygulanan 100 köpeğin 18’inde (% 18) MVC antikorlarının saptanması MVC’nin Türkiye’de varlığını göstermektedir. Bu sonuçlar MVC’nin dünyadaki yaygınlığı hakkında ilave bilgiler sağlamaktadır.

Anahtar Sözcükler: Canine Minute Virus, parvovirus tip-1, köpek

Minute virus of canine (MVC) or canine parvovirus type-1 (CPV1) is an autonomous parvovirus of dogs that was originally isolated in 1967 from the feces of normal dogs (1). MVC is antigenically distinct from canine parvovirus type-2 (CPV2), which is well known as a causative agent of worldwide pandemic of severe hemorrhagic enteritis and myocarditis in dogs (2,3). Only dogs are known to be susceptible to infection with MVC. It is thought that susceptible pups become naturally infected via the oral-nasal route; however, direct proof is lacking (2). MVC was initially thought to be a nonpathogenic agent; however, subsequent pathological as well as epidemiological studies suggested that MVC is a pathogen of neonatal puppies and is widely distributed among domestic dogs in the world (1,3-6).

MVC is able to produce subclinical to fatal enteritis and lymphadenitis, and may cause mild to severe pneumonitis and enteritis in neonatal pups (3,6-9). Newborn puppies with respiratory illness were reported in 1996 in Sweden (10), and an abortion case was described in Germany (11); more recently, cases were found in Italy (6).

MVC infection has been reported in several countries to date; however, it has still not been recognized in Turkey. Therefore, the purpose of this study was to investigate the serological evidence of MVC in dogs in Turkey. A total of 100 dogs, 58 male and 42 female, with various clinical symptoms (vomiting, diarrhoea, coughing and abortion etc) admitted to the Clinics of

Department of Internal Medicine, Veterinary Faculty, Uludag University, Bursa, Turkey, from January to March 2003, were used in this study. The dogs were 1 month to 2.5 years old. Immunofluorescence (IF) test was used to determine whether anti-MVC antibodies were present in the serum samples, as reported earlier (6). Serologic analysis was performed in the Department of Health and Animal Welfare, Faculty of Veterinary Medicine, University of Bari (Bari, Italy).

MVC antibodies were found in 18 out of 100 dogs (18.0%) tested, indicating that MVC is also present in dogs in Turkey (Table). The positive rate obtained from the present study was approximately similar to that of previous research performed in Japan (3,9) and the Republic of Korea (12); however, was relatively low compared with that of the United States of America (8).

On the other hand, MVC is reported to have a role as a predisposing factor for clinical problems in dogs

(9,12,13), due to its immunosuppressive effects and marked reduction of monocyte phagocytosis in pups (13). The experimental and clinical studies previously reported (4-10) have indicated that MVC is a pathogen responsible for deaths in puppies less than 4 weeks of age and reproductive failures of bitches, and the clinical importance of MVC has been increasing recently. It is also reported that MVC leads to embryo resorptions or fetal death in pregnant bitches (6,11). However, in this study, there are insufficient data to explain a relation between clinical problems such as vomiting, coughing and abortion and positive test results of MVC specific antibodies in dogs. This observation needs further study in more detail.

In conclusion, we reported here for the first time serological evidence of MVC in dogs in Turkey. The present result is additional evidence for the worldwide distribution of MVC.

Table. Breed, age, and clinical problems of the 18 dogs MVC-seropositive by IF test.

Sample No.	Breed	Age	Clinical Problem
1	Anatolian sheep dog	3.5 y	Lymphosarcoma
2	Pointer	10 y	TB
3	Anatolian sheep dog	6 m	HGE
4	Mix	4 m	Pyoderma
5	Boxer	3 m	Gastritis
6	Mix	12 m	Abortion
7	Doberman	7 y	Abortion
8	Mix	12 y	Abortion
9	Roitweiller	3 m	Enteritis+TB
10	Mix	2.5 m	Enteritis+TB
11	Pointer	2.5 m	TB
12	G. Retriever	5 y	Abortion
13	G. Shepherd	4 m	HGE
14	G. Shepherd	4 m	Enteritis+TB
15	G. Shepherd	4 m	Enteritis+TB
16	Labrador	2 y	Normal Birth
17	Mix	2 y	Abortion
18	G. Shepherd	2.5 y	Normal Birth

m: months; y: year; TB: Tracheobronchitis; HGE: Hemorrhagic Gastroenteritis

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