

بِسْمِ اللّٰهِ الرَّحْمٰنِ الرَّحِیْمِ





شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم



جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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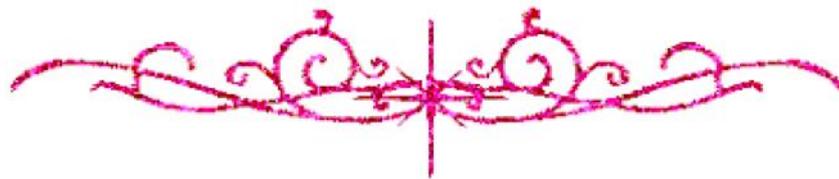


بعض الوثائق الأصلية تالفة





بالرسالة صفحات لم ترد بالأصل





Cairo University
Faculty of Veterinary Medicine
Department of Medicine and Infectious Diseases



Epidemiological Studies on Canine Parvo Enteritis in Dogs

Thesis submitted by

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(BVSc, Cairo University, 2011; MVSc, Cairo University, 2016)

For the Degree of (Ph.D.)

(Infectious diseases)

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2021

SUPERVISION SHEET

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Abstract

Two studies were conducted to study some of the epidemiological aspects of canine parvovirus enteritis in dogs in some localities in the Giza Governorate, Egypt during the years 2019 and 2020. **The first study** aimed to characterize canine parvovirus type 2 (CPV-2) strains, circulating in the Giza Governorate, Egypt. A total of 22 rectal swabs collected from dogs with clinical signs suggestive of canine parvovirus enteritis were tested for the presence of CPV-2 using field (CPV-2 Ag rapid kits) and molecular (conventional PCR) techniques; further molecular investigation (sequencing) was conducted for the characterization of 16 samples. Results revealed that 20 samples were positive by the rapid kits, whereas 22 were positive by conventional PCR. CPV-2a was the predominant variant (12/16, 75%) followed by CPV-2c (3/12, 18.75%) and CPV-2b (1/16, 6.25%). The majority of samples (16/22) were obtained from non-vaccinated rather than vaccinated dogs. Therefore, it could be concluded that commercial vaccine strains (original strain or CPV-2b) might protect puppies against field strains; however, it is recommended to confirm this conclusion by further challenge studies. **The second study** aimed to investigate the association between some selected risk factors (the early finish of the primary puppy vaccination series and the antigenic variations) and the occurrence of CPV-2 vaccination failure in fully vaccinated puppies. The study included 58 CPV-2 clinically suspected cases, including 17 non-vaccinated and 41 vaccinated puppies with finished primary vaccination series. According to the minimum puppy's age recommended by the international canine vaccination guidelines for the administration of the primary puppy vaccination series' last dose, vaccinated puppies were recruited into either the recommended (≥ 16 weeks) or the early (< 16 weeks) finish age groups. Conventional PCR was performed to confirm the clinical diagnosis and all CPV-2 positive samples were molecularly characterised. The differences between the early and recommended age groups regarding the frequency of CPV-2 positive cases, and the differences between the vaccinated and non-vaccinated puppies regarding the frequency of each of the CPV-2 variants were analysed for their statistical significance. Forty-one puppies, including 13 non-vaccinated and 28 vaccinated were positive for CPV-2 field strains. All vaccinated, CPV-2 positive puppies belonged to the early finish age group; this early finish was identified as a risk factor for CPV-2 vaccination failure ($P < 0.00001$). Six puppies were recently vaccinated within a few days before the illness;

except for vaccination in veterinary clinics, these puppies have never been taken outdoors, indicating that they were exposed to CPV-2 field strains in contaminated clinics during these vaccination visits, resulting in vaccination failure. The difference between vaccinated and non-vaccinated groups was statistically non-significant ($P = 0.16038$), indicating that there was no particular variant specifically infects vaccinated puppies; therefore, the antigenic variation might not cause vaccination failure. These findings emphasise the need for practitioners to follow the international canine vaccination guidelines and to apply strict CPV-2 preventive measures in veterinary clinics.

Key words: Canine parvovirus-type2; molecular characterization; PCR; rapid kits; vaccination failure

Dedication

I dedicate this work to my mother and brother for all the support they offered during my post-graduate studies and field work.

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List of contents	
Contents	Page number
Chapter (1): Introduction	1
Chapter (2): Literatures	3
2.1 Etiology	3
2.1.1 Nomenclature and taxonomy	3
2.1.2 Virion properties	3
2.1.3 Virus replication	4
2.1.4 Theories regarding the origin of CPV-2	5
2.2 Epidemiology	5
2.2.1 Animal's susceptibility	5
2.2.2 Transmission	6
2.2.3 Predisposing factors	6
2.2.4 Morbidity and Mortality rates	7
2.3 Diagnosis	7
2.3.1 Field diagnosis	7
2.3.2 Laboratory diagnosis	9
2.4 Vaccination against CPV-2	10
2.5.1 Types of CPV-2 vaccines	10
2.5.2 CPV-2 vaccination protocols	11
2.5.3 Failure of vaccination against CPV-2	12
2.5 The differences between CPV-2 antigenic variants	14
2.6.1 Evolution history and genetic makeup	14
2.6.2 Geographical distribution	15
2.6.3 Host range	16
2.6.4 Severity of clinical signs and outcome	16
2.6.5 Fecal CPV-2c Ag rapid kits	17
2.6.6 Cross-immunity	18
2.6 CPV-2 antigenic characterization	19
Chapter (3): Research papers	22
3.1 Molecular characterization of canine parvovirus-2 (CPV-2) in dogs in Egypt	22
3.2 The failure of vaccination against canine parvovirus-2 in fully vaccinated puppies	49
Chapter (4): Discussion	80
Chapter (5): Conclusions and Recommendations	89
Chapter (6): Summary	91
Chapter (7): References	98
Appendix	113

List of abbreviations	
AAHA	American Animal Hospitals Association
CnMV	Canine minute virus
CPV-1	Canine parvovirus type 1
CPV-2	Canine parvovirus type 2
FPV	Feline panleukopenia virus
ICTV	International Committee on Taxonomy of Viruses
MDA	Maternally derived antibodies
MEV	Mink enteritis virus
MLV	Modified live virus
RPV	Raccoon parvovirus
VP-1	Viral structural protein 1
VP-2	Viral structural protein 2 (the major capsid protein of CPV-2)
WSAVA	World Small Animal Veterinary Association
Abbreviations of amino acids (aa)	
Ala	Alanine
Arg	Argenine
Asn	Asparagine
Asp	Aspartic acid
Gln	Glutamine
Glu	Glutamic acid
Gly	Glycine
Ile	Isoleucine
Met	Methionine
Phe	Phenylalanine
Thr	Thyronine
Tyr	Tyrosine

List of tables		
No.	Title	Page number
Molecular characterization of canine parvovirus-2 (CPV-2) in dogs in Egypt		
1	The use, sequence, polarity and position of the primer pairs ParvoInt2FB/ParvoInt2CR and 555for/555rev	42
2	The thermal conditions of conventional PCR technique, using the primer pairs ParvoInt2FB/ParvoInt2CR and 555for/555rev	43
3	The signalment and vaccination history of studied animals, and CPV-2 antigenic variants characterized in this study.	44
The failure of vaccination against canine parvovirus-2 in fully vaccinated puppies		
1	The sequence, polarity and position of the primer pairs CPV3381-F/CPV4116-R	72
2	The thermal conditions of PCR reactions, using the primer pairs CPV3381-F / CPV4116-R	73
3	The distribution of CPV-2 positive cases according to the vaccination status of examined puppies	74
4	The distribution of CPV-2 positive cases in previously vaccinated puppies according to the primary vaccination series' finish age	75
5	The distribution of CPV-2 antigenic variants among vaccinated and non-vaccinated diseased puppies	76

List of Figures		
No.	Title	Page number
Molecular characterization of canine parvovirus-2 (CPV-2) in dogs in Egypt		
1	The results of conventional PCR technique, using the primer pairs ParvoInt2FB/ ParvoInt2CR	46
2	The results of conventional PCR technique, using the primer pairs 555for/555rev	47
3	The multiple amino acid alignments of the Egyptian sequences with reference strains for CPV-2 antigenic typing	48
The failure of vaccination against canine parvovirus-2 in fully vaccinated puppies		
1	The results of conventional PCR technique, using primer pairs CPV3381-F / CPV4116-R	77
2	The multiple amino acid sequences alignments of the Egyptian sequences with reference sequences for the discrimination between the original strain and CPV-2 antigenic variants	78
3	The multiple amino acid sequences alignments of the Egyptian sequences together with reference sequences for CPV-2 antigenic typing as either CPV-2a, CPV-2b or CPV-2c	79
Appendix		
1	A CPV-2 positive puppy (by rapid kit and conventional PCR) showing bloody vomiting	113
2	A CPV-2 positive puppy (by rapid kit and conventional PCR) showing bloody diarrhea	113
3	A VDRG® Fecal canine parvovirus-type 2 Ag rapid kit (positive result)	114
4	A VDRG® Fecal canine parvovirus-type 2 Ag rapid kit (negative result)	114