



شبكة المعلومات الجامعية

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ





شبكة المعلومات الجامعية



شبكة المعلومات الجامعية

التوثيق الالكتروني والميكرو فيلم

جامعة عين شمس

التوثيق الالكتروني والميكرو فيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد اعدت دون أية تغيرات



يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15 – 20 مئوية ورطوبة نسبية من 20-40 %

To be kept away from dust in dry cool place of
15 – 25c and relative humidity 20-40 %



شبكة المعلومات الجامعية



بعض الوثائق الأصلية تالفة



شبكة المعلومات الجامعية



بالرسالة صفحات
لم ترد بالأصل

HUMAN CRYPTOSPORIDIOSIS IN DIFFERENT GROUPS OF IMMUNOSUPPRESSED PERSONS

Thesis

SUBMITTED FOR PARTIAL FULFILLMENT OF MASTER DEGREE
IN PARASITOLOGY

By

Gehan Salah Sadek *M. Bak*

M.B., B.Ch.

Supervised By

Prof. Dr. Maimona El-Said Bakr *M. Bak*

Professor and Head of Parasitology Dept.
Faculty of Medicine, Menoufiya University

Dr. Nashaat El-Said Nasef *Nasef*

Assistant Professor of Parasitology
Faculty of Medicine, Menoufiya University

Dr. Soraya Abd El-Aziz Sharaf *Soraya*

Assistant Professor of Parasitology
Liver Institute, Menoufiya University

Dr. Omaina Kamel El-Shafei *Omaina*

Lecturer of Parasitology
Faculty of Medicine, Menoufiya University

B
9/10c
**FACULTY OF MEDICINE
MENOUIFYA UNIVERSITY**

1998



To ..

*My Husband &
My Mother*

ACKNOWLEDGEMENT

*At first, I would like to express my sincere gratitude to **Prof. Dr. Maimona El-Said Bakr**, Professor and Head of Parasitology Dept., Faculty of Medicine, Menoufiya University whose guidance, help and sincere supervision were the cornerstone in the building up of this thesis.*

*I would like to express my gratitude to **Dr. Nashaat El-Said Nasef**, Assistant Professor of Parasitology, Faculty of Medicine, Menoufiya University for her valuable help, enthusiastic support, cooperation and encouragement. She offered me much of her unlimited experience in this research.*

*I would like to express sincere gratitude to **Dr. Soraya Abd El-Aziz Sharaf**, Assistant Professor of Parasitology, Liver Institute, Menoufiya University for her generous advice, kind supervision, continuous encouragement and huge assistance in this work.*

*Lastly but not the least, deep appreciation to **Dr. Omaima Kamel El-Shafei**, Lecturer of Parasitology, Faculty of Medicine, Menoufiya University for her keen interest, honest guidance, and motivation of this research work.*

CONTENTS

	<i>PAGE</i>
• Introduction	1
• Review of literature	3
- Historical background	3
- Taxonomy	5
- Host specificity	6
- Epidemiology	7
1. Incidence and prevalence	7
2. Sources and modes of transmission	11
3. Factors affecting the frequency of cryptosporidiosis	16
- Morphology	21
- Life cycle and biology	25
- Pathology	32
- Pathogenesis	33
- Immunity	35
- Clinical picture	37
- Diagnosis	41
- Treatment	48
- Control	52
• Aim of the work	54
• Materials and methods	55
• Results	71
• Discussion	103
• Summary and conclusion	128
• Recommendations	134
• References	135
• Arabic summary	

LIST OF TABLES

Table (1):	Prevalence of <i>Cryptosporidium</i> in faeces in 5 groups of immunosuppressed patients with diarrhoea (study groups) and in 2 control groups of immunocompetent persons one with and the other without diarrhoea	82
Table (2):	Prevalence of <i>Cryptosporidium</i> infection in correlation with sex	84
Table (3):	Prevalence of <i>Cryptosporidium</i> infection in correlation with age	86
Table (4):	Clinical features of (59) patients infected with <i>Cryptosporidium</i>	88
Table (5):	Description of the stool specimens of the positive 59 cases	89
Table (6):	Other potential pathogenic parasites in the 59 diarrhoeic patients infected with <i>Cryptosporidium</i>	90
Table (7):	Results of treatment of (15) patients infected with <i>Cryptosporidium</i> with spiramycin after one week	91
Table (8):	Description of the results of modified Ziehl-Neelsen technique	92
Table (9):	Description of the results of modified Koster technique	92
Table (10):	Description of the results of Sheather's sugar floatation technique	93

LIST OF FIGURES

Fig. (1):	Diagrammatic representation of life cycle of <i>Cryptosporidium</i>	31
Fig. (2):	<i>Cryptosporidium</i> oocysts stained with modified Ziehl-Neelsen technique (x1000)	97
Fig. (3):	<i>Cryptosporidium</i> oocysts stained with modified Ziehl-Neelsen technique (x1000)	97
Fig. (4):	<i>Cryptosporidium</i> oocysts stained with modified Ziehl-Neelsen technique (x1000)	98
Fig. (5):	<i>Cryptosporidium</i> oocysts stained with modified Ziehl-Neelsen technique (x400)	98
Fig. (6):	<i>Cryptosporidium</i> oocysts stained with modified Koster technique (x1000)	99
Fig. (7):	<i>Cryptosporidium</i> oocysts stained with modified Koster technique (x1000)	99
Fig. (8):	Single <i>Cryptosporidium</i> oocyst stained with modified Koster technique (x1000)	100
Fig. (9):	<i>Cryptosporidium</i> oocysts demonstrated by Sheather's sugar floatation technique (x1000)	101
Fig. (10):	Single <i>Cryptosporidium</i> oocyst demonstrated by Sheather's sugar floatation technique (x1000)	101
Fig. (11):	Single <i>Cryptosporidium</i> oocyst demonstrated by Sheather's sugar floatation technique (x1000)	102

LIST OF GRAPHS

- Graph (1):* Prevalence of *Cryptosporidium* in faeces in 5 groups of immunosuppressed patients with diarrhoea (study groups) and in 2 control groups of immunocompetent persons one with and the other without diarrhoea 83
- Graph (2):* Prevalence of *Cryptosporidium* infection in correlation with sex 85
- Graph (3):* Prevalence of *Cryptosporidium* infection in correlation with age 87
- Graph (4):* The percentage of detection of *Cryptosporidium* oocysts in the faeces of immunosuppressed patients by different techniques 94
- Graph (5):* The percentage of detection of *Cryptosporidium* oocysts in the faeces from positive cases using different techniques 95
- Graph (6):* Pattern of *Cryptosporidium* infection i.e. oocyst shedding in orally infected mice (group I) and rats (group III) 96

A series of thin, parallel horizontal lines that extend across the width of the page, passing behind a central rectangular box.

INTRODUCTION

INTRODUCTION

Cryptosporidium is a coccidian parasite found in the intestinal and respiratory epithelia of reptiles, birds, fish and mammals (Tzipori, 1983 and Navin & Juranek, 1984).

Several species of the parasite have been described from a variety of vertebrates (Fayer and Ungar, 1986). The species of *Cryptosporidium* that infects humans and most mammals is *Cryptosporidium parvum* (Current, 1988).

Cryptosporidium has been reported world-wide both in immunocompetent and immunocompromised patients and it is now considered as one of the most important opportunistic infective agents in patients with acquired immunodeficiency syndrome (AIDS) (Chacin-Bonilla et al., 1993).

In immunocompetent individuals, infection is associated with acute self-limiting diarrhoeal illness, but in immunocompromised hosts can cause protracted diarrhoea with accompanying malabsorption, dehydration, and electrolyte imbalance (Khashba et al., 1989).

It has been suggested that domestic animals may act as reservoirs of infection for susceptible human individuals (Tzipori et al., 1980). Man to man transmission has also been

suggested (Koch et al., 1984). Transmission via contaminated drinking water, outdoor and indoor recreational waters and municipal water are also well documented (Graczyk et al., 1996).

Cryptosporidiosis is diagnosed by identifying organisms in intestinal biopsy material and by detecting oocysts in stool specimens (Markell et al., 1992). A large number of staining techniques have been used to detect oocysts in the stools. The most widely used have been the modified acid-fast procedures (Fayer and Ungar, 1986).

So far, no safe and effective form of treatment has been identified (Juranek, 1995). However, spiramycin was reported to be somewhat effective (Whiteside et al., 1984).

Due to increasing numbers of patients with documented infection with *Cryptosporidium*, this work is intended to select the most specific and sensitive method for diagnosis of oocysts in the stools. Also, to evaluate the efficacy of spiramycin in the treatment of cryptosporidiosis in infected humans. In addition, this work includes a study on experimentally infected animals in order to determine susceptibility in different hosts and to study the pattern of infection in them.