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Original Research Article

Parasitic Infection: A Prevalence Study at a Tertiary Care Hospital

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ABSTRACT

Background: Intestinal parasitic infection has been described as constituting the greatest single worldwide cause of illness and disease.
Aims: The aim of this study is to get a Current status about the existence of Parasites and their prevalence in our area.
Material and Methods: A total of 1638 stool samples were examined for protozoa and helminthes infection by routine microscopy.
Results: In the study, prevalence of Intestinal parasitic infection is 9.21 %. There are eight different type of parasite detected.
Conclusion: Protozoan infection is more common than helminthic infection. It is an important public health problem. So it is need to develop effective diagnostic, prevention and control strategies including health education and environmental hygiene.

Keywords: Prevalence, Parasitic infection, a retrospective study.

INTRODUCTION

Intestinal parasitic infection is one of the major health problems in several developing countries, including India. The world health organization (WHO) estimates that there are 800-1000 million cases of ascariasis,700-900 million hookworm infection, 500 million trichuris, 200 million giardiasis, and 500 million amoebiasis. [(1)]

In general, the prevalence of parasitic diseases is an indication of environmental conditions. Intestinal protozoan and helminthes are widely prevalent and causing considerable medical and public health problems in developing countries. [(2)] Most of the people are illiterate belonging to socio-economic class and lack of awareness about importance of sanitation, personal and environmental hygiene with respect to health. [(3)] The intestinal parasitic infection is acquired by ingestion, inhalation or penetration of skin by infective forms and their high incidence is closely correlated to poverty and poor environmental hygiene. [(3)] The purpose of this study is to get a Current status about the existence of intestinal parasites and their prevalence at our place.

MATERIALS AND METHODS

Specimen collection: A retrospective study was carried out at the clinical microbiology laboratory, LLRM Medical College Meerut. A total of 1638 patient's symptoms were suggestive of parasitic infection, coming to our hospital for stool examination by routine microscopy. The patients were provided wide mouthed

clean, dry, properly labeled plastic container for collection of stool samples as per the methods given by WHO guidelines. [4]

Microbiological examination: The samples were examined microscopically for ova, cysts and trophozoite of parasites using saline and iodine mount on grease - free slide. The formal-ether concentration techniques were also done. [5]

RESULTS & OBSERVATION

A total of 1638 stool samples were examined for protozoa and helminthes infection. Out of which 151(9.21%) samples was positive for ova & cysts. Children (7. 92%) were less infected than adults (9. 67%). The prevalence rate is similar in female ≤ 15 year (8. 33%) and ≥ 15 year (8.04%) (Table 1).The infection was higher in age groups between 16yr-50yr (65.56%) (Table 2).

Table 1: Age and gender wise distribution of positive samples (n= 151)

Category	Total tested	Positive	Percentage (%)
Age < 15 years	429	34	7.92
Male	297	23	7.74
Female	132	11	8.33
Age > 15 years	1220	118	9.67
Male	561	66	11.76
Female	659	53	8.04

Table 2: Age wise distribution pattern of protozoa and helminthes infection in children and adults

Age of patients	Name of Parasites							
	E.H/E.D	G.l	E.coli*	H.w	B.h	I.belli	S.s	H.nana
0−6	9	7	1	-	1	1	-	1
6−10	-	4	-	-	-	-	-	-
11−15	2	1	3	2	1	-	-	-
16−20	7	4	5	5	-	-	2	1
21−30	16	8	4	7	-	-	-	2
31−40	5	12	1	9	-	-	-	-
41−50	7	2	-	2	-	-	-	-
51−60	3	3	-	4	-	-	-	-
≥60	3	2	-	3	-	-	-	-

E.H/E.D-Entamoeba hitolytica/Entaboeba dispar,G.l-Giardia lambliaa,E.coli*- Entamoeba coli*
H.W-Hook worm,B.h-Blastocystis hominis,I.belli-isospora belli,S.s-Strongyloides stercoralis, H.nana-Hymenolepis nana.

Table 3: Distribution pattern of different intestinal parasite (n=151)

Name of parasite	No. of positive	Percentage (%)
Entamoeba histolytica	52	34.43
Giardia lamblia	44	29.13
Isospora belli	1	0.66
Blastocystis hominis	2	1.32
Entamobea coli*	14	9.27
Ancylostoma duodenale	32	21.19
Strongyloides stercoralis	2	1.32
Hymenolepis nana	4	2.64

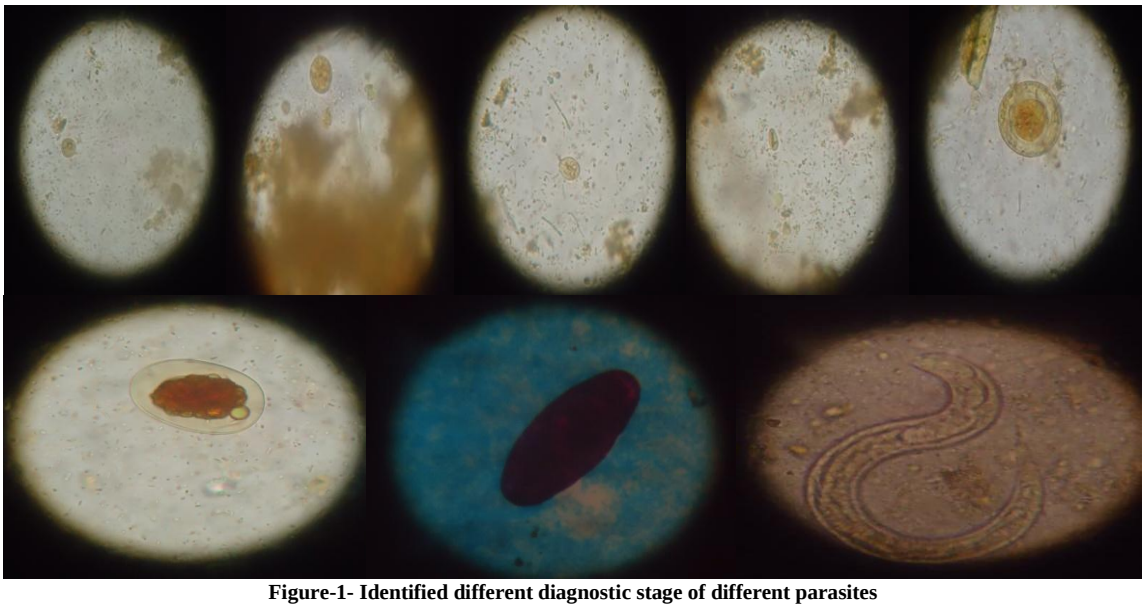

Figure-1- Identified different diagnostic stage of different parasites

DISCUSSION

The prevalence of Intestinal parasitic infection is 9.21 %. There are eight different type of parasites are seen. The most common parasite identified were Entamoeba histolytica 52(34.43%), Giardia lamblia 44(29.13%), Entamoeba coli* 14(9.27%), Ancylostoma duodenale 32(9.27%).The other parasite present as Strongyloides stercoralis 2(1.32%), Blastocystis hominis 2(1.32%), Isospora belli 1(0.66%) and Hymenolepis nana 4(2.64%) (Table 3). Prevalence rate in our study was low and is suggestive of better awareness of personal hygiene and environmental sanitation in the population. Many studies have reported significant difference in infection rates between both sexes with males being more infected than females, similar in our study. The infection of Entamoeba histolytica 52(34.43%) was highest followed by Giardia lamblia 44(29.13%) & Ancylostoma duodenale 32(9.27%) in our study. The prevalence of intestinal parasites infection found in our study is much lower (9.21%). but still it seems alarmingly high in comparison to international scenario. [5-11] Various studies have shown different prevalence rates of the parasitic infestations in different parts of India. But most of the studies had less sample sizes. The isolation of Protozoan cysts was higher than that of the Helminths ova. Our study showed that the most common intestinal parasite observed was *E. histolytica* (34.43%). Prakash, Tandon, and Shrivastava have also reported 35.6% and 18.4% positivity for the same. [12,13] The prevalence of *E. histolytica* has been observed as a common finding in tropical and subtropical countries and is responsible for diarrhoea and amoebic liver abscess in several studies. [14] These intestinal parasites are commonly transmitted by infected drinking water and food. In India, the water supply poses a big problem due to faecal contamination of the same. The most common Helminths infection in our study was *A. lumbricoides* (21.19%) which was similar to studies by Shrivastava where 22.2% of stool samples demonstrated *A. Lumbricoides.* [15]

The presence of oocysts of *Isospora belli* 1(0.86%) was an unusual finding in our study, as it is usually associated with AIDS patients and is responsible for chronic diarrhoea. Dalvi *et al*, have reported *I. belli* as the most common pathogen among HIV associated diarrhea. [15]

CONCLUSION

Protozoan infection is more common than helminthic infection. It is an important public health problem. Studies from different part of India and outside from India have reported a parasite prevalence rate of 25% to 70%. So, prevalence rate of our study was low. The high infection of Entamoeba coli 14(9.27%), a commensal parasite is indicative of the populations precarious sanitary conditions and of elevated environmental contamination high listing the need for education, focused on hygiene measures, along with investments on sanitation.

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