

Frequency of Intestinal Parasites in Stool Samples

Sumaira Zareef, Humaira Zafar, Rubina Mansoor, Mobeena Ehsan, Bahram Mazhari, Umar Awaan, Abbas Hayat

Department of Pathology Benazir Bhutto Hospital and Rawalpindi Medical College.

Abstract

Background: To study the frequency of intestinal parasites in the stool specimens

Method: In this cross sectional study, 643 samples of stool were collected. Each stool sample was analyzed grossly and microscopically.

Results: The highest prevalent infections were of the protozoan (84.9%). *Entamoeba histolytica* (63.5%), followed by *Giardia lamblia* (1.4%) were the most prevalent. The cases of helminthiasis (*Ascaris lumbricoides*, *Hymenolepis nana*, *Ankylostoma duodenale*, *Enterobius vermicularis* and *Taenia Saginata*) came out to be 14.9%.

Conclusion: Protozoal infections due to *Entamoeba histolytica* and *Giardia lamblia* are much more prevalent than the helminthiasis. The prevalence of intestinal parasitic infections was higher in males (62%) than females (38%).

Keywords: Intestinal parasites, Helminthiasis, *Entamoeba histolytica*.

Introduction

Intestinal parasitic infections are among the most common infections worldwide. It is estimated that approximately 3.5 billion people are affected and 450 million are ill as a result of these infections, the majority being children.¹ Three million children die of enteric diseases each year and even more suffer from debilitating diseases due to intestinal parasites.² The distribution of intestinal parasites is dependent on several factors such as temperature, humidity, intermediate host, socio-economic status of society, customary nutrition of people, immigration and various others. These factors may affect water reservoir, food and hand hygiene, leading to transmission through oro-faecal route. Overcrowding, environmental sanitation, low household income, poor personal hygiene, limited access to clean water, tropical climate and low altitude are closely associated with the intestinal parasitic infections. Tropical zones and intestinal parasitic infections have always been thought of as Siamese twins. In rare situations intestinal helminths cause serious disease, as intestinal obstruction in ascariasis or trichuriasis dysentery. Non-specific symptoms like reduced growth, physical fitness and cognitive abilities are mostly the ones with

which the patient presents.³

Patients and Methods

643 samples of stool were collected at Benazir Bhutto Hospital, from 1st August 2007 to 31st March 2009. The patients were given clean dry disinfectant free bedpan or suitable wide necked container near the laboratory, to pass the specimen. The patients were asked not to contaminate the faeces with urine. Some portion of the specimen (specially the one which contained blood, mucus or pus) was immediately transferred into a clean dry leak proof container.

The specimens were analyzed grossly for the description of appearance; form, colour, blood, mucus and worms. After this saline and eosin preparations were prepared and analysis was done microscopically for red blood cells pus cells and the ova, vegetative forms and cysts of intestinal parasites. All the preparations (saline and Eosin) were done according to the standard methods given in District Laboratory Practice in Tropical Countries (Monica and Cheesebrough VOL. II).⁴

Results

Out of 643 samples, males (88; 62.8%) were more as compared to females (52; 37.1%) and 140 (21.7%) samples revealed different parasites (Table 1). On gross examination majority of stools were semi formed (77.4%) and brown (87.6%) in colour (Table 2), while microscopically red cells were found in 16.6% and pus cells in 26.6% cases (Table 3). *Entamoeba histolytica* (63.5%) was the commonest and *Taenia saginata* (0.71%) was the least prevalent

Table 1: Intestinal Parasites in stool samples

Parasite	Percentage(%)
<i>Entamoeba Histolytica</i>	63.5%
<i>Giardia lamblia</i>	21.4
<i>Ascaris lumbricoides</i>	5%
<i>Ankylostoma duodenale</i>	4.28%
<i>Hymenolepis nana</i>	3.57%
<i>Enterobius Vermicularis</i>	1.4%
<i>Taenia Saginata</i>	0.71%

Table 2: Stool samples: Gross Findings

Characteristic	Number (%)
Consistency	
Semi formed	498(77.4%)
Loose	112(17.4%)
Solid/Formed	22(3.42%)
Watery	11(1.71%)
Colour	
Brown	563(87.6%)
Yellow	44(6.84%)
Dark yellow	17(2.64%)
Green	10(1.55%)
Dark Brown	6(0.93%)
Red	2(0.31%)
Blackish	1(0.15%)

Table 2: Stool samples:Microscopic findings

Characteristic	No(%)
Red Blood Cells	107(16.6%)
Pus cells	171(26.6%)
Mucus	82(12.7%)
Fat globules	23 (3.5%)
Yeast cells	20(3.1%)
Undigested particles	149(23.1%)

Discussion

The prevalence and epidemiologic features of intestinal parasites vary in different parts of the world¹. The most common waterborne parasites are *Giardia lamblia* and *Entamoeba histolytica* alongside various others. *Entamoeba histolytica* can affect anyone, although it is more common in people who live in tropical areas with poor sanitary conditions. *Entamoeba histolytica* is capable of invading the intestinal mucosa and may spread to other organs, mainly the liver but also brain, kidney, bone and others. Approximately 500 million people are infected worldwide with *E. histolytica*.⁵ *Giardia Lamblia*, also known as *G. duodenalis* and *G. intestinalis*, is associated with poor sanitary conditions, insufficient water treatment, and day-care centres and with institutional facilities such as nursing homes. The World Health Organization reported that 200 million people in Asia, Africa and Latin America have symptoms of Giardiasis with some 500,000 new cases a year, especially among children.⁶

It is estimated that more than 1 billion people in the world are infected by (STH) soil-transmitted helminths (*Ascaris lumbricoides*, *Trichuris trichiura* and hookworm).⁷ Studies indicate that improper storage and disposal of animal manure (excrement and urine) can have potential public and environmental health risks associated with it.⁸ Empirical treatment of helminths improves growth and nutritional status among children, an important issue for refugees.⁹

Intestinal parasitic infections have always been affecting populations. Geographical distribution, food contamination, zoonosis, travelling and immune status all are incriminated. Accurate estimations of their prevalence is difficult. Little is known about their exact pathogenicity and clinical presentations which can be shared with other gastrointestinal infections. This ultimately leads to under reporting and low index of suspicion.

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