

# Frequency of intestinal parasites in patients referred to Milad hospital, Tehran, Iran in 2015-2016

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## Original Article

### Abstract

**Introduction:** Parasitic diseases and infections remain a significant cause of morbidity and mortality in the developing countries all over the world. Gaining data about parasitic infection is necessary to contrive suitable control programs and strategies to prevention and that is main aim of this study. This study evaluated frequency of intestinal parasites in Milad hospital, Tehran, Iran.

**Methods:** During 2015-2016 about 13385 stools and 343 scotch tape samples were collected in Tehran. All specimens examined by direct smear and formalin- ethyl acetate concentration methods. All stool samples were well analyzed to diagnose any proglottids or mature helminthes that can be seen in stool in some conditions. Scotch tape method is an appropriate way to detect parasitic nematode of *Enterobius vermicularis*.

**Results:** Data showed that 2.7% of cases had at least one parasite in examination. Frequency of parasites reported as *B.hominis* (1.3%), *G.lambliia* (0.8%), *E.nana* (0.3%), *E.coli* (0.3%), *Taenia* and *C.mesnili* (0.1%, 0.1%). Six cases of 343 scotch tape samples were positive for pinworm.

**Conclusion:** Due to high standards of public health in Tehran, frequency of intestinal parasites is lower than other studies conducted in other regions. Demographic, socioeconomic characteristics and education can affect transmission of parasites and may involve in lifecycle completion.

**Key words:** Frequency, Intestinal Parasitic Disease, Iran

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### Introduction:

Parasitic diseases and infections remain a significant cause of morbidity and mortality in the developing countries all over the world with medical consequences (1). Socioeconomic and environmental indices such as poor personal and

public hygiene, limited or lack of access to clean water, sanitation, and ever-increasing population have all been associated with intestinal parasitic infections. Patients may have overall impairment in life quality or even survival, mental and physical growth, nutritional status, cognitive ability and performance, and a scholastic achievement (1,2).

Among the ill and infested patients, children considered as important group to implement preventive care and medical treatment because of effects on maturation (3,4).

Intestinal parasitic infection is one of the major health problems globally and according to researches and frequency studies, up to 3.5 billion people are infected and around 450 million people have clinical sign and symptoms due to intestinal parasites. The majority of these infections are aggregated in developing countries (5). Parasitic infections are common in Iran historically. A vast spectrum of age groups and various regions of the country studied by many researchers, but the accurate picture of problem magnitude is unclear (6). Some important risk factors that can be considered in spread of infection in country including raw vegetable consumption, defects in removal of waste water and using sewage for irrigation (7).

Gaining data about parasitic infection is necessary to contrive suitable control programs and strategies to prevention. Therefore, the purpose of this survey was to determine the frequency and associated risk factors of intestinal parasitic infection in Tehran, the capital of Iran. The findings of this study help improvement the implementation and facilities currently available about parasitic infections and can be used to exhort policy makers and public health officials to expand training programs for parasitic control and health promotion for community health workers. Our study evaluated frequency of intestinal parasites in patients referred to Milad hospital, Tehran, Iran.

## Methods:

In cross-sectional study with simple random selection method, a large number of patients from parasitology department, Milad Hospital, Tehran, Iran between 2015-2016, evaluated by various diagnostic methods to identify parasites. About 13385 stools and 343 scotch tape samples were collected. These patients had various gastrointestinal complains.

All samples were taken in special stool boxes, examined by direct smear and formalin - ethyl acetate concentration methods. This method is good substitution for formalin ether. All stool samples

were well analyzed to diagnose any proglottids or mature helminthes that can be seen in stool in some conditions.

Scotch tape method is an appropriate way to detect parasitic nematode of *Enterobius vermicularis*. The worm is white with slender pointed shape and its excreted eggs attach to perianal areas of school children and sometimes adults.

The statistical evaluation was based on Chi-squared test by SPSS 17 (SPSS Inc., Chicago, IL, USA) for Windows pocket program.

## Results:

Data showed that amongst 13385 patients 13026 (97.3%) case were negative for ova or parasites and 359 (2.7%) cases were infected by various parasites (Table 1). Among 343 scotch tape samples, 6 (1.7%) cases were infected with pinworm (Table 2).

**Table 1. Results of stool examination of patients referred to Milad hospital, Tehran**

Parasites	No.	%
Negative	13026	97.3
<i>B.hominis</i>	174	1.3
<i>G.lamblia</i>	112	0.8
<i>E.coli</i>	33	0.2
<i>E.nana</i>	38	0.3
<i>C.mesnili</i>	1	0.01
<i>T.saginata</i>	1	0.01
<b>Total</b>	<b>13385</b>	<b>100</b>

**Table 2. Results of Scotch tape tests for patients referred to Milad hospital, Tehran**

Parasites	No.	%
<i>E.vermicularis</i>	6	1.7
<b>Total</b>	<b>343</b>	<b>100</b>

## Conclusion:

In recent years, frequency of intestinal parasites decreased in all regions of Iran and our results indicates that in Tehran, frequency is low and doesn't show any significant changes compared to previous studies. In Our study *Blastocystis hominis* was prominent protozoan parasite detected in stool samples. Parasitic infection and disorders can be the

main and important problems in some countries especially developing countries that encounter hygiene pull off. Poor economic power can't afford the facilities to diagnose the diseases and urgent treatment (8,9). The various studies performed all over the Iran, showed different statistics about frequency of parasites and many important genus and species reported repeatedly.

According to obtained data, 359/13385 cases were infected with intestinal parasites and 6/343 cases of scotch tape tests considered positive for pinworm. *Blastocystis hominis* was more frequent parasite. In all enrolled patients, *B.hominis* had frequency of 1.3% and *Giardia* assigned second place (0.8%). Also, in 359 infected persons (Positive patients), 40% were infected by *B.hominis*. This parasite is opportunistic organism and according to study of Athari et al. this parasite was the most common organism among immune system disorder patients (10).

Our data has agreement with Bahadori et al. study that *Giardia* had high frequency rate (11).

Gholami and colleagues performed a survey on 1575 ranchers of Mazandaran province, Iran. They showed that 10% of cases are infected with many types of parasites. Results including *B.hominis* (2.31%), *G.lambliia* (8.24%) and *E.nana* (2.17%) had agreement with our work (12). Arani performed a study in 2008 to describe epidemiologic characteristics of intestinal parasites in population of south of Tehran. That was a retrospective study and data showed that *B.hominis* and *Giardia* were most common parasites that is similar to our study (6). Taherkhani and Sardarian examined the stool samples of 274 cases by direct microscopy and formalin- ether concentration. *Giardia* was prevalent (4.20%) and abdominal pain (5.5%) was common complain (13).

In other parts of the world, like America and Brazil researchers commonly survey the status of parasitic disease to urgent prevention and sometimes treatment (14,15). In these areas *B.hominis* was frequently isolated.

Due to high standards of public health in especially in Tehran, as capital of Iran, frequency of intestinal parasites is lower than other studies conducted in other regions. Anyway, frequency of parasitic diseases especially intestinal parasites, in most times depends on public health levels and

indices of that country. Demographic and socioeconomic characteristics can affect transmission of parasites and may involve in lifecycle completion.

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### Conflict of Interests:

The authors declare that they have no potential conflict of interest related to this study.

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## فراوانی انگل‌های رودهای در تهران در سال ۱۳۹۵-۹۶

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### چکیده

**مقدمه:** بیماری‌های انگلی خصوصاً انگل‌های رودهای هنوز یکی از معضلات بهداشتی در سراسر جهان و عامل ابتلا و مرگ و میر هستند. یکی از مهمترین راه‌ها برای کنترل و پیشگیری از این بیماری‌ها داشتن اطلاعات موثق و به روز شده در مورد فراوانی این انگل‌ها در جامعه است که این مقاله نیز با همین هدف طراحی و انجام شده است.

**روش کار:** این مقاله در سال ۱۳۹۵ تا ۹۶ انجام شده است و ۱۳۲۸۵ نمونه مدفوع و ۳۴۳ نمونه چسب اسکاچ جمع‌آوری و مورد بررسی قرار گرفته است. از روش‌های بررسی مستقیم، تغلیظ فرمالین - اتیل استات بهره گرفته شده است. تمام نمونه‌ها از نظر وجود بند کرم یا خود کرم بالغ بررسی شده‌اند و چسب اسکاچ نیز روش معتبر برای تشخیص انتروبیوس ورمیکولاریس است.

**نتایج:** نتایج ما نشان داد که ۲/۷ درصد از جمعیت حداقل به یک انگل آلوده بوده‌اند. فراوانی شامل بلاستوسیسیتیس ۱/۳ درصد، ژیا ردیا ۰/۸ درصد، اندولیماکس ۰/۳ درصد و تنیا و کیلوماستیکس ۰/۱ درصد بودند و آلودگی نمونه‌های چسب اسکاچ ۶ مورد از ۳۴۳ مورد بود.

**نتیجه‌گیری:** فراوانی انگل‌های رودهای در تهران و کلاً در ایران بسیار کاهش پیدا کرده است و در بسیاری از مواقع به وضعیت بهداشت عمومی و شاخص‌های بهداشتی یک کشور وابسته است. شاخص‌های اقتصادی، جغرافیایی، مردم‌شناسی، آموزش و وضعیت آب و هوایی در انتقال و شیوع انگل‌ها دخیل‌اند.

**کلیدواژه‌ها:** فراوانی، انگل‌های رودهای، ایران

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