

***Enterobius vermicularis* infection among adults in a rural village, Nakhon Ratchasima: a note on stool examination findings with comments**

วิโรจน์ ไวนิชกิจ¹

แจ่มใส สุวรรณศักดิ์ศรี²

สุวรรณ นิธิอุทัย³

Abstract:

Enterobius vermicularis infection among adults in a rural village, Nakhon Ratchasima: a note on stool examination findings with comments

Wiwanitkit V, Suwansaksri J, Nithiuthai S.

Department of Laboratory Medicine, Faculty of Medicine,

Department of Clinical Chemistry, Faculty of Allied Health Sciences,

Division of Parasitology, Department of Pathology, Faculty of Veterinary Science,

Chulalongkorn University, Bangkok, 10330, Thailand

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Enterobius vermicularis is an important helminthic infection in rural areas of Thailand. We visited a rural village in Nakhon Ratchasima Province during May 2000. All 153 adult villagers in the village were examined for stool parasites. Intestinal parasites were recovered in 104 individuals, giving an infection rate of 68%. Most identified cases were infected with fluke parasite (99 cases, 64.7%). Only one case (0.65%) of *Enterobius vermicularis* infection was detected from the stool

¹Lecturer, Department of Laboratory Medicine, Faculty of Medicine ²Assistant Professor, Department of Clinical Chemistry, Faculty of Allied Health Sciences ³Associate Professor, Division of Parasitology, Department of Pathology, Faculty of Veterinary Science, Chulalongkorn University, Bangkok, 10330, Thailand

examination. In this study, we used the stool examination for detection of *Enterobius* infection, therefore, the estimated prevalence is probably lower than the true prevalence. However, the perianal Scotch tape test could not be applied to the adult population. In general, examination of the anogenital region is considered not polite and adult Thai people do not like to let anybody sees their stool, hence, we can expect a very poor compliance to the Scotch tape test. According to our study, although the stool examination is not recommended for *Enterobius* infection, detection of *Enterobius* egg from stool examination can be a good marker for the hygiene problem in the study area.

Key words: *Enterobius vermicularis*, stool

บทคัดย่อ:

การติดเชื้อพยาธิเข็มหมุดนับว่าเป็นปัญหาโรคติดต่อที่สำคัญของประชากรในชนบทของประเทศไทย ได้รายงานผลการตรวจอุจจาระจากผู้ใหญ่จำนวน 153 รายในหมู่บ้านชนบทแห่งหนึ่งในจังหวัดนครราชสีมาระหว่างเดือนพฤษภาคม 2543 จากการสำรวจพบพยาธิ 104 ราย คิดเป็นร้อยละ 68 ทั้งนี้ประชากรส่วนใหญ่มักติดเชื้อพยาธิใบไม้ (99 ราย) มีเพียงรายเดียวที่พบพยาธิเข็มหมุดจากการตรวจอุจจาระ ทั้งนี้การศึกษานี้ใช้การตรวจอุจจาระจึงทำให้ได้ข้อบ่งชี้ของการติดเชื้อพยาธิเข็มหมุดที่ต่ำกว่าความเป็นจริง อย่างไรก็ตาม บริเวณอวัยวะเพศและทวารหนักจัดว่าเป็นเรื่องที่ไม่สุภาพสำหรับชาวไทยและผู้ใหญ่คนไทยส่วนมากไม่นิยมให้ผู้อื่นเห็นอุจจาระของตน ดังที่ได้กล่าวแล้วจึงเห็นได้ว่าการใช้วิธีเทปกาวจึงไม่สามารถใช้ในการตรวจพยาธิเข็มหมุดในผู้ใหญ่ได้ จากการศึกษาแม้ว่าการตรวจอุจจาระจะเป็นการตรวจพยาธิเข็มหมุดที่ไม่ดีก็ตาม การตรวจพบพยาธิเข็มหมุดในอุจจาระจัดได้ว่าเป็นเครื่องบ่งชี้ถึงปัญหาเกี่ยวกับสุขอนามัยของชุมชนที่สำรวจได้

คำสำคัญ: พยาธิเข็มหมุด, อุจจาระ

Introduction

Enterobius vermicularis is an important helminthic infection among children in rural areas of developing countries. Enterobiasis is frequently asymptomatic. The most typical symptom is perianal pruritus, especially at night, which may lead to excoriations and bacterial superinfection¹⁻². Occasionally, invasion of the female genital tract with vulvovaginitis and pelvic or peritoneal granulomas can occur¹⁻².

A high prevalence of Enterobiasis can be detected in children with low socioeconomic status. Unfortunately, this infection affects the general health as well as the intelligence of the infected children³⁻⁴. High prevalence of enterobiasis is mentioned in many developing countries. Therefore, control of this infection in the developing countries is still needed.

In Thailand, *Enterobius* infection is still an important parasitic infection. However, there has been no recent report

concerning this infection among the adult population. Here, we report our experience about *Enterobius* infection in a far rural area of Thailand.

Materials and methods

Study area and participants

All 153 adult villagers (age 15-60 years old) living in Lum Pra Due village, Huay Thalaeng District, Nakhon Ratchasima Province, were recruited into the study. The participants were all of the available adult residents in the village. All subjects were the farmers. The study community is an agricultural village. The study area is the endemic area of parasitic diseases, especially the fluke diseases. Its location is about 300 km from Bangkok, capital of Thailand. This survey was performed during May 2000. In cooperation with

local health workers, we dealt directly with the community leaders who assisted us in maximizing community participation and compliance. The people in this area were willing to participate in the study. Verbal informed consent was obtained from each individual before the study.

Examination for enterobius vermicularis and other parasites

Stool specimens were obtained from all participants and examined for the presence of intestinal parasite eggs or larvae using methods previously described⁵⁻⁷. About ten grams of each stool specimen were collected. Stool examination was performed microscopically using a direct smear technique in the field station by the medical technologists.

The rest of each sample was fixed in formalin before further processing by using a formalin-ether concentration technique, and then examined under microscope at the Veterinarian Parasitology Laboratory, Faculty of Veterinary Science, Chulalongkorn University, for confirmation of diagnosis.

Data analysis

All data were statistically analysed using the Microsoft Excel 6.0 program. Descriptive statistical analysis are presented as percentage where appropriate.

Results

Characteristics of study population

Cartons were provided to all 153 adult (aged 15-60 years old) individuals residing in Lum Pra Due village, Nakhon Ratchasima Province, at the time of our visit. All individuals returned their stool samples the next day. Of the 153 individuals examined for intestinal parasites, 63 were male and 90 were female.

Parasitism in the studied population

Intestinal parasites were recovered in 104 individuals, giving an infection rate of 68%. Most of the identified cases were infected with fluke parasite (mixed infection between intestinal and liver fluke) (99 cases, 64.7%). Only one case (0.65%) of *Enterobius vermicularis* infection was detected

from the stool examination. All infected cases were recommended to get treatment from the local hospital.

Discussion

Pinworm infection is worldwide, with infections more frequent in school- or preschool- children and in crowded conditions. Also it is still a public health problem in many developing countries⁸⁻¹⁰. To control this infection, provision of education to the parents as well as screening for infection and distribution of pyrantel pamoate for cutting off the worm life cycle have been performed.

In Thailand, this infection is still prevalent in some distant areas¹¹. However, there are only a few reports about this infection among the adult population. Here, we report our finding from stool examination in a survey of intestinal parasite among the villagers in a rural village in Nakhon Ratchasima Province. It is of interest that we can also detect a case of Enterobiasis among our subjects from stool examination.

Because pinworm eggs are not laid into the intestine, normal faecal screening will not diagnose an infection. Therefore a specialised test must be performed to confirm diagnosis, the perianal transparent tape test (in morning before bathing)¹. The Scotch tape technique is accepted as the confirmation test and can be performed by the parents in the childhood cases. However, this is not a commonly performed procedure in adults - most doctors diagnose the condition on symptoms alone¹⁻².

In this study, we used the stool examination for detection of Enterobius infection, therefore, the prevalence must be lower than the true prevalence. Of interest, no Enterobius egg from stool examination is reported in the previous study in the rural area of Thailand. Finding the Enterobius egg from stool examination can reflect the serious infection. It has been estimated that stool examination can reflect only 5% of the real prevalence¹⁻². Hence, we can expect up to 13% of enterobius infection among our population (0.65 x 100/5). Indeed, *Enterobius vermicularis* is thought to be the most common intestinal worm in the world. It is said that everyone in the

world has either had pinworm infection, has it now, or will have it in the future¹⁻². However, as already mentioned, the perianal Scotch tape test could not be applied to the adult population. In general, examination of the anogenital region is considered not polite and adult Thai people do not like to let anybody sees their stool, hence, we can expect a very poor compliance to the Scotch tape test.

Unlike our recent study in the Northeastern Region of Thailand¹², a high prevalence of fluke infection in this community can be seen despite the fluke control program. The mixed infection of intestinal and liver fluke can be seen in 64.7%. The poor hygienic practice in the village can be expected. Therefore, health promotion campaign for this village for the intestinal parasite control program is necessary.

According to our study, although the stool examination is not a recommended test for *Enterobius* infection, detection of *Enterobius* egg from stool examination can be a good marker for the hygiene problem in the study area.

Conclusion

We reported the finding of *Enterobius* infection from stool examination among 153 adult villagers in a rural village, Lum Pra Due village, Huay Thalaeng District, Nakhon Ratchasima Province. From our study, the high prevalence of fluke infection can be detected. Nevertheless, we also detected the *Enterobius* infection from stool examination despite the rarity of this finding from stool examination. The failure of promotion of fluke control program in this village can be demonstrated. Also, according to our study, although the stool examination is not a recommended test for *Enterobius* infection, detection of *Enterobius* egg from stool examination can be a good marker for the hygiene problem in the study area.

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