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U. Karnngandee

V. Wiwanitkit

S. Sugaroon

J. Suwansaksri

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## A survey of intestinal parasitic infections in a new community, Nam Som District, Udonthani Province, Thailand; a survey research

Uppatham Karnngandee\* Viroj Wiwanitkit\*\*  
Suphan Sugaroon\*\*\* Jamsai Suwansaksri\*

**Karnngandee U, Wiwanitkit V, Sugaroon S, Suwansaksri J. A survey of intestinal parasitic infections in a new community, Nam Som District, Udonthani Province, Thailand; a survey research. Chula Med J 2002 Mar; 46(3): 219 - 25**

- Objective** : *To survey a prevalence of intestinal parasite infection in a newly settled community in the Northeastern region, of Thailand*
- Setting** : *Sawasdee Village, Nam Som District, Udonthani Province, Northeastern, Thailand*
- Subjects** : *183 villagers of the study setting*
- Method** : *We performed a cross sectional survey in a newly settled community in Nam Som District, Udonthani Province, Northeastern Region, of Thailand. Community, is a new village found only 5 years ago with the migrant founders from various regions, various traditions, of Thailand. Also, the village is a rural distance area, 100 kms from the town, surrounded by the hills. Stool examination was performed in 183 villagers, stratified sampled from all households in the village.*
- Results** : *The parasitic infection rate was 26.8 % (49 cases). There were 3 common parasites, with some cases of polyparasitism, in the village, Opisthorchis viverrini (12 cases, 24.5 %), hookworm (22 cases, 44.9 %) and Fasciolopsis buski (11 cases, 22.4 %).*

\* Department of Clinical Chemistry, Faculty of Allied Health Science, Chulalongkorn University

\*\* Department of Laboratory Medicine, Faculty of Medicine, Chulalongkorn University

\*\*\*Department of Clinical Microscopy, Faculty of Allied Health Science, Chulalongkorn University

**Conclusion** : *Interestingly, as the nature of the community, the non-endemic parasite infections were also detected at high prevalence. Wide spectrum control for various parasitic infections in such new settled community is necessary.*

**Key words** : *Parasite, New settled community.*

Reprint request : Kamngandee U, Department of Clinical Chemistry, Faculty of Allied Health Science, Chulalongkorn University, Bangkok 10330, Thailand.

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อุปถัมภ์ การงานดี, วิโรจน์ ไววนิชกิจ, สุพรรณ สุขอรุณ, แจ่มใส สุวรรณศักดิ์ศรี. การสำรวจภาวะการติดเชื้อปรสิตในลำไส้ในชุมชนเกิดใหม่ อำเภอน้ำโสม จังหวัดอุดรธานี ประเทศไทย. จุฬาลงกรณ์เวชสาร 2546 มี.ค; 46(3): 219 - 25

- วัตถุประสงค์** : เพื่อสำรวจความชุกของภาวะการติดเชื้อปรสิตในลำไส้ในชุมชนเกิดใหม่ อำเภอน้ำโสม จังหวัดอุดรธานี ประเทศไทย
- สถานที่ทำการศึกษา** : หมู่บ้านสวัสดิ์ อำเภอน้ำโสม จังหวัดอุดรธานี ภาคตะวันออกเฉียงเหนือ ประเทศไทย
- กลุ่มประชากร** : ชาวบ้านในหมู่บ้านจำนวน 183 ราย
- วิธีการศึกษา** : ได้ทำการศึกษาระบบสำรวจตัดขวางในชุมชนเกิดใหม่ หมู่บ้านสวัสดิ์ อำเภอน้ำโสม จังหวัดอุดรธานี ภาคตะวันออกเฉียงเหนือ ประเทศไทย หมู่บ้านดังกล่าวก่อตั้งมาเพียงชั่วระยะเวลา 5 ปี โดยมีประชากรอพยพมาจากหลายภูมิภาคทั่วประเทศไทย หมู่บ้านดังกล่าวปิดชุมชนปิดล้อมรอบด้วยภูเขาอยู่ห่างจากตัวจังหวัดประมาณ 100 กิโลเมตร ผู้ทำการศึกษได้ทำการคัดเลือกตัวอย่างแบบแบ่งชั้นเพื่อทำการตรวจอุจจาระในกลุ่มชาวบ้านในหมู่บ้านจำนวน 183 ราย
- ผลการศึกษา** : อัตราการติดเชื้อที่พบเท่ากับ 26.8 %(49 ราย) ปรสิตที่พบได้บ่อยมี 3 ชนิด ได้แก่ พยาธิใบไม้ในตับ (12 ราย, 24.5 %), พยาธิปากขอ (22 ราย, 44.%) และ *Fasciolopsis buski* (11 ราย, 22.4 %) นอกจากนี้ยังพบการติดเชื้อปรสิตมากกว่า 1 ชนิดด้วยใน 4 ราย
- สรุป** : จากลักษณะของชุมชนซึ่งเป็นชุมชนเกิดใหม่ ผู้ทำการศึกษได้พบปรสิตที่ไม่ใช่ปรสิตที่พบบ่อยในถิ่นนั้นในความชุกที่ค่อนข้างสูง การวางแผนควบคุมการติดเชื้อปรสิตในลำไส้ในชุมชนเกิดใหม่จึงควรครอบคลุมถึงปรสิตหลายประเภทรวมทั้งปรสิตที่ไม่ใช่ปรสิตประจำถิ่นด้วย
- คำสำคัญ** : ปรสิตลำไส้, ชุมชนเกิดใหม่

People in rural areas of Thailand still have difficult access to good health care and basic health education. Subsequently, some preventable diseases such as parasitic infections are still prevalent in many remote areas of the country.<sup>(1-4)</sup>

Here, we reported a survey of prevalence of intestinal parasites among local population of a newly settled community in Nam Som District, Udonthani Province, Northeastern Region, of Thailand. Community, Sawasdee community, is a new village found 5 years ago by migrants from various regions, and ethnic traditions, of the country. Also, the village is located in a rural area, 100 kms from town, surrounded by hills. Stool examinations were performed as indicators of the basic health status of the people in this rural area.

## Materials and Methods

### Study area and participants

Sawasdee Village, Nam Som District, Udonthani Province, was selected for the study, endemic for parasitic infections, especially the fluke diseases. Its location is about 600 km from Bangkok, the capital of Thailand. The survey was performed in

April 2001, in cooperation with local health workers. We dealt directly with community leaders who assisted us to maximize community participation and compliance. The people in the area were willing to participate in the study. Verbal informed consent was obtained from each individual before the study. All 183 villagers were stratified sampled from each house in the village to join the study. The number of subjects equaled to 22 % of the total villagers (830 villagers). The average income of the villagers was 23,674 Baht/family/year.

### Stool examinations

Stool specimens were obtained from all participants and examined for the intestinal parasite eggs or larvae as previously described.<sup>(1-3)</sup> About ten grams of each stool specimen were collected. Stool examination was performed microscopically, using a direct smear technique at the camp site by the medical technologists. The stool samples were also sent for examination by the concentration technique, required confirmation test at the Faculty of Allied Health Sciences.

**Table 1.** Prevalence of intestinal parasite infection in our study.

Types	Total number of infected cases	Infection rate (%)
<i>Opisthorchis viverrini</i> infection	12	24.5
Hookworm infection	22	44.9
<i>Fasciolopsis buski</i> infection	11	22.4
Polyparasitism *	4	8.2

\* combined between *Opisthorchis viverrini* and *Fasciolopsis buski* infection 2 cases

combined between *Opisthorchis viverrini* and hookworm infection 1 case

combined between *Opisthorchis viverrini* and *Strongyloides stercoralis* infection 1 case

### Data analysis

All data were statistically analyzed by the Microsoft Excel 6.0 programs.

### Results

Cartons were provided to 183 individuals (70 males and 113 females) who were residing in Sawasdee Village, Nam Som District, Udonthani Province, at the time of our visit. All individuals returned their stool samples the following day. The infection rate was 26.8 % (49 cases). There were 3 common parasites, with some cases of polyparasitism; *Opisthorchis viverrini* (12 cases, 24.5 %), hookworm (22 cases, 44.9 %) and *Fasciolopsis buski* (11 cases, 22.4 %) (Table 1). All except two cases of infected cases had intensity of infection less than 5 organisms/smear (Table 2). In cases that the infections were detected, the villagers were advised to get the antihelminthic drugs from their local hospital.

### Discussion

Parasitic infections affect people in most developing countries worldwide. In Thailand, parasitic helminths affect more than 35 % of the population.<sup>(1-3)</sup> The prevalence rates of intestinal parasitic infections vary from one area to the other, depending on personal and community hygiene, sanitation and climate.

In order to assess the parasitic infection status of a population in a remote village endemic for parasitic diseases, in Northeastern region of Thailand, without previous history of drug distribution under a fluke control program, we performed stool examinations. We found that upto 26.8 % of the studied population harbored parasites. Luckily, most infected cases presented only a mild degree of infection (intensity < 5 organisms/smear). The result was comparable to a number of previous reports from the remote areas, also without control program for intestinal parasites, of Tak and Khon Kaen Provinces<sup>(2-3)</sup> which had 46 %

**Table 2.** Intensity of intestinal parasite infection in infected cases.

Types	Total number of infected cases	Infection rate(%)
<i>Opisthorchis viverrini</i> infection		
< 5 organisms/smear	12	24.5
≥ 5 organisms/smear	0	0
Hookworm infection		
< 5 organisms/smear	21	42.9
≥ 5 organisms/smear	1	2.0
<i>Fasciolopsis buski</i> infection		
< 5 organisms/smear	10	20.4
≥ 5 organisms/smear	1	2.0
Polyparasitism		
< 5 organisms/smear	4	8.2
≥ 5 organisms/smear	0	0

and 34 % of their populations hosting at least one parasite, respectively. Obviously, the health intervention program for intestinal parasitic infection control in the remote area is necessary.

Although the number was rather high, it was still lower than the national average (35 %) according to the national epidemiological survey of 1996.<sup>(4)</sup> Furthermore, the rate was also lower than a recent survey in the old communities in the same area.<sup>(5-6)</sup> Regarding our study, the infection rate of *Opisthorchis viverrini* (33.4 %) was less common than that of hookworm infection, although the setting was the endemic area with high prevalence of Opisthorchiasis.<sup>(7-8)</sup> Interestingly, the common parasite in the other area was hookworm,<sup>(9)</sup> which was common in the South whereas *Fasciolopsis buski* in the Central,<sup>(10)</sup> could be detected with the same prevalence to that of *Opisthorchis viverrini*. This might be caused by the nature of the new community, which the villagers come from various regions. Since, the ones from a region might have different life styles, including to the risk behaviors to contract parasitic infection; hence the non-endemic parasite infection such as *Fasciolopsis buski* and hookworm infections was detected at higher prevalence. However, there was no other helminth and protozoa. The explanation might be according to a) the limitation of the stool examination technique in our study, some parasites, especially for the protozoa might have degenerated in the process of transportation or b) the prevalence of the other parasites in the community was really null prevalence.

Data from the study suggested that annual health education and control program for a rural community, such as Sawadee community is still in

need. Active strategies to find and reach rural villages with low occasion are recommended. Also, the effect migration on the prevalence of intestinal parasite could be implied. Wide spectrum control for various parasitic infections in such newly settled communities would be necessary.

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#### References

1. Triteeraprapab S, Akrabovorn P, Promtong J, Chuenta K. High prevalence of hookworm infection in a population of Northeastern Thailand after an opisthorchiasis control program. Chula Med J 1999 Feb;43(2):99-108
2. Triteeraprapab S, Jongwutiwes S, Chanthachum N. The prevalence rates of human intestinal parasites in Mae-la-moong. Umphang District, Tak Province, a rural area of Thailand. Chula Med J 1997 Sep;41(9): 649 - 58
3. Triteeraprapab S, Nuchprayoon I. Eosinophilia, anemia, and parasitism in a rural region of Northwest Thailand. Southeast Asian J Trop Med Public Health 1998 Sep;29(3): 584 - 90
4. Jongsuksantigul P. Control of helminth infections of Thailand. Tropical Infectious disease: Now and Then 1997 The Medical Congress in Commemoration of the 50<sup>th</sup> Anniversary of the Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, during June 3 - 6, 1997.
5. Wiwanitkit V, Chunhaparn P, Suwansaksri J. Prevalence of intestinal parasite and self-prevention behavior of the villagers in a rural

- village after opisthoschis viverrini control program, Mahasarakham Province, Thailand. Presented at the Joint International Tropical Medicine Meeting 2001, Bangkok Thailand, during August 6 - 8, 2001.
6. Wiwanitkit V, Suwansaksri J, Nithiuthai S. Prevalence of intestinal parasite among the local people in a village without previous history of antihelminthic drug distribution, Lum Pra Due Village, Nakornratchasrima, Thailand. Presented at the Joint International Tropical Medicine Meeting 2001, Bangkok Thailand, during August 6 - 8, 2001.
7. Jongsuksantikul P, Chaeychomsri W, Techamontrikul P. Study on prevalence and intensity of intestinal helminthiasis and opisthorchiasis in Thailand. J Trop Med Parasitol 1992;15(1): 80 - 95
8. Harinasuta C, Vijrasthira S. Opisthorchiasis in Thailand. Ann Trop Med Parasitol 1960 Apr; 54(1):100 - 5
9. Upatham ES, Viyanant V, Brockelman WY, Kurathong S, Lee P, Chindaphol U. Prevalence, incidence, intensity and associated morbidity of intestinal helminths in south Thailand. Int J Parasitol 1989 Apr;19(2): 217 - 28
10. Jaroonvesama N, Charoenlarp K, Areekul S, Aswapokee N, Leelarasme A. Prevalence of Fasciolopsis buski and other parasitic infections in residents of three villages in Sena District, Ayudhaya province, Thailand. J Med Assoc Thai 1980 Sep;63(9): 493 - 9