

The intestinal parasite infection status of inhabitants in the Roxas city, the Philippines

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Abstract: We carried out a small-scale survey to investigate the status of intestinal protozoa and helminthes infection of inhabitants in Roxas city, Mindoro, the Philippines. Total 301 stool samples were subjected to the formalin-ether concentration method for the detection of helminth ova and protozoan cysts. The overall positive rate was 64.5%, and that of male and female were 56.6% and 72.5%, respectively. The highest infected helminth was *Ascaris lumbricoides* (51.2%), followed by *Trichuris trichiura* (27.6%), hookworm (8.0%) and *Enterobius vermicularis* (0.3%). The protozoa infection status revealed that *Entamoeba coli* was the most frequent (15.0%). *Iodoamoeba buetschlii* and *E. histolytica* were found but few. The multiple infection more than two parasites was 29.6%, and double infection with *A. lumbricoides* and *T. trichiura* was most common. The intestinal helminth infections were highly prevalent in this area, according to this result, and we concluded that anthelmintic drugs should be given to inhabitants, especially to children of 1 to 15 years-old.

Key words: infection rate, protozoa, helminths, Philippines

The Philippines is composed of three big islands (Luzon, Visayas and Mindanao) and many other small islands. The Roxas city where we surveyed lies in Mindoro island, below the Luzon, and is four times as large as Jeju island. The central mountainous ridge divides the island into east and west. East and west region are called oriental and occidental Mindoro, respectively. The Roxas city is located in east Mindoro. The Philippines has been well-known as an endemic area of malaria, schistosomiasis, capillariasis, filariasis and intestinal helminthiasis (Carney et al., 1981a, 1981b; Cross, 1992; Mccarvey et al., 1996;

Belizario et al., 1997; Kron et al., 2000).

In March 2002, we performed a small-scale survey to investigate the intestinal helminth and protozoan infection among the inhabitants of Roxas city, and formalin-ether concentration method was used to detect protozoa cysts and helminth ova.

The number of examinees was 301, and infection rate was 64.5% for helminths and protozoa. Among the positives, female showed higher positive rate (72.5%) than that of male (56.6%). The most common infected parasite was *Ascaris lumbricoides* (51.2%), followed by *Trichuris trichiura* (27.6%), hookworm (8.0%), and *Enterobius vermicularis* (0.3%). Intestinal protozoa infection rate was very low, except infection with *Entamoeba coli* (15.0%). *Entamoeba histolytica* and

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Table 1. Prevalence of intestinal parasite infection among the inhabitants in the Roxas city, Mindoro, the Philippines

Parasites	No. positive (%)						Total
	Age				Sex		
	1-5	6-10	11-15	16-	male	female	
<i>A. lumbricoides</i>	19 (52.8)	76 (56.7)	49 (53.3)	10 (25.6)	67 (44.1)	87 (58.4)	154 (51.2)
<i>T. trichiura</i>	6 (16.7)	41 (30.6)	30 (32.6)	6 (4.5)	32 (21.1)	51 (34.2)	83 (27.6)
Hookworm	5 (13.9)	8 (6.0)	5 (5.4)	6 (15.4)	10 (6.6)	14 (9.4)	24 (8.0)
<i>E. vermicularis</i>	-	-	-	1 (2.6)	-	1 (0.7)	1 (0.3)
<i>E. coli</i>	5 (13.9)	24 (17.9)	9 (9.8)	7 (18.0)	21 (13.9)	24 (16.1)	45 (15.0)
<i>E. histolytica</i>	-	-	1 (1.1)	-	-	1 (0.7)	1 (0.3)
<i>I. buetschlii</i>	-	1 (0.7)	1 (1.1)	-	-	2 (1.3)	2 (0.7)

Iodoamoeba buetschlii were identified in about 1% of the samples. Multiple infection was also frequent in intestinal helminths. Among the multiple infection, *A. lumbricoides* and *T. trichiura* double infection was the most common (79.2%) of all the multiple infection. The age group of 1 to 15 years was the greatest number (87%) of the total examinees. The intestinal helminth infection rate of these school age children was considerably high. Intestinal helminths such as *A. lumbricoides* showed 54.3% positive rate (Table 1). It is obvious that high infection rate of *A. lumbricoides* would affect the growth of children, thus necessitating the medication and education against parasite infection. According to earlier studies on intestinal parasite infection in the Philippines (Cabrera, 1984; Oberst et al., 1987; Lee et al., 2000), the soil-transmitted intestinal helminths such as *A. lumbricoides*, hookworm, and *T. trichiura* show more than 30% high infection rates. The present study also revealed similar results. In the case of *A. lumbricoides*, 51.7% infection rate was higher than that of rural area (Yamamoto et al., 2000). Carney et al. (1981a, 1981b) reported that Mindanao and Mindoro had schistosomiasis egg positive rates of 16% and 20%, respectively. Trematodes and cestodes, however, were not detected in the present study, and the snail (*Onchomelania quadrasi*) is considered to be the habitat.

In summary, the intestinal helminth infection rate of school children of the Roxas city was considerably high and they require special attention to protect them from the parasitic diseases. Since this area is prevalent in intestinal helminthes, mass treatment

through wide-spectrum helminthics should be carried out.

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