

Intestinal parasitic infections in the residents of an emigration camp in Tijuana, Mexico

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Abstract: We examined stool specimens of the residents in the emigration camp in Tijuana, Mexico for helminth eggs or protozoan cysts with formalin-ethyl acetate concentration method in February and July 1992. Out of 92 examined samples, number of positive was 49 (53.3%). While number of cumulative positive was 66 (71.7%). Cysts of *Entamoeba coli* (29.3%) *Giardia lamblia* (9.8%), *Entamoeba histolytica* (7.6%), and eggs of *Taenia* spp. (6.5) were most frequently observed. Filtered water supply and chemotherapy were required in this camp.

Key words: Intestine, parasite, Mexico, refugee

Tijuana is located at the border between Republic of Mexico and USA, in northwestern Mexico (Fig. 1). In this city there is a camp where Mexicans and Mid-South Americans stay temporarily for emigration to USA. We had a chance to examine stool specimens of the residents in this camp. Sisters, Brothers and volunteers from Missionaries of Charity Fathers operated a hospital for the people in the camp in El Florido. They asked us to do this work, since they visited regularly and supported the people in this camp. Sixty-three samples were obtained in February, 1992, and 29 in July, 1992. Age of the examined people ranged from two to 72 years old. The samples concentrated by formalin-ethyl acetate concentration method were transported to Seoul, Korea for the identification of helminth eggs and protozoan cysts. Emulsions of the droplets were stained with Lugol's iodine. The results were summarized in Table 1. Number

of positive persons for eggs and/or cysts was 49 (53.3%) in total. Number of cumulative positive persons was 66 (71.7%). *Entamoeba coli*, *Giardia lamblia*, *E. histolytica*, *Endolimax nana* and *Taenia* sp. were the major intestinal parasites among the people in this camp. In the stool examination under light microscope, we did not differentiate the cyst of *E. hartmanni* from that of *E. histolytica*. Therefore, in the result of *E. histolytica*, the possibility of inclusion of *E. hartmanni* could not be

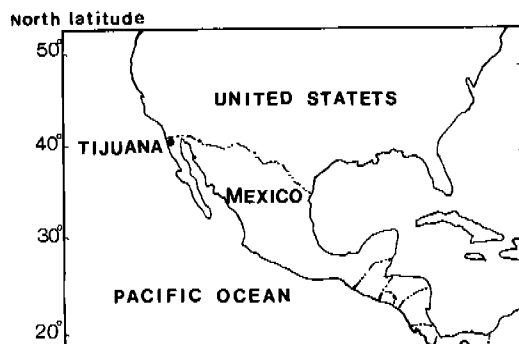


Fig. 1. Surveyed Area (●).

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Table 1. Results of the stool examination in 92 residents in a camp in Tijuhana, Mexico

| Parasites | No. (%) |
|--------------------------------|-----------|
| No. examined | 92 |
| No. positive | 49 (53.3) |
| No. cumulative positive | 66 (71.7) |
| protozoana cysts | 53 (57.6) |
| <i>Entamoeba histolytica</i> * | 7 (7.6) |
| <i>Entamoeba coli</i> | 27 (29.3) |
| <i>Endolimax nana</i> | 6 (6.5) |
| <i>Chilomastix mesnili</i> | 2 (2.2) |
| <i>Iodamoeba buetschlii</i> | 1 (1.1) |
| <i>Giardia lamblia</i> | 9 (9.8) |
| <i>Cryptosporidium</i> sp. | 1 (1.1) |
| helminth eggs | |
| <i>Ascaris lumbricoides</i> | 4 (4.4) |
| <i>Trichuris trichiura</i> | 1 (1.1) |
| <i>Taenia</i> spp. | 6 (6.5) |
| <i>Hymenolepis nana</i> | 2 (2.2) |

*Possibility of inclusion of *E. hartmanni* can not be excluded.

excluded. Egg and/or cyst positive persons were treated with pyrantel pamoate, praziquantel or metronidazole without follow-up examination.

It was difficult to get information on nationwide prevalence of intestinal parasites in Mexico to compare with our findings. However, we could find some data from local areas. In a northern region of Mexico, 3.4% of surveyed population discharged cysts of *E. histolytica* (Isibasia *et al.*, 1990) in their feces, and in another rural area 7.1% did (Martinez-Garcia *et al.*, 1990) which indicate a geographical variation in the prevalence. Of school age children from Mochoacan State, 1.8% and 7.2% in rural and urban areas respectively was positive for the cysts of *E. histolytica* (Lara-Aguiler *et al.*, 1990). Of 7,858 sera from people in Northwest Mexico 681 (8.67%) reacted positively with *E. histolytica* antigen by indirect hemagglutination test (Cabalero-Salcedo *et al.*, 1994). Cyst positive rate (7.6%) of *E. histolytica* in this survey indicated that this area is also one of the endemic area of intestinal amoebiasis.

As also proved in this survey, *Taenia* spp. especially *T. solium* is well known as an

important intestinal parasite in Mexico, and there have been reported numerous cases of cysticercosis (Woodhouse *et al.*, 1982). However, the prevalence in this survey was higher than other reports. For example, of 760 people examined, 24 (3.2%) were positive for the eggs of *Taenia* spp. (Keilbach *et al.*, 1989). Of school age children from Mochoacan State, 0.6% of them discharged eggs of *Taenia* spp. (Lara-Aguiler *et al.*, 1990). Fecal examination of 828 participants in a village of Michoacan State revealed taeniasis in two persons (Sarti *et al.*, 1994).

When compared our data with others, the high infection rates of *E. histolytica*, *Giardia lamblia*, *E. coli*, and *Taenia* spp. were remarkable. Although it is difficult to elucidate the source of infections in those residents in the camp exactly, the higher rate may tell that the sources is not only from their hometown, but also from this camp. At the time when this survey was done, filtered water supply was not possible for the people. This was believed as the most important factor for such a high prevalence of water-borne protozoan infections. If the situations has not been changed in this camp, improvement of individual hygiene, filtered water supply and chemotherapy are urgently required in this camp.

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REFERENCES

- Cabalero-Salcedo A, Viveros-Rogel M, Salvatierra B. *et al.* (1994) Seroepidemiology of amoebiasis in Mexico. *Am J Trop Med Hyg* **50** (4): 412-419.
- Isibasia A, Gonzalez C, Ortiz V. *et al.* (1990) Seroepidemiology of amoebiasis in the northern region of the Republic of Mexico. *Archivos de Investigacion Medica (Mexico)* **21**, suppl: 163-174.
- Keilbach NM, de Aluja AS, Sarti-Gutierrez E (1989) Programme to control taeniasis-cysticercosis (*Taenia solium*) experiments in a Mexican village. *Acta Leidensia* **57**: 181-9.

Lara-Aguiler R, Aguilar-Bucio MT, Martinez-Toledo JL (1990) Taeniasis, amoebiasis and other intestinal parasitosis in school age children from Mochoacan State, Mexico. *Boletin Medico del Hospital Infantil de Mexico (Mexico City)* **47**: 153-159.

Martinez-Garcia MC, Munoz O, Garduno-Rodriguez G (1990) Pathogenic and non-pathogenic zymodemes of *Entamoeba histolytica* in a rural area of Mexico. Concordance with serology. *Archivos de Investigacion Medica (Mexico)*, **21** suppl, 147-152.

Sarti E, Schantz PM, Plancarte A, Wilson M (1994) Epidemiological investigation of *Taenia solium* taeniasis and cysticercosis in a rural village of Michoacan State, Mexico. *Trans Royal Soc Trop Med Hyg*, **88**(1): 49-52.

Woodhouse E, Flisser A, Larralde C (1982) Seroepidemiology of human cysticercosis in Mexico. In: *Cyticercosis-Present State of Knowledge and Perspectives*, Flisser, A, Willms, K., Lacleste, J. P., Larralde, C., Riduaura, C., & Beltran, F. (editors), New York: Academic Press, pp 11-23.

=초록=

멕시코 티후아나 이민촌 거주자의 장내 기생충 감염 상태

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1992년 2월과 7월에 멕시코 티후아나에서 중남미와 멕시코에서 온 이민촌 거주자들의 대변검사를 포르말린 에틸아세테이트 집란법으로 일회 검사하였다. 모두 92명의 피검자중 총란 또는 포낭 양성율은 53.3%, 누적 양성율은 71.7%이었고, 대장아메바(19.3%), 람블편모충(9.8%), 이질아메바(7.6%)와 유무구조충(6.5%)이 가장 흔히 발견되는 장내 기생충이었다. 이 지역에는 오염되지 않은 식수 공급과 적절한 치료가 필요하다.

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