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☐ **Brief Communication** ☐

A follow-up examination of intestinal parasitic infections of the Army soldiers in Whachon-gun, Korea

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Abstract: A follow-up stool examination was done to know the status of intestinal parasitic infections in Army soldiers who were stationing in Whachon-gun, Kangwon-do, Korea in 1993. Of 233 examined soldiers, Infections with *Clonorchis sinensis* (0.4%), *Metagonimus* spp. (0.9%), *Echinostoma hortense* (0.4%), *Neodiplostomum seoulensis* (0.4) and *Giardia lamblia* (3/233) were found. *E. hortense* and *N. seoulensis* infections were each 75th, and 27th cases in Korea. Regular control program of intestinal parasitic infections might be able to contribute to diminish the prevalence rate in young Army soldiers in Korea.

Key words: Epidemiology, soldier, *Clonorchis sinensis*, *Metagonimus* spp., *Echinostoma hortense*, *Neodiplostomum seoulensis*, *Giardia lamblia*, Korea

Recently there was a report of the prevalence rate of intestinal parasitic infections in Army soldiers working in Whachon-gun, Kangwon-do, Korea. *Clonorchis sinensis*, *Metagonimus* spp. and *Giardia lamblia* were major parasites (Huh & Huh, 1993). We performed the follow-up examination at the same Corps a year after, in December 1993. We also examined the stools of another Artillery Corps in Whachon-gun for the control of intestinal parasitic infections in August 1993. We used formalin ether concentration technique for the 117 Army and 116 Artillery soldiers' stool. At the follow-up examination for Army soldiers, we could find a *C. sinensis*, a *Metagonimus* spp., a *Echinostoma hortense* and a *G. lamblia* infections. Of the soldiers in the Army Corps examined last year, half members were followed-up. No reinfection was detected a year after. Positive cases were from all new-recruited soldiers. All infected soldiers were recruited after the previous examination. Of Artillery soldiers, a *Metagonimus* spp., a *Neodiplostomum seoulensis* (Hong and Shoop, 1994) and two *G. lamblia* infections were found.

Ten eggs of *E. hortense* from 21 year-old man were measured and the size was 120-148 X 75-83(mean 138 X 79) micrometer. Eggs were elliptical, symmetrical, thin-shelled, golden-yellowish, and packed with yolks. Worm recovery with Magnesium sulfate purgation after praziquantel (Distocide®, Shinpoong Pharmaceutical Co.) 600 mg treatment was tried but failed. He had complained of intermittent diarrhea 3-4 times a week immediately after eating raw frog, *Hyla arborea japonica* in June, 1993 when he was recruited in this Corps, i.e. six months before the stool examination. He had been healthy without any gastrointestinal symptom before military recruitment. He said that he did not eat fresh water fishes. His hometown was Seoul, the capital of Korea. Only one egg of *N. seoulensis* from 21-year-old man was found. The egg was

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97.5 × 62.5 micrometer in size, elliptical but asymmetric, thin-shelled, golden-yellowish and operculated. Inside the shell, yolks were seen. He said that he had eaten the fried frog with friends of his at Yongyang, his hometown before one and half year but not fresh water fishes. He had been also healthy with no gastrointestinal symptom. Worm could not be recovered with same collection method as above.

Results of this stool examination is comparable with that of same age (20-24 years-old) and sex (male) group of nation-wide survey: *Ascaris lumbricoides* 0.2%, *Trichuris trichiura* 0.1%, *C. sinensis* 1.8%, *M. yokogawai* 0.2% (Ministry of Health and Social Affairs and Korea Association of Health, 1993). Any survey data from recruited young soldiers can be a reflection of same age group. The fact that there was no reinfection of previously detected soldiers told us that it would be a good investment to try to find parasitic infections and treat the infected ones during the military recruitment period. Those control program can contribute to diminish the prevlence rate in a general population in Korea where the military service is compulsory to young healthy men.

Usually the parasitic infections of soldiers were believed to be originated from their hometowns (Huh & Huh, 1993). Only some problems were job-related. For example, neodiplostomiasis, sparganosis, echinostomiasis and giardiasis might be due to eating raw frog and/or snake, or due to drinking contaminated water at stream during the survival exercise (Hong 1986). After the detection of neodiplostomiasis cases from soldiers, eating of raw frogs or snakes was officially prohibited in the Korea Army from mid-1980. Present case of echinostomiasis is interesting since he ate not fresh water fishes but raw frogs. The frog was identified as a second intermediate host in Japan, but not in Korea (Chai and Lee,1990).

This finding suggests that the frog also can be a second intermediate host in Korea. Chai and Lee (1990) reported that the number of cases of *Echinostoma hortense* infection was 79 till 1990. However, two cases from Ahn and Ryang (1986) were only identified as *Echinostoma* spp., and another two cases could not be traced in literature (Ryang,1990; Chai *et al.*, 1993). We would like to correct the number of human cases of *E. hortense* infection in Korea as 76 including the present one. The present case of neodiplostomiasis was believed to be infected through the eating of undercooked frog. This is the 27th case of human neodiplostomiasis (Seo, 1990)

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=국문초록=

화천군 소재 일부 장병의 장내 기생충 감염율과 호르텐스극구흡충, *Neodiplostomum seoulensis*의 감염예

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강원도 화천군 소재 두 부대 장병에서 장내 기생충 관리를 위하여 1993년 포르말린 에테르 집란법으로 대변검사를 하였다. 233명의 피검자 가운데 간흡충(1/233), 메타고니무스(2/233), 호르텐스극구흡충(1/233), *Neodiplostomum seoulensis*(1/233) 충란과 람블편모충의 포낭(3/233)을 발견하였다. 호르텐스극구흡충 감염은 문헌상 제75국내 인체감염예, *N. seoulensis* 감염은 제27 인체감염예이다.

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