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☐ **Brief Communication** ☐

Clonorchiasis and metagonimiasis in the inhabitants along Talchongang (River), Chungwon-gun

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Abstract: To evaluate the status of clonorchiasis and metagonimiasis of the inhabitants near Talchongang (River) in Chungwon-gun, Chungchongbuk-do, the stools of 67 inhabitants were examined by formalin-ether sedimentation method from August to September, 1993. Also freshwater fish caught in Talchongang were examined by slide compression method. The egg positive cases of *Clonorchis sinensis* and *Metagonimus* sp. were 22 (32.8%), and 14 (20.9%), respectively. Of 17 species of examined fish, 14 species were infected with *C. sinensis* and 13 species with *Metagonimus* sp. The adult worm collected from 2 patients after treatment with praziquantel was *Metagonimus* Miyata type. Also the adult worm obtained from the experimental mice infected with metacercariae from *Zacco platypus* was *Metagonimus* Miyata type. We found the highly endemic area of clonorchiasis and metagonimiasis along Talchongang.

Key words: Clonorchiasis, metagonimiasis, Talchongang (River), endemic area

The report of the nation-wide stool examination in Korea in 1992 showed that at present, the clonorchiasis (2.2%) and metagonimiasis (0.3%) were the most popular parasitic diseases in this country. This report announces that the soil transmitted helminthiasis is not an important parasitic disease anymore in Korea as it has been, but snail transmitted intestinal trematodiasis takes over the place. As a matter of fact, many riverside endemic areas of clonorchiasis were already well known, for example, the Naktonggang, Youngsangang, Somjingang, Hangang, Tamjingang, Kumgang and Mankyonggang (Seo *et al.*, 1981). And in case of metagonimiasis, Tamjingang, Somjingang, Hangang, Wangpichon (Stream) and Osipchon were the well known endemic areas (Seo *et al.*, 1981). In addition to the upper reaches of the Namhangang and many places in Kangwon-do such as Oshipchon of Samchok-gun, Maeupchon, Sachon, Yongokchon and the Hantangang were also known (Chai *et al.*, 1993; Ahn *et al.*, 1987; Park *et al.*, 1993). By the way the exact status of intestinal trematodiasis in Chungchongbuk-do had not been known yet because there were very few applicable data on it. Therefore we studied the infection status of the trematodiasis of the inhabitants near the Talchongang which was located in Chungwon-gun and was one of the water supply sources of Chungchongbuk-do.

We collected the stools of the 67 inhabitants in Chungwon-gun, Suju-ri in August, 1993 and examined the stool by the formalin-ether sedimentation method. We also caught the freshwater fish at Talchongang near the village. Each fish was divided into scale, muscle and viscera and examined by the slide compression method under the stereoscope. The metacercariae from *Zacco platypus* were

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collected and experimentally infected to ICR mice. Ten days after infection, the mice were sacrificed and the adult worms were collected. Two inhabitants were treated with 600 mg praziquantel and purgated with magnesium sulfate.

Egg positive cases of *C. sinensis* and *Metagonimus* sp. from 67 inhabitants were 22 (32.8%) and 14 (20.9%), respectively. In both trematodiases, the egg positive rate in men was higher than in women. Egg positive rate was summarized in Table 1. The adult worm collected from two cases of metagonimiasis was *Metagonimus* Miyata type from the egg size range (29.5-31.5 μm) and the location of right testis.

Among 17 species of fish hosts, 14 species had the metacercaria of *C. sinensis* and 13 species had the metacercaria of *Metagonimus*. Out of them, all of *Acanthorhodeus macropterus*, *Pseudogobio esocinus*, *Pseudobagrus brevicorpus*, *Pseudobagrus* sp. and *Odontobutis platycephala* had the metacercaria of *C. sinensis*. And all of *Hemibarbus longirostris*, *A. macropterus* and *P. esocinus* were infected with the metacercaria of *Metagonimus* (Table 2). Especially 85.7% of *Zacco platypus* were infected with the metacercaria of *Metagonimus*, but none of them had the metacercaria of *C. sinensis*. The adult worm, collected from experimental mice, was also *Metagonimus* Miyata type by the location of right testis, vitellaria, and the shape of uterine tubule (Chai *et al.*, 1993).

Table 1. Prevalence of trematodiases in the inhabitants near Talchongang (River)

Parasites	No. of examined/No. of positive (%)		
	Male	Female	Total
Clonorchis sinensis	31/15 (48.4)	36/7 (19.4)	67/22 (32.8)
Metagonimus sp.	31/9 (29.0)	36/5 (13.9)	67/14 (20.9)

Table 2. Status of metacercarial infection of the freshwater fish which were caught at Talchongang (River)

Species of fish	No. of examined/No. of infected (%)/Total No. of Mc[a]	
	C. sinensis	*Metagonimus* sp.
Pseudorasbora parva(참붕어)	11/6(54.5)/20	11/4(36.4)/9
Zacco platypus(피라미)	7/0(0.0)	7/6(85.7)/705
Hemibarbus longirostris(참마자)	6/3(50.0)/23	6/6(100.0)/1451
Cobitis rotundicaudata(새코미꾸리)	6/1(16.7)/1	6/1(16.7)/3
Sarcocheilichthys variegatus wakiyae(참중고기)	4/3(75.0)/7	4/2(50.0)/2
Lateolabrax japonicus(농어)	3/2(66.7)/3	3/1(33.3)/2
Acanthorhodeus macropterus(큰납지리)	3/3(100.0)/40	3/3(100.0)/472
Coroperca herzi(꺽지)	6/2(33.3)/4	6/2(33.3)/2
Microphysogobio yaluensis(돌마자)	8/3(37.5)/8	8/4(50.0)/10
Pungtungia herzi(돌고기)	8/6(75.0)/61	8/1(12.5)/1
Microphysogobio koreensis(모래주사)	3/1(33.3)/1	3/2(66.7)/24
Pseudogobio esocinus(모래무지)	1/1(100.0)/19	1/1(100.0)/10
Pseudobagrus brevicorpus(꼬치동자개)	1/1(100.0)1	1/0(0.0)
Pseudobagrus sp.(눈동자개)	4/4(100.0)/11	4/0(0.0)
Odontobutis platycephaal(동사리)	5/4(80.0)/18	5/3(60.0)/46
Coreoleuciscus splendidus(쉬리)	1/0(0.0)	1/0(0.0)
Rhinogobius brunneus(밀어)	1/0(0.0)	1/0(0.0)
Total	78/40(51.2)/217	78/36(46.1)/2737

[a] Mc: metacercaria

The 5th nation-wide survey in Chungchongbuk-do showed that the egg positive rates of *C. sinensis* and *M. yokogawai* were 4.0 and 1.6% respectively (Ministry of Health and Social Affairs & Korea Association of Health, 1993). The survey showed that the rates of both trematodiases in Chungchongbuk-do were higher than the average rate of the whole country. Until now there has been few definite reports and intestinal trematode infection along the riverside area in Chungchongbuk-do. The present data showed evidently that many kinds of fish in Talchongang were infected with the metacercariae and they have mediated the intestinal trematodiases to the inhabitants near the river. So there was formed a highly endemic area of clonorchiasis and metagonimiasis along Talchongang. Probably, the location of the village that is the riverside area, the less contaminated condition of water and the easiness of taking the raw fish were main reasons for its being the endemic area of these snail-transmitted trematodiases. In the future, to decrease the infection rates of the inhabitants, the public education on the intestinal trematodiases and environmental sanitation must be carried out.

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=국문초록=

중원군 달천강 유역 주민의 간흡충 및 메타고니무스 감염상

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충청북도 중원군 달천강 유역 주민의 기생충 감염상을 알아보기 위하여 1993년 8월부터 9월까지 이류면 수주리 마을주민 67명을 대상으로 대변검사를 실시하고, 감염원 조사를 위하여 마을앞 달천강 상류지역의 담수어를 투망으로 채집하여 조사하였다. 조사결과 간흡충 양성자가 67명중 22명(32.8%)이었고 메타고니무스 양성자가 14명(20.9%)이었다. 조사한 담수어 17종중 간흡충은 14종이, 메타고니무스는 13종이 감염되어 있었다. 간흡충의 경우 큰납지리, 모래무지, 꼬치동자개, 눈동자개 등이 높은 감염률을 보였고, 메타고니무스의 경우는 참마자, 큰납지리, 모래무지, 피라미 등이 높은 감염률을 보였다. 메타고니무스 양성자로부터 회수한 성충은 Miyata형이었고 피라미에서 얻은 피낭유충을 마우스에 실험감염시켜 회수한 성충도 역시 Miyata형이었다. 위의 결과로 달천강 유역에 담수어를 매개로 한 간흡충과 메타고니무스(Miyata형) 감염이 고율로 유행함을 확인하였다.

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