

EPIDEMIOLOGICAL SURVEY ON CLONORCHIASIS SINENSIS IN YANGXIN COUNTY OF HUBEI PROVINCE OF PR CHINA

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Abstract. An epidemiological survey of clonorchiasis was conducted at Panqiao township of Yangxin County of Hubei Province from June to November, 1993. The positive rate of cercaria in the body of intermediate hosts, *Parafossarulus stratulus* and *Alocinma longicornis* was 12.25% and 3.84% respectively. Positive rates of metacercariae in the bodies of *Pseudonaphona parva* was 48.15%, *Ctenopharyngodon idellus* 17.24% and *Hypophthalmichthys nobilis* 18.18%. Positive rate of eggs in the feces of cats was 36.36% and pigs 16.67%. It has been confirmed that there is a natural focus of clonorchiasis sinensis at Yangxin County of Hubei Province. A total population of 6,865 in 20 sites of 10 production brigades of Panqiao township was surveyed for infection with *Clonorchis sinensis*. The average infection rate in the local residents was 5.80%. Male had a higher infection rate than female. The infected persons were mainly peasants and school girls and boys. Most of the infected persons had light infections (I⁰) without a serious clinical manifestations.

INTRODUCTION

Eggs of *Clonorchis sinensis* were found in feces of a patient who was hospitalized at Daqiao of Yangxin County of Hubei Province because of hepatomegaly and jaundice in May, 1993. Because of this, an epidemiological survey was conducted at Panqiao township of Yangxin County of this province from June to November, 1993. The study aimed to determine the prevalence of clonorchiasis sinensis in Yangxin County through sample survey.

MATERIALS AND METHODS

Selection of survey sites

Two villages in every production brigade were chosen as epidemiological survey sites of clonorchiasis in accordance with the principle of random sampling. The total sites of 20 were selected as spots within the 10 production brigades of Panqiao township of Yangxin County.

Study target

1. All residents over 5 years old were the targets of this study. This survey rate of population was estimated to be higher than 90 % at every site.
2. Intermediate hosts fish and snails living in freshwater.

Survey methods

1. A modified Kato-Katz technic was used to examine for eggs of *C. sinensis* in feces of the population. Two smears were made in every stool specimen (Liang *et al*, 1993; Wang and Jin, 1986).
2. Survey of intermediate hosts, *Parafossarulus striatulus* and *Alocinma longicornis* were investigated for metacercariae of *C. sinensis* by digesting metacercariae in the body of freshwater fish, filtering, water washing and microscopy (Han *et al*, 1983).
3. Survey of reservoir hosts. Eggs in feces of cats, pigs and cattle were detected by modified Kato-Katz technic. Rats were killed for adult *C. sinensis* in the duct of liver and gall-bladder (Li, 1983; Zhu *et al*, 1982).

RESULTS

Infection rate and intensity

Of the total population of 7,187 in 20 sites, 6,865 were examined for clonorchiasis, 3,641 males and 3,215 females. Eggs were found in feces of 389, or 5.80% in the local residents. Average infection rate of males was 7.33% (267/3,641), and females 4.07% (131/3,215), ($\chi^2 = 32.60$, $p < 0.01$).

Eggs in the feces of the infected persons were counted for intensity of infection, light infection (EPG < 1,000) occurred in 265 cases (66.58%) moderate infections (EPG = 1,000 - 9,999) 109 cases (27.39%), severe infection (EPG > 10,000) 24 cases (6.00%) (Liang *et al*, 1993).

The highest infection rates were peasants 314 of overall 398 infected persons were positive (79.65%). Students from the middle school and primary school had 65 cases (16.33%). Four cases were businessmen and teachers (1.00%) and houseworkers 15 cases (3.77%).

All the age groups had infected persons, but infection rates of the 20-29 age group and 30-39 age group were the highest (Table 1).

Table 1

Relationship between *Clonorchis sinensis* infection and ages.

Age group	No. exam	No. positive (%)
5-9	573	7 (1.22)
10-19	992	34 (3.43)
20-29	1,529	140 (9.16)
30-39	1,698	152 (8.95)
40-49	1,059	56 (5.23)
50-59	603	8 (1.33)
≥ 60	411	1 (0.24)
Total	6,865	398 (5.80)

Clinical manifestation

All the 398 infected persons were investigated and followed up by family-visit. Most of them had little

clinical symptom. Some only had slight discomfort, diarrhea, occasional abdominal distention and pains in abdomen, dizziness and weariness. No symptoms were reported in 189 (47.49%). Indigestion was present in 108 cases, (27.14%) hepatitis in 74 cases (18.59%), cholangitis and cholecystitis in 8 cases, (2.01%), neurasthenia in 17 cases (4.27%) hepatocirrhosis 2 cases (0.50%) (Liang *et al*, 1993).

Survey of intermediate hosts

Two hundred and four *Parafossarulus striatulus* and 365 *Alocinma longicornis* were collected from ponds, ditches and rivers and examined for cercariae of *C. sinensis*. Of 204 *P. striatulus*, 25 had cercariae in their bodies, average positive rate was 12.25%; 14 of 365 *A. longicornis* were cercariae positive, a positive rate of 3.84%. Metacercariae of *C. sinensis* were detected in the bodies of *Pseudonaphona parva*, *Ctenopharyngodon idellus* and *Hypophthalmichthys nobilis*, with positive rates of 48.15% (13/27), 17.24% (5/29) and 18.18% (6/33) respectively.

Survey of reservoir hosts

A total number of 24 pigs was examined for egg of *C. sinensis* by modified Kato-Katz technic. Four pigs were positive (16.67%), 4 cats were eggs positive (36.36%). No egg of *C. sinensis* was found in the feces of 12 water buffalos and 7 cattle surveyed. All the 10 rats trapped were negative for adult worms dissecting the hepatic and biliary ducts.

DISCUSSION

Positive *Parafossarulus striatulus* and *Alocinma longicornis*, and second intermediate hosts, *Pseudonaphona parva*, *Ctenopharyngodon idellus* and *Hypophthalmichthys nobilis* were found within the boundaries of Panqiao township of Yangxin County of this province.

The results showed that eggs were found in the feces of cats and pigs in the areas of clonorchiasis and the average infection rate of *C. sinensis* in the local residents was 5.80%. Every age group had infected persons from five years old onward. But most of the infected people only had slight infection, a low degree of disease and almost with no clinical symptoms and

signs. Clonorchiasis sinensis has been epidemic in the locality, but the extent and degree of disease have not yet been serious. Provided effective countermeasures are taken as soon as possible, an epidemic of clonorchiasis sinensis in the locality should be absolutely controlled. Infection with *C. sinensis* of populations in those survey sites were mainly caused by holding fish with metacercariae in the mouth while catching fish in water, eating raw or rare fish and eating food cooked in contaminated kitchen utensils (Wang *et al*, 1983; 1985). These factors also were the causes of higher infection rates in the peasants and school children .

Infections of the reservoir hosts, cats and pigs, were brought about by them being fed with fresh and raw fish, eating fish on the bank of river, pond and ditch and stealing fish drying in the sun.

Pigs in the locality ate human feces because they run freely outside pigpens. That was also one of the reasons why *C. sinensis* eggs in the pig feces .

Pigs ate fish lost on the banks of the river, pond and ditch. Pigs defecated in water with the result that *C. sinensis* eggs got into the water with pig feces. This permitted the snail first intermediate hosts, to become infected with *C. sinensis*. It is of great significance to epidemiology of clonorchiasis.

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