

Image Diagnosis and Treatment of Human Opisthorchiasis

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Abstract

One case of opisthorchiasis treated with praziquantel is reported with clinical manifestations, laboratory data and liver ultrasonography findings. The patient is a 27-year-old Thai woman from northeastern Thailand and used to eat raw freshwater fish in her birthplace. She was admitted to the hospital because of continuous right quadrant pain, nausea and epigastralgia. Since abdominal X-ray and liver ultrasonography revealed the stone-like shadow in the gall bladder, cholecystectomy and choledochostomy were performed under the diagnosis of choledocholithiasis. During the operation, over tens of adult *O. viverrini* were found in the bile and ectomized organ. Faecal egg examination detected 350–500 eggs per gram of feces of the patient. Laboratory investigation revealed eosinophilia (22%) just before the operation, and transient elevation of serum alkaline phosphatase and ZTT, which was slightly suggestive of the obstruction of the biliary duct. A test for hepatocellular and renal function was within normal limits. She was orally administered with 50 mg/kg of praziquantel in 3 doses for 3 consecutive days. Side effects as nausea and abdominal pain were observed, but they were mild and disappeared after treatment. Within 1 week after administration, complete clinical cure was obtained and a stool examination revealed no eggs in feces.

Key words: *Opisthochis viverrini*, praziquantel, liver ultrasonography

Introduction

Opisthorchiasis is highly endemic in the northeastern part of Thailand and it has been estimated that at least 7 million people harbour this liver fluke in the country (Preuksaraj *et al.*, 1982). This disease is chronic in nature, on occasion causes relapsing cholangitis and a few has been reported to be associated with cholangiocarcinoma (Sonakul *et al.*, 1978).

Praziquantel, 2-cyclohexylcarbonyl-1,2,3,6,7,11b-hexahydro-4H-pyrazino[2,1-a]isoqui-

nolin-4-one, is highly effective against *Opisthochis viverrini* even at a small dosage, i.e., 25 mg/kg # 3 daily for 1 or 2 days (Bunnag and Harinasuta, 1982). A pilot project for controlling *O. viverrini* infection using praziquantel has been conducted in the endemic area in Thailand and its high cure rate over 95% was obtained at a dosage of 40 mg/kg for a day (Sornmani *et al.*, 1984).

In the present study, a patient from northeastern Thailand was diagnosed as opisthorchiasis by faecal egg examination and the adult flukes found in the bile. Clinical manifestation was analysed by abdominal X-ray and liver ultrasonography with changes of laboratory data. Treatment with praziquantel at a dose of 50 mg/kg daily for 3 consecutive days successfully resulted in complete clinical cure and disappearance of eggs in feces.

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Case Report

A 27-year-old woman was admitted to the hospital on November 6, 1987, because of continuous right quadrant pain, nausea and epigastralgia just after the meal. She was born and lived in Srisiket, northeastern Thailand, where raw freshwater fish are the main source of protein. As duodenal ulcer was suspected and the ulcer scar was observed on X-ray later, sucrofolate (Ulcerlmin®) and anticholinergic drugs were described for more than 1 month. However, her response to medicine was unsatisfactory, and abdominal X-ray (Fig. 1) and liver ultrasonography revealed the stone-like shadow in the gall bladder (Fig. 2). Under the diagnosis of choledocholithiasis, cholecystectomy and choledochostomy were performed on January 11, 1988. During the operation, over tens of adult fluke of *O. viverrini* were found in the bile and ectomized organ (Fig. 3).

The patient had no fever, liver tenderness and jaundice. The liver and spleen were not

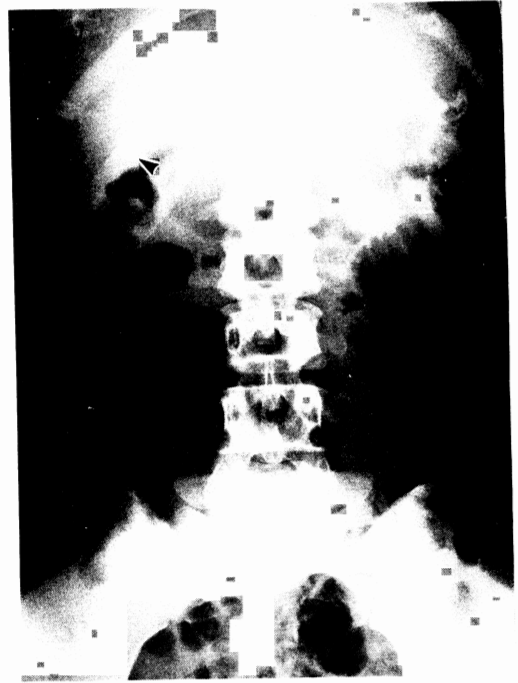


Fig. 1. Abdominal X-ray of the patient. Stone-like shadow was seen just under the right lobe of the liver (arrow).



Fig. 2. Liver ultrasonography of the patient. The shadow was approximately 18 mm in diameter.



Fig. 3. Adult fluke found in the bile during the operation.

palpable. Laboratory investigation revealed the findings as shown in Table 1. Complete blood count was normal, but eosinophilia (22.0%) was observed on the operation day. There was no bilirubinuria or elevation of serum bilirubin. Transient elevation of serum alkaline phosphatase and ZTT was slightly suggestive of the obstruction of the biliary duct. A test for hepatocellular and renal function was within normal limits.

The results of stool examination throughout the clinical course are shown in Table 2. Routine faecal examination for parasite eggs was performed 3 times before treatment. On March 23, 1988, she was orally administered

with 50 mg/kg of praziquantel in 3 doses for 3 consecutive days. Side reactions included nausea and abdominal pain, although these were mild and disappeared after treatment. Complete clinical cure was obtained 1 week after the administration and a stool examination revealed no eggs in feces on March 31, 1988.

Discussion

Although infections of *O. viverrini* are only known to occur in northeastern Thailand, the disease is a major public health problem in the land where people easily acquire infection through eating habits (Sadun *et al.*, 1955; Harinasuta and Vajrasthira, 1960).

As with the chinese liver fluke, *Clonorchis sinensis*, the pathology is mainly confined to the biliary tract system. Morbidity is significantly associated with the worm burden of the host. Weakness and right upper quadrant pain described here is a common complaint of infected patients. The diagnosis can be made by the detection of characteristic eggs in feces and present history of the patients. It is difficult to distinguish opisthorchiasis from clonorchiasis based on the recovery of a characteristic eggs in the feces. In the present study, a patient was diagnosed on the basis of morphological characteristics of the adult flukes obtained from the bile, such as the shape of testis and the aggregation of vitellaria into a few clusters of glandular material.

In opisthorchiasis, there are distention and dysfunction of gall bladder and common bile duct which can be demonstrated by roentgenogram (Dhiansiri *et al.*, 1984; Harinasuta *et al.*, 1984). Abdominal X-rays and liver ultrasonography demonstrated in the present case strongly suggested the distention of the gall bladder and a large stone-like shadow inside, though no stones were found in the ectmized organ. No specific abnormality was indicated from the laboratory data except for transient increase of eosinophils, serum alkaline phosphatase and ZTT. Changes of laboratory data seemed to indicate the severity of the lesions,

Table 1 Laboratory findings of the patient throughout the clinical course

	Dec. 20	Jan. 8 ↑ operation (Jan. 11)	Jan. 12	Jan. 29	Feb. 21 ↑ treatment (Mar. 23-30)	Mar. 28
R. B. C.	525 × 10 ³ /mm ³	537	465	540	494	473
W. B. C.	8500/mm ³	8500 (eosino. 22%)	16100	7400	7300	5800
Hb	13.1 g/dl	13.3	11.5	12.9	11.9	11.7
Ht	39.5%	41.4	35.9	42.5	38.3	36.7
Plt	33.5 × 10 ³	30.0	28.6	24.4	37.1	31.3
CRP	—	0.1	—	—	—	—
ESR	30 mm/h	22	45	22	ND	ND
Total Protein	7.9 g/dl	7.1	5.8	6.2	ND	7.2
Total Bil.	0.43 mg/dl	0.28	0.61	0.38	ND	0.33
S-GOT	23 U/l	22	50	44	17	33
ZTT	13.2 U/l	16.4	14.1	13.4	ND	9.7
AIP	399 U/l	255	187	222	223	221
LDH	390 U/l	336	405	262	312	408
γ-GTP	ND U/l	12	8	9	ND	11
BUN	14.9 mg/dl	13.4	10.8	12.6	9.4	10.1
Cr	0.9 mg/dl	0.5	0.7	0.7	0.7	0.7

* ND: Not done

Table 2 Numbers of eggs of *Opisthorchis viverrini* detected in a gram of feces of the patient

	Days before treatment			Days after treatment
	9 days	6 days	5 days	8 days
No. of eggs/gram of feces	374.0	352.8	491.67	0

such as the obstruction of the biliary duct, which may depend on the intensity and duration of the infection.

Praziquantel proved to be highly effective in hospital cases and the rate of healing varied directly with the degree of dysfunction. Other factors, such as age, sex, the worm load and the presence of stones were suggested to have no influence on healing (Bunnag *et al.*, 1984). A minimal effective dose of praziquantel on opisthorchiasis was reported 25 mg/kg and this regimen yielded a cure rate of 88% (Bunnag and Harinasuta, 1981). In the present study, we used the dose of 50 mg/kg for 3 consecutive days because complete cure was desired. Within

a week after treatment fecal egg counts inverted and complaints were vanished. Light abdominal pain and nausea appeared during treatment, but such side reactions were mild and disappeared immediately after withdrawal of praziquantel.

The mechanism of action of praziquantel on a molecular level is still far from being completely understood. Its mode of action is considered to be surface tegumental damage (Mehlhorn *et al.*, 1983) caused by the increase of the permeability of the tegument of Ca²⁺ binding or transport across the membrane (Ruenwongsa *et al.*, 1983).

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