CLINICAL FEATURES IN SEVERE OPISTHORCHIASIS VIVERRINI

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INTRODUCTION

Opisthorchis viverrini, the mature flukes live in the bile ducts, pancreatic ducts and occasionally in the gallbladder (Harinasuta and Harinasuta, 1984). In light infections, there is no change in the liver parenchyma. However, in heavy and severe infections, there is obstruction of the biliary tracts, bile retention, hyperplasia of the biliary system, cholangitis and fibrosis in the portal areas. The gallbladder may be enlarged and show dysfunction (Harinasuta *et al.*, 1984).

Clinical features of opisthorchiasis vary from mild to severe manifestations. Most cases are symptomless, or present with mild symptoms of pain in the right costal margin and epigastrium, lassitude, anorexia and flatulence (Bunnag, 1980). Severe manifestations associated with portal cirrhosis, ascending cholangitis and biliary obstruction are seen in some cases. Opisthorchiasis is generally diagnosed based on stool examination, but the reliability of stool examination in severe opisthorchiasis has not been clarified.

This study was undertaken to record the intensity of infection and establish the correlation of faecal egg output and clinical manifestations in severe opisthorchiasis patients.

MATERIALS AND METHODS

Patients who came to Hospital for Tropical Diseases, Bangkok, Thailand during July 1982 to June 1984 for treatment of opisthorchiasis infection were studied. Out of 15,243 patients diagnosed as opisthorchiasis, 88 (0.57%) presented with severe clinical manifestations. The symptoms and signs of each patient were recorded and the laboratory investigations were carried out included stool examination by Stoll count (1923). The routine biochemical tests included serum bilirubin, alkaline phosphatase, serum transaminase, cholesterol, albumin and globulin ratio, blood urea nitrogen, creatinine and blood sugar. The haematological tests consisted of haemoglobin, packed cell volume, white blood count, differential count, platelet, reticulocyte count and sedimentation rate. Percutaneous liver biopsy was performed in 10 patients. The obstructive jaundice cases were referred to surgery.

RESULTS

The 88 patients consisted of 76 males and 12 females, sex ratio of 6.3 : 1. Their age ranged from 22-69 years. The prevalence according to age group is shown in Table 1. In 75% of cases the manifestations occurred in the 4th decade.

The clinical signs and symptoms usually seen in severe opisthorchiasis are shown in Tables 2 and 3. Forty-one patients had severe jaundice; 19 patients had obstructive jaundice alone, and 22 patients associated cholangitis or cholecystitis. Twenty-six patients (29.5%) had either mild (4 patients) or deep jaundice (22 patients), fever and leucocytosis. While 47 presented with intraabdominal mass and swollen abdomen, which was enlarged liver in 37 patients, 10 patients had ascites. Eighteen had fever, 7 with marked liver enlarge-

Table 1

Distribution of patients according to age group.

Age (Yr)	No. of patients (%)	Ca liver (%)
21 – 30	7 (8.0)	1 (1.1)
31 – 40	15 (17.0)	0
41 – 50	29 (33.0)	8 (9.1)
51 – 60	33 (37.5)	7 (8.0)
61 – 70	4 (4.5)	0
Total	88 (100.0)	16 (18.2)

Table 2

The clinical features of 88 patients with severe opisthorchiasis.

Clinical features	No. of patients (%)
Jaundice	
Severe	41 (46.6)
Mild	4 (4.5)
Fever (> 37.5'C in 2 days)	44 (50.0)
Size of the liver	
0 cm	2 (2.3)
1-3 cm	36 (40.9)
4-5 cm	22 (25.0)
6-7 cm	21 (29.9)
8-10 cm	4 (4.5)
10 cm	3 (3.4)
Ascites and pedal edema	10 (11.4)
Palpable gallbladder	16 (18.2)

ment and bulging of upper part of abdomen, and 16 (18.2%) had palpable gallbladder. Only 2 had no liver enlargement. Eleven obstructive jaundice patients were referred to surgery.

The laboratory findings on admission are shown in Table 4. The bilirubin in obstructive jaundice patients ranged from 5.2 to 53.1 mg/dl; in non-jaundice patients 0.2 to 3.9 mg/dl with direct bilirubin 0.08 to 2.1 mg/dl. The haematological data in jaundice and non-jaundice patients were similar. Jaundice patients had alkaline phosphatase, ranged from 3.4 - 81.9 BU/dl and in non-jaundice patients 1.8 - 45.6 BU/dl; 70 patients (79.5%) had high alkaline phosphatase (over 4 BU/dl), 55 patients (62.5%) had low plasma albumin (less than 3.5 gm/dl). Five patients had plasma albumin lower than 2 gm/100ml.

Table 3

Presenting symptoms of severe opisthorchiasis.

Symptoms	No. of patients (%)
Obstructive jaundice	41 (46.6)
without secondary infection	19 (21.6)
with secondary infection	22 (25.0)
Cholangitis	26 (29.5)
deep jaundice	22 (25.0)
mild jaundice	4 (4.5)
Intraabdominal mass and swollen abdomen	47 (53.4)
enlarged liver	37 (42.0)
ascites	10 (11.4)

Serum transaminase level was elevated in 69 cases (78.4%). Almost all jaundice patients (except 1 case) had high serum transaminase; 68.2% had serum transaminase level ranging from 40 to 200 units/ml. Only 2 patients (2.3%) had transaminase more than 500 units/ml.

The faecal egg output varied from 0 to 216,600 EPG, the intensity of faecal egg output in jaundice and non-jaundice patients are shown in Table 5.

The patients with obstructive jaundice or cholangitis had lower egg output than non-

Table 4

Initial laboratory findings in patients with severe opisthorchiasis.

	Jaundice	Non-jaundice	Normal values
	Mean (range)	Mean (range)	range
No. of patient	41	47	-
Haemoglobin gm%	10.9 (4.9-14.8)	11.3 (6.0-15.2)	12-16 (female) 14-18 (male)
White blood count/c.mm	12,767.5 (5,200-34,600)	10,132.3 (3,500-16,700)	5,000-10,000
Total bilirubin mg/dl	19.9 (5.2-53.1)	1.03 (0.2-3.9)	0.3-1.2
Direct bilirubin mg/dl	13.2 (2.98-36.3)	0.47 (0.08-2.1)	0.03-0.5
Alkaline phosphatase B.U/dl	18.3 (3.4-81.9)	10.8 (1.8-45.6)	1-4
Albumin gm/dl	2.9 (1.2-4.0)	3.4 (1.7-4.5)	3.5-5.0
Globulin gm/dl	4.1 (2.4-6.5)	3.5 (2.3-5.2)	2.5-3.0
SGOT Units/ml	136.5 (34-720)	57.3 (18-186)	10-40
SGPT Units/ml	102.8 (23-730)	41.8 (13-267)	10-35

Table 5

The correlation of intensity of faecal egg output in jaundice and non-jaundice patients.

Faecal egg out put EPG range	Jaundice		Non-jaundice	
	No.	Percent	No.	Percent
0	2	2.3	0	0
1 – 1,000	16	18.2	6	6.8
1,001 – 10,000	18	20.4	17	19.3
10,001 – 100,000	5	5.7	22	25.0
> 100,000	0	0	2	2.3
Total	41	46.6	47	53.4

jaundice group. Two obstructive jaundice patients had no eggs in stool, but at surgery 197,708 *O. viverrini* eggs were recovered from the gallbladder of one patient, and 11,889,000 eggs and 127 flukes in the bile from gallbladder and left lobe of the liver from the other patient.

Adenocarcinoma of the liver was diagnosed in 16 patients (18.2%), from 3 autopsies, 8 liver biopsies, 2 surgical specimens and 3 ascitic fluids. Other associated cancers in these patients were carcinoma of the head of pancreas, breast and stomach, lymphoma and 2 metastatic carcinoma of the liver.

Fifteen of 16 patients were over 40 years old (ranging from 42 to 57 years). The youngest was a 23 year-old man.

DISCUSSION

Severe opisthorchiasis is commonly seen in patients aged over 40 years. These patients live in the endemic areas and they acquire the infections at very early life. The long duration of infections and accumulated flukes from repeated infections have contributed towards the severity of the disease.

Laboratary findings of high bilirubin confirmed the diagnosis of jaundice. Elevation of serum enzymes alkaline phosphatase, transaminase and low plasma albumin are commonly found. These findings are compatible with hepatic cirrhosis and cholestasis (Wyngaarden and Smith, 1982). Harinasuta *et al.*, (1984) found cirrhosis associated with opisthorchiasis in autopsies. Alcoholic cirrhosis might play a role; many patients admitted that they had consumed alcohol for years. The nutritional status of these patients are poor. The mean haemoglobin levels are below normal values. Ten patients had pedal edema and ascites. Nutritional deficiency also contributed to low plasma albumin.

In this study, all opisthorchiasis patients with adenocarcinoma had elevation of alkaline phosphatase. High alkaline phosphatase has been reported in primary and metastatic carcinoma of the liver (Wyngaarden and Smith, 1982).

The intensity of faecal egg output did not correlate with the severity of the disease. In patients with complete biliary obstruction eggs were not able to pass through, thus were not found in stool. There were two patients with obstructive jaundice. There were no eggs in stool, but numerous eggs and flukes were found in the biliary system at surgery. Therefore the diagnosis and interpretation of severity of infection in these patients can not be based on the stool egg output.

Sonakul, (1978) found a high incidence of carcinoma of the liver in opisthorchiasis patients. In this study, 16 patients (18.2%) had adenocarcinoma of the liver which is a serious complication leading to death.

From the study it may be concluded that severe opisthorchiasis is common in the age group of over 40 years, males more than females; the symptoms, signs and associated complications are jaundice cholangitis, cholecystis, enlarged liver and gallbladder. Adenocarcinoma of the bile duct is commonly found in these patients.

SUMMARY

Clinical features of severe opisthorchiasis were studied in 88 patients. The ratio of males to females was 6.3 : 1 ; 75% were over 40 years old. The presenting symptoms were obstructive jaundice, 25% associated with secondary infection of biliary system; cholangitis and cholecystitis; intraabdominal mass, which was enlarged liver; 18% had palpable gallbladder; 18% had adenocarcinoma of the bile duct.

High bilirubin was found in 46% of cases, high alkaline phosphatase in 80%; elevation of serum transaminase in 78% and low serum albumin in 62% of patients.

There was no correlation between severity of the disease and the faecal egg output. The obstructive jaundice patients had low or no egg output. Two patients had no eggs in stool, but numerous *Opisthorchis viverrini* eggs and flukes were found in the gallbladder and bile ducts at operation.

REFERENCES

BUNNAG, D. and HARINASUTA, T., (1980). Studies on the chemotherapy of human opisthorchiasis. I. Clinical trial of praziquantel. *Southeast Asian Trop. Med. Pub. Hlth., 11* : 528.

HARINASUTA, C. and HARINASUTA, T., (1984). *Opisthorchis viverrini* : Life cycle, intermediate hosts, transmission to man and geographical distribution in Thailand. *Drug Res., 34* : 1164.

HARINASUTA, T., RIGANTI, M. and BUNNAG, D., (1984). *Opisthorchis viverrini* infection: Pathogenesis and clinical features. *Drug Res., 34* : 1167.

SONAKUL, D., KOOMPIROCHANA, C., CHINDA, K. and STITNIMAKARN, T., (1978). Hepatic carcinoma with opisthorchiasis. *Southeast Asian J. Trop. Med. Pub. Hlth., 9* : 215.

STOLL, N.R., (1923). Investigation on the control of hookworm disease, X V : An effective method of counting hookworm eggs in faeces. *Amer. J. Hyg., 3* : 81.

WYNGAARDEN, J.B. and SMITH, L.H., (1982). *Cecil Textbook of Medicine.* 16th ed. W.B. Saunders Company, Philadelphia, London, pp. 813.