

# Treatment for Opisthorchiasis and its Clinical Manifestations

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**ABSTRACT:** *Opisthorchiasis is a trematode (illness caused by infection with one of the liver fluke species Opisthorchis, which may be acquired by eating raw or undercooked freshwater fish harboring infected metacercariae. In Laos and Thailand, the cost of medical care and lost revenue due to Opisthorchis viverrini is estimated to be about \$120 million per year. Opisthorchis viverrini and other liver flukes infect the lowest and most destitute people in Asia. In the National Accreditation Organizations of neglected tropical diseases, opisthorchiasis is one of four trematode disorders (together with clonorchiasis, fascioliasis, as well as paragonimiasis). In many parts of Southeast Asia, including Thailand, Lao PDR, Vietnam, and Cambodia, opisthorchiasis is still a significant public health issue. This article provides an overview of current advances in the clinical investigation and treatment of opisthorchiasis. Details on opisthorchiasis clinical symptoms, hepatobiliary illnesses or liver function, a community-based ultrasonography investigation, treatment effectiveness, and future research are addressed.*

**KEYWORDS:** *Opisthorchis Viverrini, Community, Hepatobiliary Disease, Ultrasonography.*

## 1. INTRODUCTION

A liver fluke, *Opisthorchis viverrini*, is a significant public health issue in Northeast Thailand. It is linked with a variety of asymptomatic hepatobiliary disorders which may be detected by roentgenography and ultrasonography. These evidences include expansion of the left hepatic lobe and the gallbladder, decrease of gallbladder contractility, presence of sludge, or increased periportal echoes. There is a strong connection between degree of infection (based on faecal matter egg counts) and the frequency and severity of these anomalies among closely matched, seemingly healthy individuals recruited from village populations. Moreover, the fluke is an etiology of cholangiocarcinoma (CHCA), which is very common in this area. the age-standardize incidence of CHCA is predicted to be 89 per 100,000 for females as well as 129 per 100,000 for men, compared to 1–2 per 100,000 in Western nations[1].

### 1.1. Clinical manifestations:

*Opisthorchis felinus* the acute symptoms develop 2–4 weeks after consuming raw fish. The symptoms include high-grade fever, malaise arthralgia, lymphadenopathy, and skin rash. The laboratory results include eosinophilia and elevated liver enzymes. These clinical characteristics may lead to misconceptions as acute viral hepatitis including rheumatic illness. Sub-acute and chronic signs of *O. felinus* infection include suppurative cholangitis and liver abscess.

### 1.2. *Clonorchis sinensis*:

Acute infestation with *C. sinensis* is generally asymptomatic; some individuals may suffer from fever, rash, malaise as well as right upper quadrant stomach pain. Chronic clonorchiasis may be accompanied by gallbladder and intrahepatic duct stone, recurrent pyogenic cholangitis,

cholecystitis, liver abscess. The connection between clonorchiasis and cholangiocarcinoma had been documented.

### *1.3. Opisthorchis viverrini:*

There is no record of acute *O. viverrini* infection as to our knowledge. Most individuals with opisthorchiasis show no symptoms. Only 5–10 percent of severely infected individuals experience non-specific symptoms including such right upper quadrant stomach discomfort, flatulence, tiredness, and burning feeling across the abdomen. Mild hepatomegaly occurs in 14 percent of the 309 patients, particularly in the highly infected group (egg counts > 10,000 epg), neither jaundice nor splenomegaly is seen. Enlargement of the gallbladder is only identified by ultrasonography and is reversed following removal of flukes by praziquantel. Intrahepatic duct stones and recurring suppurative cholangitis is not the frequent symptom of opisthorchiasis caused by *O. viverrini*. Whenever jaundice and ascending cholangitis are found, the fluke-related CHCA is indicated[2].

### *1.4. Clinical symptoms of opisthorchiasis-associated cholangiocarcinoma:*

Jaundice is the primary clinical symptom that accounts for 60 percent of a hospital series of opisthorchiasis-related CHCA in Northeast Thailand. The patients may present with (a) liver dysfunction alone, (b) obstructive jaundice with fever, or (c) obstructive jaundice accompanying acute abdominal complications, such as cholangitis, acalculous cholecystitis and widespread bile peritonitis. Non-jaundiced individuals may appear with dyspeptic discomfort, anorexia, weight loss, right upper abdominal mass and distant metastases[3].

### *1.5. Peripheral (intrahepatic) type:*

Most individuals with peripheral CHCA present with palpable liver mass. The tumor may be solitary or numerous and may include one or both lobes of the liver. Majority of the tumor mass is situated in the posterior portion of the right lobe close to the diaphragm. Though non-specific, serum alkaline phosphatase (ALP), carcinoembryonic antigen (CEA), and carbohydrate antigen (CA 19-9) are typically increased in advanced CHCA. Ultrasonography is performed first to locate the tumor. Small tumors are hypoechoic or isoechoic, while big tumors may show a hyperechoic or mixed-echoic pattern. Peritumoral bile duct dilatation is sometimes observed. Computed tomography (CT) reveals an inhomogeneous hypodense mass with an ill-defined boundary, (Figure 1). On enhanced dynamic CT, a modest to moderate peripheral enhancement with gradual central filling is seen. The tumor mass, as identified by angiography, is relatively low vascular, with late arterial phase neovascularity and no arteriovenous shunting. Magnetic resonance imaging provides more information than CT. Although conclusive histological diagnosis needs needle biopsy, this has not been done regularly because of the danger of severe consequences[4].

### *1.6. Central (extrahepatic) kind:*

The most frequent presentation of the central CHCA is obstructive jaundice, which develops gradually without fever initially. In the late stage, fever (due to ascending cholangitis) is a frequent finding along with anorexia, losing weight, pale stool, pruritus, or dyspepsia. Pain in the right shoulder, right subscapular area and back develops when the tumor metastasizes to the diaphragm. The most frequent physical signs are hepatomegaly, including moderate to severe jaundice, and palpable gallbladder. Ultrasonography is extremely helpful in diagnosis and localisation of tumor.

Endoscopic retrograde cholangiopancreatography (ERCP) provides the information of the level and degree of the bile duct.



**Figure 1: CT reveals dilated intrahepatic tract in an Opisthorchis-infected patient, supporting a diagnosis of cholangiocarcinoma[5].**

*1.6.1. Hepatobiliary disorders:*

Hospital-based and autopsy investigations have shown many pathological alterations in individuals with *Opisthorchis* infections, including gallbladder or liver enlargement, cholecystitis, cholangitis, as well as bile duct desquamation and proliferation. Similar results are found in community-based investigations utilizing ultrasonography conducted in Northeast Thailand. Gallbladder anomalies include swelling, sludge, and uneven wall[6].

*1.6.2. Gallbladder size:*

The average length, breadth, and cross-sectional diameter of the gallbladder rose directly with the egg count, with rapid rise among the high intensity group. There is also substantial connection between parasite-specific IgG and the hypertrophy and poor function of the gallbladder. Ten months following praziquantel therapy, 12.5 percent of patients still had stool positive for *O. viverrini*, although reduced length and breadth of the gallbladder were apparent.

*1.6.3. Gallbladder sludge and atypical wall.*

Gallbladder sludge and atypical wall are observed in 24.9 and 22.8 percent of 974 *O. viverrini*-infected patients, respectively, and they typically occur simultaneously. More than 60 percent of the patients that emit more than 6000 eggs per gram (epg) exhibit similar abnormalities.

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#### 1.6.4. *Cholelithiasis:*

The frequency of gallstones among men and females is 4.5 and 5.6 percent, respectively. Stones were detected in more than 7 percent, excreting more than 1500 epg. Among patients who had praziquantel therapy for 6 years or longer, there was a 12.6 percent prevalence of cholelithiasis. From these data it seems doubtful that praziquantel therapy is a cause of cholelithiasis and not old age.

#### 1.6.5. *Hepatic anomalies:*

From our previous community-based research in Northeast Thailand, numerous hepatobiliary abnormalities as identified by ultrasonography have been reported. Height of the left hepatic lobe as corrected for body weight in females and those less than 45 years old rose with the severity of *Opisthorchis* infection, whereas it reduced in highly infected men and those of an older age group. The hepatic parenchyma exhibits higher echoes in 5.6 or 1.6 percent among men and females, respectively. Most individuals have a history of regular use of alcohol or steroid-containing medications for pain management. Moderate to severe elevated periportal echoes are seen in 41 percent, while sludge and uneven gallbladder wall follow 75 percent of the cases. Nearly all of these patients excrete more than 500 epg. A maximum adjusted prevalence odds ratio (POR) is observed in the highly infected group. Males had almost twofold greater chances of having enhanced periportal echoes than females of comparable age and severity of illness[7].

#### 1.7. *Cholangiocarcinoma or severity of infection:*

Twenty-five instances out of the 1807 community screening participants in our study were identified as CHCA by ultrasonography. After confirmation by CT and ERCP, 15 patients were still classified as CHCA. Seven patients had severe infection (>6000 epg) A significant linear trend in the frequency of CHCA with egg production is found. Although the community screening of fluke-related CHCA by ultrasonography is feasible, it is not cost-effective. Therefore, this screening technique is not suggested for regular health screening.

#### 1.8. *Treatments or efficacy:*

Praziquantel is the medication of choice for *O. viverrini*, *O. felineus*, and *C. sinensis* therapy. A single dosage (40 and 50 mg/kg) of praziquantel therapy provides an *O. viverrini* eradication rate of 91 and 97 percent, respectively. Praziquantel at 25 mg/kg in three separate doses provides 100 percent eradication. Its adverse effects include nausea, vomiting, headache, and stomach pain. Thirty milligrams of mebendazole for 21 and 28 days provides an eradication rate of 94 and 89 percent, respectively. Giving albendazole 400 mg in two divided doses for 7 days gives an eradication rate of just 63 percent. Given the great effectiveness of single-dose praziquantel, the medication has been utilized for an opisthorchiasis control program in Thailand. This regimen provides an excellent eradication rate not just for *O. viverrini* but also for other intestinal flukes. However, health education with regard to dietary behaviors is important to avoid re-infection of the fluke following therapy[8].

#### 1.9. *Diagnosis:*

The clinical diagnosis is made by utilizing the Kato method to detect *Opisthorchis viverrini* eggs in feces. *Opisthorchis viverrini* antigen 89 kDa may be identified using an ELISA assay. In a rural community in central Thailand, a polymerase assay capable of amplifying a portion of the internal transcribed spacer region of ribosomal DNA for the opisthorchiid and heterophyid fluke's eggs obtained directly from feces was created and assessed. The smallest amount of DNA that could be amplified from *Opisthorchis viverrini* adults was determined to be 0.6 pg.

## 2. LITERATURE REVIEW

Andriamanantena et al studied about Distomatosis seem to be parasitic zoonosis induced by infection with trematodes; humans may inadvertently become the ultimate host of the parasite. Infection develops by consumption of infected food (plants or raw shellfish) (plants or raw shellfish). Clinical symptoms depend on the tropism of the fluke: hepatobiliary for fascioliasis as well as opisthorchiasis, pulmonary for paragonimiasis, and intestinal. Infection with *Fasciola hepatica* is a world-wide illness; the other distomatosis are prevalent in Africa, South America as well as Southeast Asia. Diagnosis, suspected in front of epidemiological facts (stay in endemic region, dietary habits) and hyper eosinophilia, is based on the discovery of the parasite or its eggs, and on serology. Drugs of choice include praziquantel, bithionol, and triclabendazole whose efficacy, excellent tolerance and single dosage make it currently the top choice therapy. Endoscopic treatment is helpful in biliary blockage. Suppression of health risk is the greatest method for preventative approach[9].

Xiao Ting Guet al studied about Snail-borne parasitic diseases, such as angiostrongyliasis, fasciolosis, clonorchiasis, fascioliasis, opisthorchiasis, paragonimiasis and schistosomiasis, pose risks to human health and cause major socioeconomic issues in many tropical and sub-tropical countries. In this study we outline the main functions of snails in the life cycles of the parasites that host, their clinical presentations and disease distribution, as well as snail management strategies. Main body. Snail-borne parasite illnesses attack numerous organs, such as the lungs, liver, biliary tract, intestines, brain and kidneys, leading to hyperactive immune responses, malignancies, organ failure, infertility and even death. Developing nations in Africa, Asia and Latin America have the greatest rates of these illnesses, but certain endemic parasites have grown into international epidemics via the global spread of snails. Physical, chemical and biological techniques have been developed to manage the host snail populations to avoid illness. Conclusions: In this review, they summarize the roles of snails in the life cycles of the parasites they host, the worldwide dispersion of parasitic organism snails, the epidemiology and pathogenesis of snail-transmitted parasitic diseases, as well as the established snail control measures, which will make a contribution to further understanding the snail-parasite relationship or new strategies for controlling snail-borne parasitic diseases[10].

Sukkaromdee et al investigated approximately Opisthorchiasis or liver fluke infestation is a frequent parasite infection in tropical regions. In persistent infection, the malignant change of hepatobiliary cell may be observed. Its high prevalence in Indochina is related to the high incidence of cholangiocarcinoma in that region. Nevertheless, the acute clinical issue related to opisthorchiasis is also present but rarely discussed. In this brief paper, the writers evaluate and comment on the clinical presentation of acute opisthorchiasis[11].

### 3. DISCUSSION

Effective prevention might be easily accomplished by convincing people to eat cooked fish (through education campaigns), but the old cultural tradition to consume raw, undercooked or newly pickled fish continues in endemic regions. One community health initiative, known as the "Lawa" model, has found success in the Lawa Lakes area south of Khon Kaen. Currently, there is no effective chemotherapy to fight cholangiocarcinoma, so that intervention methods need to depend on the prevention or treatment of liver fluke infection/disease. Opisthorchiasis is one of four trematode illnesses (alongside clonorchiasis, fascioliasis and paragonimiasis) in the World Health Organization's list of neglected tropical diseases. The aforementioned investigations have demonstrated that severity of Opisthorchis infection is a significant predictor of many hepatobiliary abnormalities and an increased susceptibility to cholangiocarcinoma. Future research should concentrate on the elimination of liver flukes and the disruption of the carcinogenesis process. This article provides an overview of recent advances in the clinical research of opisthorchiasis and therapy. Details of clinical symptoms of opisthorchiasis, hepatobiliary illnesses and liver functions, community-based ultrasonography research, treatment effectiveness, and future study are addressed.

### 4. CONCLUSION

Opisthorchiasis is a parasitic illness caused by species in the genus *Opisthorchis* (particularly, *Opisthorchis viverrini* as well as *Opisthorchis felinus*) (specifically, *Opisthorchis viverrini* or *Opisthorchis felinus*). Chronic infection may develop to cholangiocarcinoma, a malignant tumour of the bile ducts. Medical treatment and loss of income caused by *Opisthorchis viverrini* in Laos and in Thailand costs approximately \$120 million yearly. Infection with *Opisthorchis viverrini* and other liver flukes in Asia afflict the poor and poorest individuals. This article provides an overview of recent advances in the clinical research of opisthorchiasis and therapy. Details of clinical symptoms of opisthorchiasis, hepatobiliary illnesses and liver functions, community-based ultrasonography research, treatment effectiveness, and future study are addressed. Opisthorchiasis is one of four trematode illnesses (alongside clonorchiasis, fascioliasis as well as paragonimiasis) in the Accreditation of Healthcare organizations of neglected tropical diseases. The aforementioned investigations have demonstrated that severity of *Opisthorchis* infection is a significant predictor of many hepatobiliary abnormalities and an increased susceptibility. to cholangiocarcinoma. Future research should concentrate on the elimination of liver flukes and the disruption of the carcinogenesis process.

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