

Choledocholithiasis comorbidity with *Clonorchis sinensis*: A case report

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Abstract

Coexisting gallbladder stones, common bile duct stones and *Clonorchis sinensis* infection is rare. Most radiologists and surgeons have low awareness and diagnostic suspicion of *C. sinensis* infection before opting for surgery.

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Abstract

BACKGROUND

Coexisting gallbladder stones, common bile duct stones and *Clonorchis sinensis* infection is rare. Most radiologists and surgeons have low awareness and diagnostic suspicion of *C. sinensis* infection before opting for surgery.

CASE SUMMARY

A 39-year-old man was admitted to our department with complaint of right upper quadrant abdominal pain of 5 h duration. Physical examination revealed tenderness in the upper right abdomen and a positive Murphy sign. Increasing transaminase and bilirubin levels were the major laboratory findings. Preoperative imaging showed gallbladder stones, a common bile duct stone with slight dilatation of the intrahepatic bile ducts, and a blurred lower common bile duct. During surgery, an active parasite was found in the common bile duct. The final diagnosis was cholelithiasis with comorbid *C. sinensis* infection.

CONCLUSION

Preoperative imaging that reveals nonspecific changes associated with choledocholithiasis should increase suspicion of biliary parasite infection.

Key Words: Choledocholithiasis; Gallstones; Cholangitis; *Clonorchis sinensis* ; Case report

INTRODUCTION

C. sinensis infection is frequently reported in East Asian countries, including China, Korea, Japan, and Vietnam. Clonorchiasis is most often caused by transmission of the adult flukes of *C. sinensis* to humans from freshwater fish^[1], which subsequently parasitize the biliary system^[2]. *C. sinensis* infection is often complicated clinically by acute cholangitis. Some studies have reported that clonorchiasis is related to hepatobiliary morbidity^[3,4,5] and cholangiocarcinoma^[6,7]. The clinical symptoms of clonorchiasis have no obvious specificity, and can easily lead to missed diagnosis and misdiagnosis.

A case of choledocholithiasis comorbid with *C. sinensis* was admitted to Cheng Fei Hospital in Sichuan in May 2021, and is reported here.

CASE PRESENTATION

Chief complaints

A 39-year-old man complained of right upper quadrant abdominal pain of 5 h duration.

History of present illness

The patient reported having developed sudden pain in the upper right abdomen without obvious cause and accompanied by back-radiating pain, nausea, vomiting, and abdominal distension.

History of past illness

The patient's past medical history was unremarkable.

Personal and family history

Personal and family histories of the patient were unremarkable.

Physical examination upon admission

The patient's pulse was regular, temperature was normal, and blood pressure was 11.9/8.5 kPa. On examination, the patient had slightly yellow skin and sclera, tenderness in the right upper abdomen, and no obvious rebound pain or muscle tension. The Murphy sign was positive.

Laboratory examination

The initial workup showed a white blood cell (WBC) count of $11.4 \times 10^9/L$, 94.8% neutrophils, and C-reactive protein (CRP) of 22.2 mg/L. Biochemical evaluation revealed alanine aminotransferase (ALT) of 352 U/L, aspartate transaminase (AST) of 435 U/L, total bilirubin (TBil) of 40.8 $\mu\text{mol/L}$, direct bilirubin (DBil) of 20.2 $\mu\text{mol/L}$, alkaline phosphatase (ALP) of 188 U/L, and glutamine acyltransferase (GGT) of 422 U/L. Two days later, re-testing of hematological and biochemical parameters revealed WBC count of $7.2 \times 10^9/L$, 76.4% neutrophils, CRP of 16.2mg/L, ALT of 934 U/L, AST of 415 U/L, TBil of 127.3 $\mu\text{mol/L}$, DBil of 69.5 $\mu\text{mol/L}$, ALP of 272 U/L, and GGT of 571 U/L (Table 1).

Imaging examination

Abdominal computed tomography showed gallbladder stones, wall thickening, and choledocholithiasis with slight dilatation of the intrahepatic bile ducts (Figure 1A). Magnetic resonance cholangiopancreatography (MRCP) revealed gallbladder stones with slight dilatation of the intrahepatic bile ducts, and blurred lower common bile duct (Figure 1B).

FINAL DIAGNOSIS

We considered that the high bilirubin level was caused by the common bile duct abnormalities and gallbladder stones. An active parasite was found during exploration of the common bile duct (Figure 2). Subsequent pathological examination revealed *C. sinensis*.

TREATMENT

Laparoscopic cholecystectomy and common bile duct exploration were performed, and a T-tube was placed for bile drainage. After surgery, the patient was given anti-infective, hepatoprotective, choleric and anti-spasmodic treatment, as well as praziquantel (80 mg/kg/d for 3 d) for deworming.

OUTCOME AND FOLLOW-UP

In the days following surgery, adult worms were not observed in the bile duct drainage. Liver function and hematological indicators gradually recovered after surgery (Table 1). No obvious bile duct abnormalities were seen on MRCP (Figure 3). The T-tube was removed 30 d after surgery. The patient was followed for 6mo and reported experiencing no discomfort.

DISCUSSION

C. sinensis is most often reported in east Asian countries, including China, Korea, Japan and Vietnam, with approximately 35 million infected individuals^[8]. Some studies have estimated that 12.49 million people have been infected with *C. sinensis* in China^[9]. *C. sinensis* is mainly transmitted to humans from ingestion of freshwater fish^[1]. However, our patient had no history of eating raw freshwater fish. Because of the nonspecific and atypical symptoms, *C. sinensis* infection has always been under-recognized, and often leads to clonorchiasis^[10]. This patient had common bile duct stones with acute cholangitis and gallbladder stones with acute cholecystitis. Intraoperative exploration of the common bile duct revealed *C. sinensis*. It is not easy to diagnose *C. sinensis* infection before surgery. The preoperative MRCP examination of this patient showed no dilation of the common bile duct. Lack of clarity in the lower common bile duct was unlike the dilation caused by conventional common bile duct stones^[11]. Based on that, the possibility of bile duct parasites should be considered by radiologists and surgeons.

After surgery, the patient was treated with routine anti-infective agents and administered hepatoprotective and choleric drugs, and praziquantel^[12]. The T-tube did not drain the *C. sinensis* body, and deworming treatment was given. After treatment, liver function improved significantly. Coexisting gallbladder stones, common bile duct stones, and *C. sinensis* is relatively rare. Previous studies and case reports^[5,9,11] suggest that *C. sinensis* might cause gallbladder stones by weakening the function of the gallbladder and causing the precipitation of bilirubinate, calcium carbonate crystals, and mucin on *C. sinensis* eggs. It is possible that the common bile duct stone and gall bladder stones in our patient were caused by the *C. sinensis* infection.

CONCLUSION

Our experience with this case suggests that if preoperative imaging reveals nonspecific changes associated with choledocholithiasis, the possibility of biliary parasite infection should be suspected.

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Figure Legends

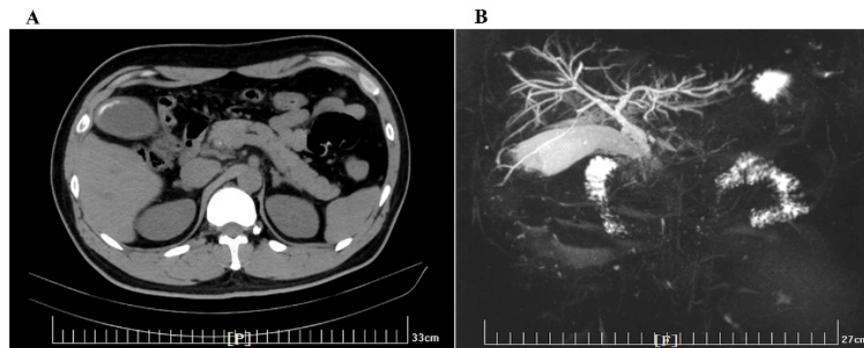


Figure 1 Preoperative imaging. A: Computed tomography of the gallbladder and common bile duct stones; B: Magnetic resonance cholangiopancreatography showing slight dilation of the intrahepatic bile duct and the unclear lower part of the common bile duct.



Figure 2 An active parasite and a stone found upon surgical exploration of the common bile duct.

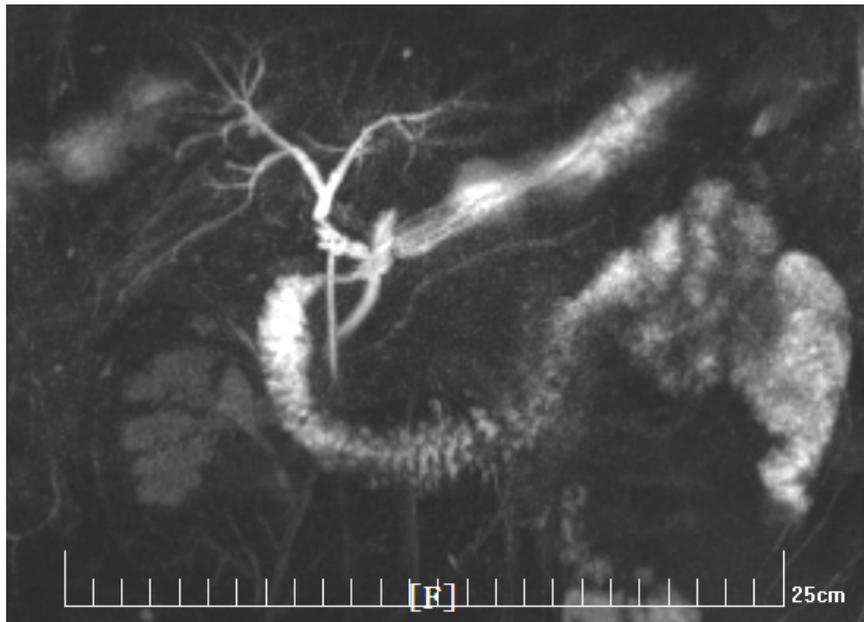


Figure 3 No obvious abnormalities in the bile ducts were visible by magnetic resonance cholangiopancreatography at 30 d after surgery.

Variable	Preoperative day	Preoperative day	Preoperative day	Preoperative day	Preoperative
	1	2	2		
WBC, $\times 10^9/L$	11.4	7.2	7.2		
NEUT, $\times 10^9/L$	10.8	5.5	5.5		
NEUT, %	94.8	76.4	76.4		
CRP, mg/L	22.2	16.2	16.2		
ALT, U/L	352	934	934		
AST, U/L	435	415	415		

Variable	Preoperative day	Preoperative day	Preoperative day	Preoperative day	Preoperative
TBil, $\mu\text{mol/L}$	40.8	127.3	127.3		
DBil, $\mu\text{mol/L}$	20.2	69.5			65.0
ALP, U/L	188	272			284
GGT, U/L	422	571			609

Table 1 Preoperative and postoperative blood results

ALP: Alkaline phosphatase; ALT: Alanine aminotransferase; AST: Aspartate aminotransferase; CRP: C-reactive protein; DBil: Direct bilirubin; GGT: Glutamine acyltransferase; NEUT: Neutrophils; TBil: Total bilirubin; WBC: White blood cell.