American Journal of Emergency Medicine 32 (2014) 1442.e3–1442.e5

Contents lists available at ScienceDirect

American Journal of Emergency Medicine

journal homepage: www.elsevier.com/locate/ajem

Case Report

# A misdiagnosis of clonorchiasis as gallstone, leading to an unnecessary cholecystectomy: a case report☆,☆☆

**Abstract**

This case report describes an unusual presentation of *Clonorchis sinensis* infection. In this rare case, a clonorchiasis infection that had been latent for decades was misdiagnosed as acute calculous cholecystitis. Exploratory surgery and a cholecystectomy were performed. Therefore, in the course of diagnosis of hepatic and gall diseases, we cannot neglect parasite infections such as clonorchiasis.

Clonorchiasis, caused by *Clonorchis sinensis*, is one of the most important food-borne zoonotic diseases worldwide. Chronic infections can produce mild changes such as inflammation, thickening, and expansion of ducts, ambiguity and thickening of gallbladder walls, and severe complications, including gallstone, cholecystitis, cholangitis, and hepatomegaly [1]. The most severe complication is associated with cholangiocarcinoma (CCA). *C sinensis* was reclassified as a group 1 biocarcinogen by the International Agency of Cancer Research in 2009 [2].Therefore, it is of great importance to take steps to control clonorchiasis due to the public health threat that it poses.

In most instances, clonorchiasis is asymptomatic. Nevertheless, several hepatobiliary complications, such as biliary obstruction and recurrent pyogenic cholangitis, can cause various symptoms, including fever, abdominal discomfort, weakness, anorexia, nausea, diarrhea, and acute pain in the right upper quadrant [3]. In this study, we report a rare case in which a clonorchiasis infection that had been latent for decades was misdiagnosed as acute calculous cholecystitis, eventually leading to an unnecessary cholecystectomy.

A 56-year-old man presented to the emergency department due to abdominal pain that had continued for 2 days. The patient complained of paroxysmal dull pain, nausea, and vomiting. The patient was afebrile with stable vital signs. The abdomen was rigid and mildly distended, with liver pain upon percussion and direct and rebound tenderness in the right upper quadrant. The abdominal examination suggested the clinical presentation of "acute abdomen," with severe abdominal pain and rigidity.

Color ultrasound revealed diffuse dilatation of intrahepatic bile ducts, distension of the gallbladder, and floating echogenic foci within the gallbladder. Laboratory tests showed leukocytosis of 14 000 per μL (reference range, 4000-11 000 per μL) with 0.10% eosinophils (reference range, 0.5%-5%).

With these clinical results and color ultrasound findings, acute calculous cholecystitis was considered in the differential diagnosis. An exploratory laparotomy and cholecystectomy were then performed after admission. However, no stone-like substance was identified after open bile duct exploration and drainage. Two worms were found in gallbladder contents, and the parasite eggs were also found in stool samples (Fig. 1). Adult parasite body and the parasite eggs in it were also found (Fig. 2). Furthermore, eggs were collected, and the genomic DNA was then extracted for polymerase chain reaction analysis and sequenced [4]. The sequencing results demonstrated that the ratio of homology, based on comparisons with the genome of *C sinensis* (AF217097, AF217099, and AF217094) was 100% (Fig. 3). Accordingly, the patient was ultimately diagnosed with clonorchiosis infection.

Because the parasite can survive for many years, the worm burden in endemic areas increases gradually with age. Furthermore, chronic

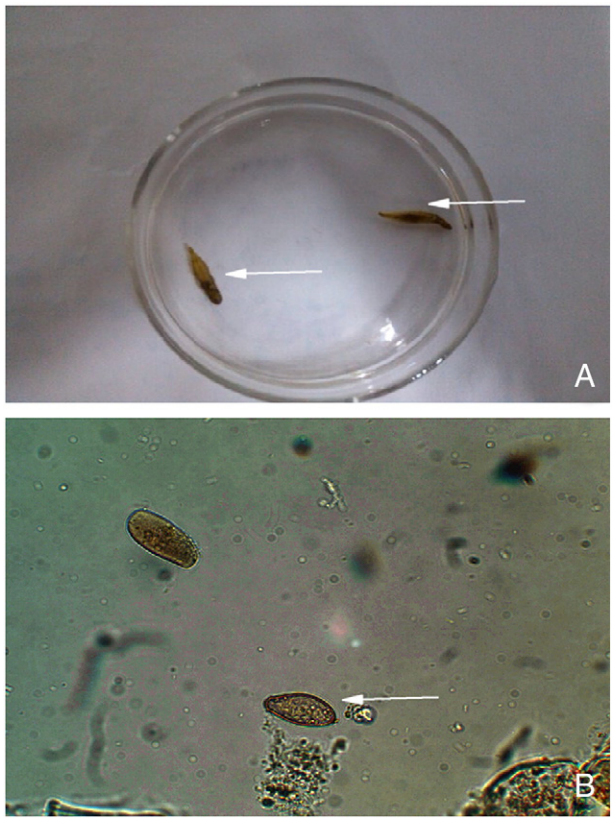


**Fig. 1.** Morphologic features of the parasites and eggs. A, Adults drained from bile (white arrow). B, Eggs in human stool (original magnification, ×100 [white arrow]).

☆ Conflict of interest: None.

☆☆ This study was supported by the Ministry of Science and Technology of China (2011AA10A215) and by the National Natural Science Foundation of China (NSFC:30700600, 81201302 ,31072124).

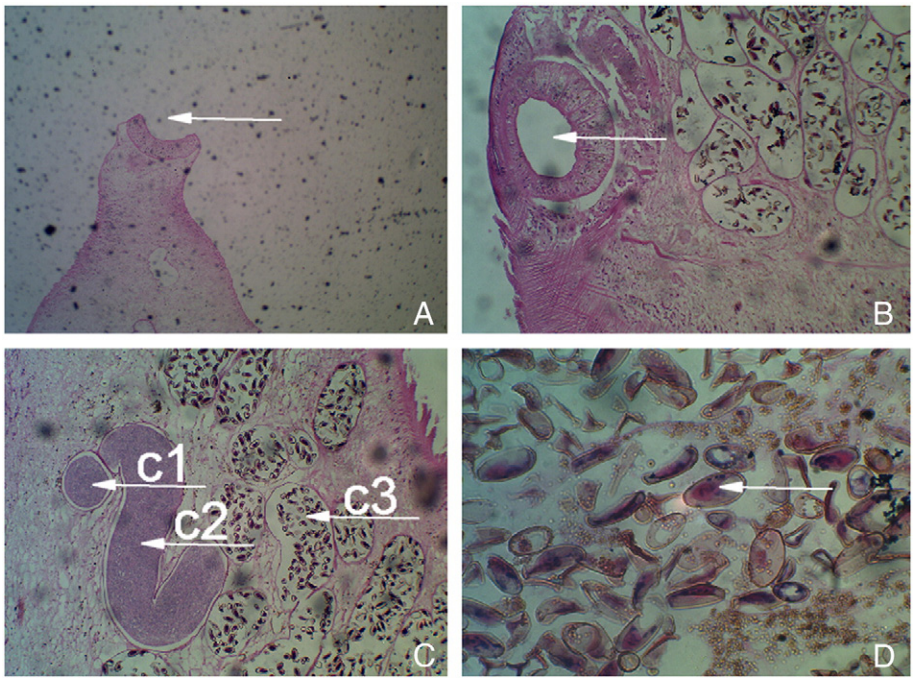


**Fig. 2.** Pathologic observation of *C sinensis* obtained from the gallbladder contents. A, Oral sucker (white arrow). B, Ventral sucker (white arrow). C, c1 is ovarian; c2 is spermatheca; and c3 is eggs in adult body. D, Eggs in adult body (white arrow). Hematoxylin and eosin staining; original magnification, ×100 (A-C), ×400 (D).

cumulative infections associated with biliary ductal systems, such as mechanical obstruction and stone formation, can lead to serious, acute clinical signs that, in certain cases, can be fatal.

The diagnosis of clonorchiasis is still based on the characteristic operculated ova in stool, duodenal fluid, or bile. Elevated levels of eosinophils and radiography are very useful in the auxiliary diagnosis of clonorchiasis. Clonorchiosis was considered in this case, based on stool examination and identification with biological methods. However, the initial presumptive diagnosis of acute calculous cholecystitis was entertained based on the progression of the patient's symptoms and on his abdominal and laboratory examination [5]. Although cholecystectomy may be feasible, conservative treatment with antihelmintics should be tried initially.

However, the differentiation between existing chronic clonorchiasis and bile stones or other liver diseases may not always be reliable based on ultrasound and computed tomography (CT). Therefore, ultrasound and CT scanning should be considered as a complementary tool for the diagnosis of this disease [6]. It is supposed that clonorchiasis complicated with gallstone used to produce confusion between the 2 diseases. Thus, the differential diagnosis of gallstone and clonorchiasis is difficult.

In conclusion, our case demonstrated that the accurate diagnosis of clonorchiasis can be difficult without a stool or bile examination because its clinical picture mimics an acute calculous cholecystitis. The major reason for the misdiagnosis was the decreased level of eosinophils. The patient's early life history in the epidemic area was also neglected. An

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**Fig. 3.** Gene sequence comparison by blast. The comparison results showed that the ratio of homology compared with the specific sequences of *C sinensis* internal transcribed spacer 2 (AF217099, China-shenyang isolate; AF217097, China-guangxi isolate; and AF217094, Korea isolate) was 100%.

incorrect initial diagnosis can lead to incorrect treatment, resulting in a prolonged illness. In addition, the present case report suggests that we are still not fully aware of the potential gastrointestinal presentations and complications of *C sinensis* infection. Awareness of the high incidence of chronic clonorchiasis in China, together with early accurate differential diagnosis and reasonable treatment, are crucial elements in the primary prevention of the long-term sequelae of this infection, especially CCA.

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http://dx.doi.org/10.1016/j.ajem.2014.04.013

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