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# A case report of 4-year-old child with biliary ascariasis successfully treated with single dose of albendazole

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## PEER REVIEW

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**Comments**

This is an interesting case report in which authors reported a case of biliary ascariasis in 4-year-old girl who complained of abdominal pain and subfebrile fever. The diagnosis was made using ultrasonography. The patient was successfully treated with a single dose of 400 mg albendazole. It may be helpful to the same cases.

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## ABSTRACT

Most cases of biliary ascariasis require endoscopic management or surgical intervention. When the procedure is difficult to perform due to many reasons and the case is without complication, conservative treatment can be an option. We report a case of biliary ascariasis in 4-year-old girl who complained of abdominal pain and subfebrile fever. The diagnosis was made using ultrasonography. The patient was successfully treated with a single dose of 400 mg albendazole. We found one dead adult female *Ascaris lumbricoides* from the feces after treatment. Repeated ultrasonography was made to evaluate the treatment.

## KEYWORDS

Biliary ascariasis, Ultrasonography, Albendazole

## 1. Introduction

*Ascaris lumbricoides* (*A. lumbricoides*) is one of the commonest helminthic infection in human with the adult worms usually living in the small intestine[1]. Sometimes it can migrate to ampulla Vater and common bile duct but rarely to gallbladder due to the narrow and tortuous structure of the biliary tract[2]. Most cases of biliary ascariasis were treated by endoscopic management

or surgical intervention[3]. Endoscopic retrograde cholangiopancreatography is commonly used for diagnosis of biliary ascariasis due to its high accuracy[4]. Unfortunately, this procedure is invasive and difficult to do in children[1]. Alternatively, ultrasonography is preferable because it is noninvasive and inexpensive[5]. In most of the cases of biliary ascariasis, endoscopy or laparoscopy is the choice of management[3]. Only few reports use antihelminthic without the help of surgery because the

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difficulty of the worms to escape from the bile duct[2]. We report a case of biliary ascariasis in a girl that successfully treated with single dose of albendazole without the need of surgery. Repeated ultrasonography showed that the worms have spontaneously passed the biliary tract.

## 2. Case report

A 4-year-old girl presented with right upper quadrant abdominal pain. She had the symptom for 5 months but the intensity increased in 2 d prior to hospitalized. One day before she came to hospital, she passed the stool and found 4 worms inside. The mother described them as big worms, palm length and white-pink-colored. She also complained subfebrile fever for 2 weeks. No jaundice, vomiting or nausea found at presentation. This girl likes to play outside of her house in the garden, and seldom washes her hands after playing. At presentation, she looks pale and we found her hepatomegaly.

Blood tests were conducted which revealed slight anemia (9.3 g/dL), leucocytosis (17.780/mm<sup>3</sup>), and 38.9% eosinophil. Liver function tests showed increase in ALP 53 IU/L, AST 53 IU/L, and alkaline phosphatase 420 IU/L but no increase in bilirubin level. No larvae or ova of intestinal parasites were found on stool examination.

We performed ultrasonography and it showed a linear, hypoechoic image in gallbladder with changing position suitable with the characteristic of active, live ascaris (Figure 1). We did not perform endoscopic retrograde cholangiography because of the difficulty of the procedure in children and decided to give single oral albendazole 400 mg once, instead.

We obtained one dead adult female *A. lumbricoides* from the feces two days after treatment. We repeated blood tests and ultrasonography on Day 7 and all results turned out to

be negative (Figure 2). Due to the limitation of our hospital, ultrasonography needs to be scheduled, therefore we were not able to do the repeated ultrasonography immediately. Abdominal pain and other symptoms also dissappeared. The patient showed complete recovery and was discharged after being hospitalized for 9 d.

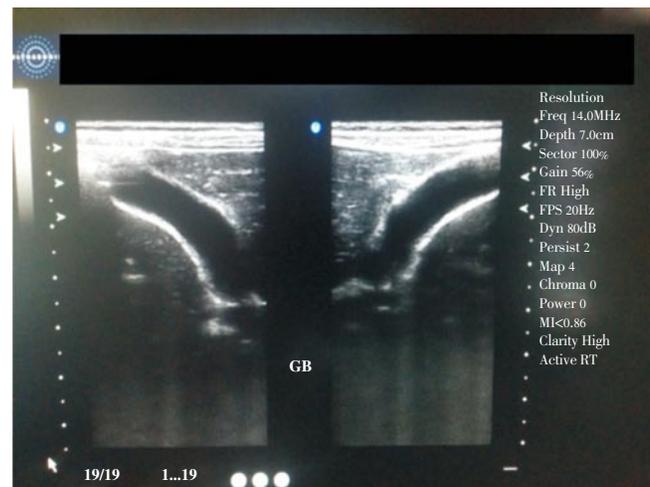


Figure 2. Repeated ultrasonography showing no more image in gallbladder.

## 3. Discussion

*A. lumbricoides* rarely migrates to gallbladder, and the incidence is only about 2.1%. The clinical manifestations of biliary ascariasis include abdominal pain predominantly in right upper quadrant, nausea and vomiting, slight fever, jaundice and hepatomegaly[5]. We found right upper quadrant abdominal pain, subfebrile fever and hepatomegaly in this patient and treated the symptoms.

Abdominal ultrasonography can help the diagnosis of biliary ascariasis in most of the cases and it also can be used for follow-up and to evaluate the treatment[1]. We

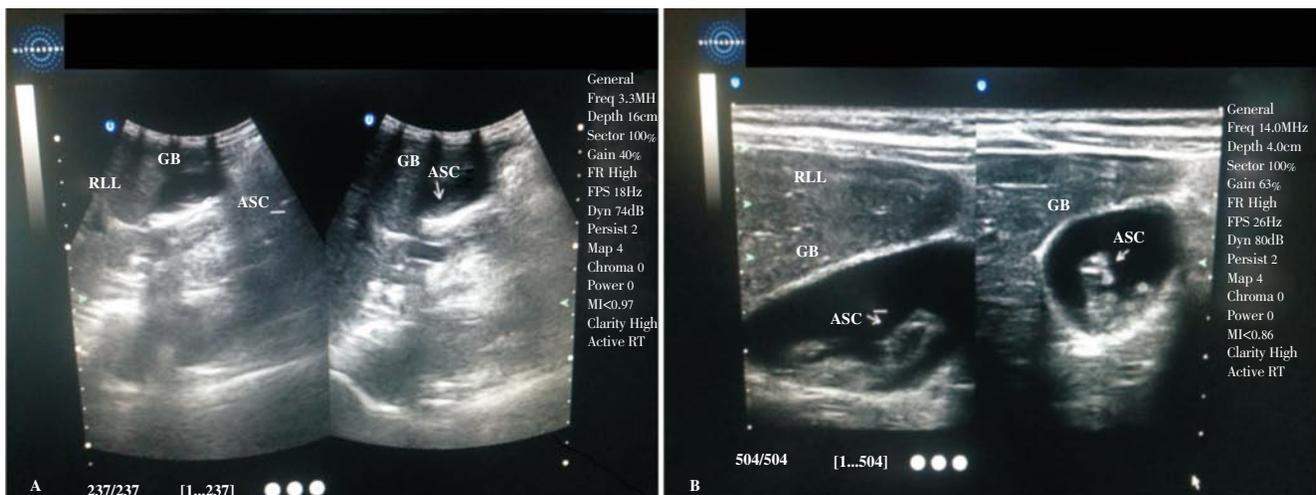


Figure 1. Abdominal ultrasonography showed linear, hypoechoic image in gallbladder with changing position.

did ultrasonography in this patient and found a linear, echogenic image in gallbladder with changing position which was suitable with the characteristic of living ascaris.

Endoscopic retrograde cholangiopancreatography considered the gold standard for the diagnosis of biliary ascariasis and also as therapeutic option, unfortunately the procedure is invasive and difficult to perform in children<sup>[1,3]</sup>. In the situation where this facility is not available or the case without any complication, conservative treatment with antihelminthic with repeated of ultrasonography to monitor the treatment efficacy can be good alternative<sup>[5]</sup>. Previous study showed that 96.94% of the patients responded to conservative therapy<sup>[6]</sup>. Our patient was given a single dose of 400 mg albendazole. All symptoms were disappeared on Day 2 after treatment and a dead adult worm was found in her stool. Repeated ultrasonography was performed to ensure worms elimination.

### Conflict of interest statement

We declare that we have no conflict of interest.

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### Comments

#### Background

In the child with acute cholecystitis or presenting with symptoms of biliary colic, ultrasonography of the abdomen has been advocated as a quick, safe, noninvasive and relatively inexpensive modality with a high diagnostic accuracy for suspected biliary ascariasis even in a non-endemic area. Single dose of 400 mg albendazole could simply be the conservative treatment and serial ultrasonography should be performed to check for recurrence and treatment failure.

#### Research frontiers

This article is not new about the case of biliary ascariasis but it is interesting that the case is in a young child (4 year-old). About 96.94% of the patients responded to conservative therapy<sup>[6]</sup>. So the title should be "A case report of a 4-year-old child with biliary ascariasis successfully treated with single dose of albendazole."

#### Related reports

Serial ultrasonography should be performed to check for recurrence during follow-up. The patients in another study were dewormed at 3-monthly intervals<sup>[6]</sup>. The indication of cholecystectomy with common bile duct exploration

was retention of dead worms in the common bile duct with obstructive jaundice.

### Innovations & breakthroughs

Endoscopic retrograde cholangiopancreatography considered the gold standard for the diagnosis of biliary ascariasis and also as therapeutic option. The patient was given a single dose of 400 mg albendazole. All symptoms were disappeared on Day 2 after treatment and a dead adult worm was found in her stool.

### Applications

In the child with acute cholecystitis or presenting with symptoms of biliary colic, ultrasonography of the abdomen has been advocated as a quick, safe, noninvasive and relatively inexpensive modality with a high diagnostic accuracy for suspected biliary ascariasis even in a non-endemic area. Single dose of 400 mg albendazole could simply be the conservative treatment and serial ultrasonography should be performed to check for recurrence and treatment failure.

### Peer review

This is an interesting case report in which authors reported a case of biliary ascariasis in 4-year-old girl who complained of abdominal pain and subfebrile fever. The diagnosis was made using ultrasonography. The patient was successfully treated with a single dose of 400 mg albendazole. It may be helpful to the same cases.

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