

CASE REPORT

An unusual finding of obstructive jaundice—a case report and review of the literature

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Abstract

Biliary ascariasis is a tropical infectious disease, endemic in regions such as the Far East, Indian subcontinent and parts of the Middle East. The responsible organism is the *Ascaris lumbricoides* worm. This case study presents a 54-year-old British Caucasian female patient, admitted with a 1-week history of generalized abdominal pain. Ultrasound scan of the abdomen showed a collapsed and abnormal image of the gallbladder. Further imaging for better visualization by magnetic resonance cholangiography showed a 6 cm linear structure in the gallbladder. The morphology was characteristic of gallbladder ascariasis. Detailed history revealed that 6 months ago she had travelled to Turkey. Stool cultures confirmed the presence of ascaris eggs. She was treated conservatively with a 500 mg stat dose of Mebendazole. She was followed up in 6 weeks showing complete resolution of her symptoms.

INTRODUCTION

Biliary ascariasis is caused by the roundworm *Ascaris lumbricoides*, which is the most common helminthic infection worldwide [1]. However, it is rare in the UK and research so far has not described cases here. With travel across the globe becoming cheaper and more popular, it is likely that more cases like this will present in the future.

CASE REPORT

A 54-year-old Caucasian female of British descent presented to the Accident and Emergency department complaining of generalized abdominal pain for 1 week. She was initially treated for a urinary tract infection in the community with Trimethoprim 200 mg twice daily for 3 days following positive urine dipstick

results. However, her symptoms persisted and worsened, with the pain localizing to the epigastric and upper quadrant region. On examination, she was jaundiced and had a diffusely tender abdomen, worse in her right upper quadrant and right flank. Another urine dipstick tested positive for blood. Computed tomography of the urinary tract was conducted, which ruled out renal stones. Venous bloods revealed a normal full blood count with deranged liver function tests, showing an obstructive pattern; bilirubin 45 (normal range: <21 μmol/L) and ALP 432 (normal range: 30–130 U/L). This led to a subsequent differential diagnosis of acute cholecystitis, likely due to gallstones.

Ultrasound scan (USS) of the abdomen; despite poor visualization of the gallbladder showed that it was collapsed with an abnormal appearance. Magnetic resonance cholangiography (MRCP) was performed and revealed a linear structure measuring ~6 cm within the gallbladder (Figs 1 and 2).

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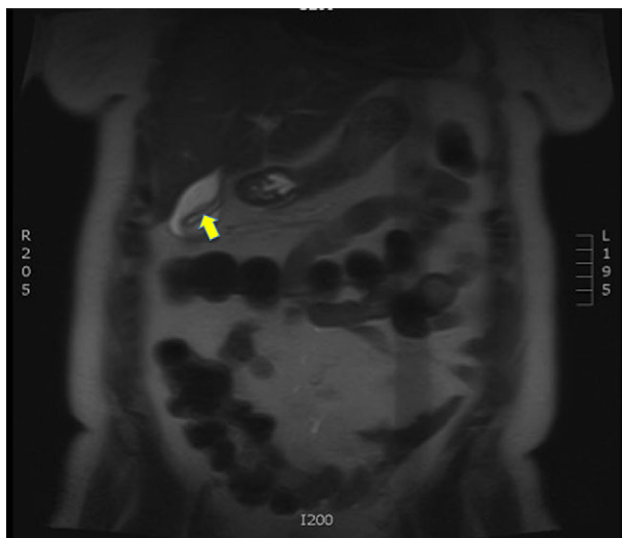


Figure 1: MRCP image of patient showing 6 cm linear structure (yellow arrow) within gallbladder

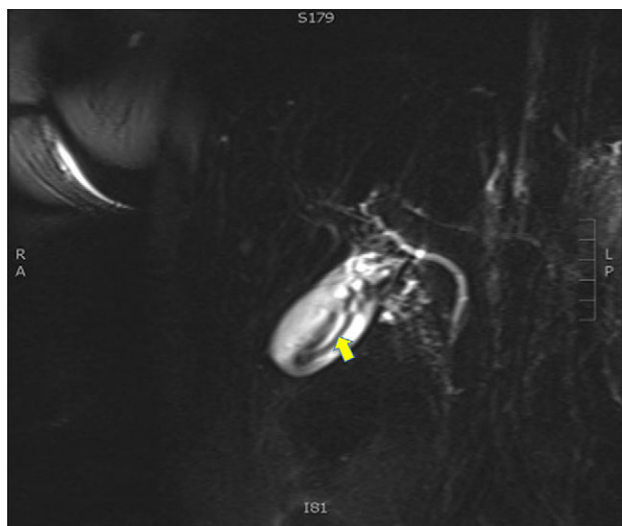


Figure 2: Magnified MRCP image of patient showing 6 cm linear structure (yellow arrow) within gallbladder

Radiological appearance was diagnostic of gallbladder ascariasis. A detailed travel history established that she had travelled to Turkey 6 months previously which is the most likely source from where she acquired the worm. A stool culture confirmed the presence of ascaris eggs and she was treated with a one of 500 mg dose of Mebendazole. At the 6 weeks follow up, she remained symptom free with a negative stool culture and normal liver function tests. She was discharged from care with no need for further follow up.

DISCUSSION

Infestation of the gallbladder with *ascaris* worms is rare, accounting for only 2.1% of biliary ascariasis cases [2]. Although the narrow and tortuous structure of the cystic duct connecting with the biliary tree limits access to the gallbladder, the wandering nature of the adult worm can lead to it entering the

biliary system [3]. This can result in complications such as biliary colic and acute cholecystitis; seen in our patient. It can also cause other problems such as pyogenic cholangitis, liver abscesses and pancreatitis [4].

Blood tests may show peripheral blood eosinophilia in ascariasis infection [5]. This is especially true in Loeffler's syndrome if larvae migrate through the lungs causing the patient to develop fever, cough, dyspnoea and an urticarial rash [5]. However, our patient had a normal eosinophil count and no other clinical manifestations suggestive of ascariasis infection.

The obstructive pattern of the liver function tests, warranted an USS of the abdomen to aid diagnosis. USS is usually a quick, non-invasive and highly diagnostic imaging modality for demonstrating gallbladder and duct pathology [6]. It is also very effective at detecting ascariasis worms [7]. Various appearances of roundworms in the biliary tract and gallbladder have been described. The reported sonographic appearances of roundworm are [7, 8]:

- 'Inner-tube' sign: A thick echogenic stripe seen within the common bile duct (CBD) or gallbladder containing a central anechoic tube that is likely to represent the digestive tract of the worm.
- 'Stripe' sign: A thin, anechoic stripe without an inner tube located within the CBD or gallbladder.
- 'Spaghetti' sign: Multiple, overlapping echogenic structures due to coiling of a worm or multiple worms in the CBD.

Sometimes the USS is inconclusive, such as in this case, therefore MRCP is a useful additional imaging modality. It shows intraductal worms as linear hypo intense filling defects [4, 9], which was seen on this patient's scan.

Endoscopic retrograde cholangio-pancreatigraphy (ERCP) can also be diagnostic but with the added benefit of being therapeutic in the management of biliary Ascariasis [10]. It has been shown that endoscopic worm extraction from the ampulla is almost 100% successful and from the bile ducts 90% successful by using endoscopic basket [11]. In patients who are resistant to conservative treatment, endoscopic worm extraction by snares, dormia basket or biopsy forceps is often a successful, second-line intervention [12, 13].

The initial treatment of biliary ascariasis still remains the administration of oral anthelmintics, such as abendazole and mebendazole [14], which act by paralysing the adult worm and allowing it to be passed by normal gut activity [10]. Worms in the biliary tree are usually not easily killed by these drugs as they are poorly excreted in bile. Therefore, more invasive interventions, as described earlier may be required [14]. In this case, the patient responded well to conservative management with Mebendazole with complete resolution of symptoms at follow up.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this article.

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