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Helminthic-induced pancreatitis: are we underdiagnosing?

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Abstract

A patient was admitted and diagnosed as acute pancreatitis of obscure aetiology. Laboratory investigations and radiological studies failed to reveal the underlying cause. A worm was pulled out of the nasogastric tube by the patient. In a modern society and in developed hospital settings, is it possible that we are missing, or underdiagnosing what we once regarded as tropical diseases. Our case report highlights this obscure cause and reviews the literature.

Keywords

Helminthic; Pancreatitis; Ascaris.

Introduction

Helminthic-induced pancreatitis is not common, and is probably underdiagnosed in western countries because of the lack of a specific clinical presentation. Even advanced diagnostic radiological studies may fail to detect the cause, due to the structural nature of the helminthic body. A high index of suspicion is the surgeon's best ally. Stool microscopy is a very efficient and cost-effective diagnostic modality. In our case, an adult male presented with abdominal pain diagnosed as acute pancreatitis, however the cause was unclear until the patient pulled out his nasogastric tube with a large ascaris worm adhering to it.

Case report

A 40-year-old man presented with a 3-day history of epigastric pain, gradually increasing in severity and reaching its maximum on the day of presentation. The pain was classified as 8/10

(10 being the maximum), with radiation through to the back. The pain was associated with nausea and three discrete episodes of vomiting, with no associated haematemesis. There was no reported history of fever or constipation. There appeared to be no noticeable aggravating or relieving factors. The patient had not suffered similar symptoms previously. There was no significant past medical or surgical history. The patient denied any history of alcohol consumption or drug use and gave no reason for the clinicians to doubt this. The patient was a construction worker, living in Dubai, with no recent (5 years) foreign travel history, ate a mixed diet and was a non-smoker.

Physical examination revealed a well-built, conscious, alert and well-oriented man with normal skin colour. On closer inspection there was evidence of dehydration (loss of skin turgor and dry mucus membranes). General examination was otherwise insignificant. Abdominal examination revealed a slightly distended abdomen with no abnormal discoloration, scars, masses or swellings. There was marked tenderness over the epigastrium, with guarding and rebound tenderness present. There was no organomegaly or masses on palpation. On auscultation there were slightly decreased bowel sounds. The hernial orifices and renal angles were unremarkable. After the initial history, physical examination and preliminary laboratory and radiological investigations, the patient was diagnosed with acute pancreatitis of unknown aetiology in the absence of any obvious hepatobiliary pathology. Fluid replacement, broad-spectrum antibiotics and appropriate analgesics were started.

Blood tests

Blood tests revealed a normal full blood count apart from a mild leucocytosis. The amylase level was increased at 455 U/l (28–100 U/l) and urine amylase of 3741 U/g creatinine (58–283 U/g creatinine). Liver function tests were abnormal with an albumin level of 2.4 mg/dl (3.4–4.8), alkaline phosphatase level of 234 U/l (40–129) and alanine aminotransferase level of 38 U/l (0–41 U/l). Serum bilirubin was 6.3 mg/dl (0–1.0 mg/dl), total protein level was 7 g/dl (6.6–8.7 g/dl) and globulin was 4.6 g/dl (2.8–3.4 g/dl).

Radiological investigations (Figures 1–4)

A plain abdominal radiograph showed no abnormalities. Abdominal ultrasound scan showed a partially visualized pancreatic body displaying a heterogeneous, predominantly hypoechoic, echo texture, anterior to which was a phlegmonous fluid collection. The common bile duct was enlarged at 7.3 mm in diameter with no definite intraluminal calculi, and prominent main intrahepatic biliary radicles. The gallbladder measured 9.7×3.9 cm in diameter with a smooth wall, and contained biliary sludge but no definite intraluminal calculi. The spleen and both kidneys showed no abnormalities. A contrast-enhanced computed tomography (CT) scan showed a grossly swollen and oedematous pancreas with an extensive peripancreatic phlegmonous collection. Both kidneys and the pelvic organs, liver, spleen and gallbladder appeared normal.

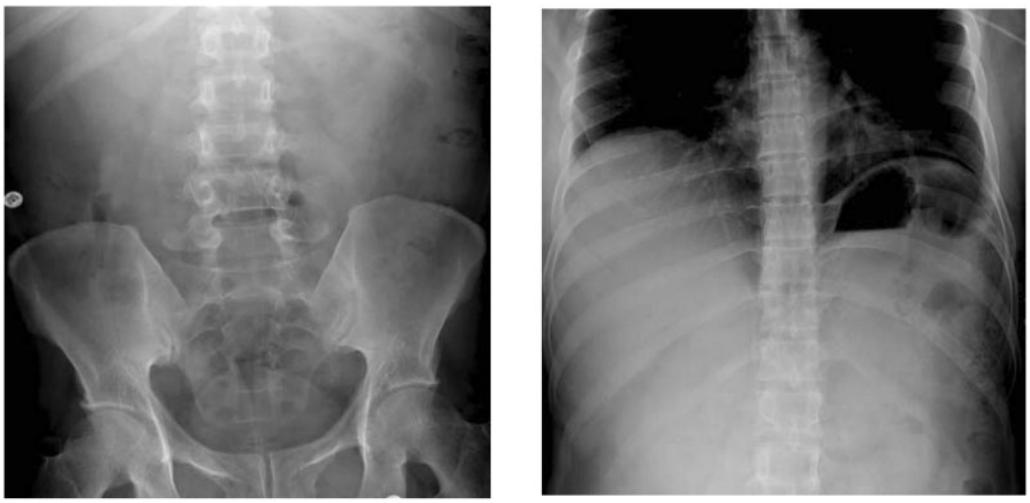

Fig. 1. Plain radiograph of lower chest and abdomen.

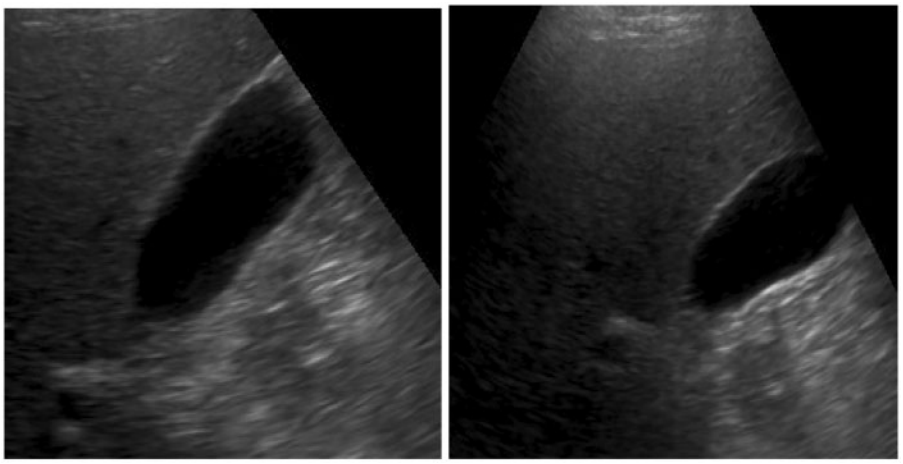

Fig. 2. Ultrasound scan of gall blader.

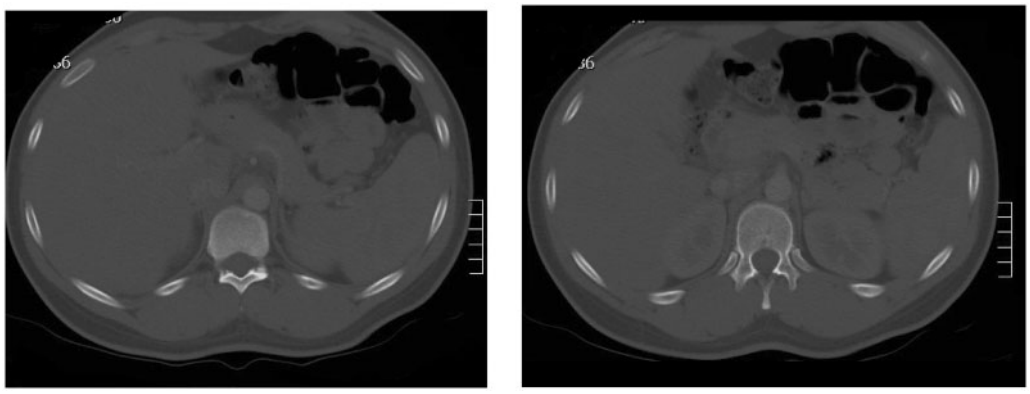

Fig. 3. Plain CT scan showing oedematous pancreatic tissue with no obvious indication of a foreign body.

Diagnosis

The appearance of an ascaris worm attached to the nasogastric tube alerted us to this as a possible cause of the pancreatitis (Fig. 5). Microscopic examination of the stool, performed after the ascaris worm was revealed, showed adult ascaris eggs. Albendazole was prescribed and the patient's symptoms subsided.

Outcome and follow-up

In this patient, the ascaris-related complications were limited to hepatobiliary obstruction leading to pancreatitis. The patient did not show any signs of secondary bowel obstruction and was managed conservatively with no surgical or procedural intervention.

Based on the course of the disease and the timeline of the treatment, we hypothesize that the cause of the obstruction leading to pancreatitis was quite possibly a migrating worm that was extracted in the nasogastric tube, because the patient's condition improved immediately afterwards and his pancreatitis gradually resolved. He did require brief period in the intensive care unit during his treatment because of respiratory complications (pleural effusion and adult respiratory distress syndrome). The nasogastric tube was reinserted for feeding but was removed shortly afterwards as the patient's general condition improved and he started to tolerate oral feeding. Over time the patient improved and was discharged with no long-term complications and no re-presentation.

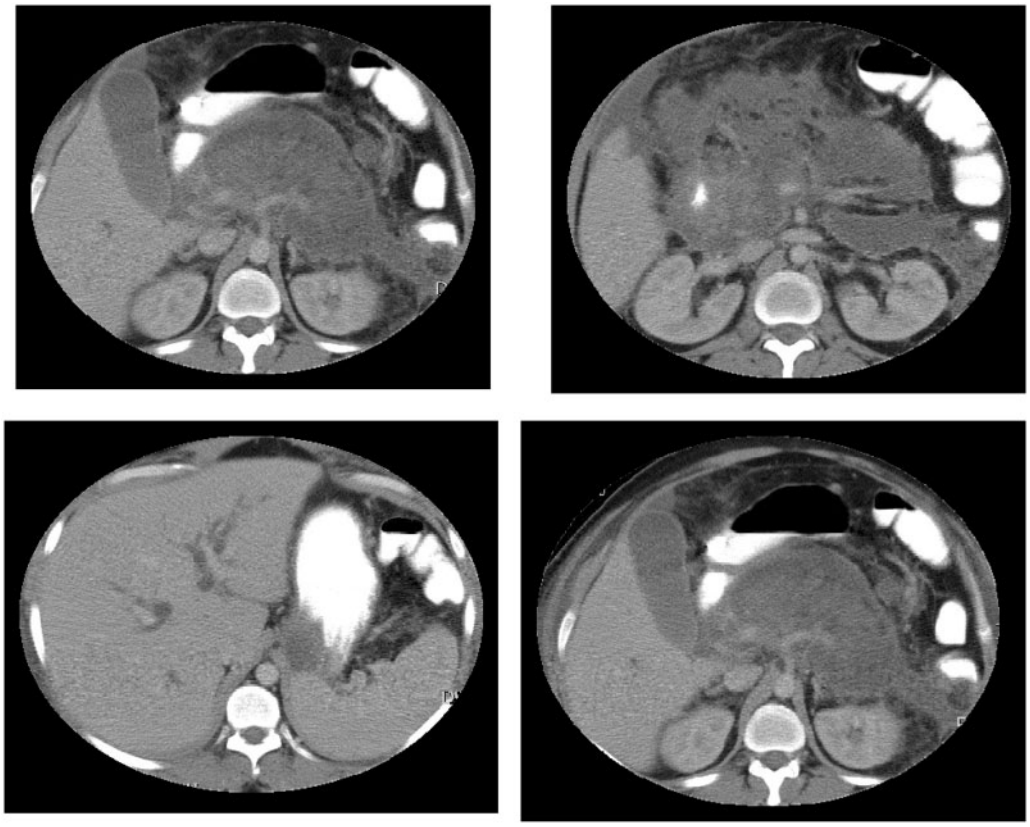

Fig. 4. Abdominal CT scab with contrast showing oedematous pancreatic tissue with no obvious indication of a foreign body.

Fig. 5. Adult *Ascaris* worm attached to the nasogastric tube as removed by the patient.

Discussion

About 25% of the world's population is infected with *Ascaris lumbricoides*, making this the most common helminthic infection worldwide[1]. Ascaris infestation is not common in the western world but global agricultural trading can represent a potential threat because ascaris infection is caused by consumption of food contaminated with fertilized eggs. The sporadic nature of reported cases of *Ascaris lumbricoides*, as well as the difficulty in carrying out positive imaging studies because of the low sensitivity in radiological studies due to the nature of the helminthic body makes the diagnosis of ascaris-induced pancreatitis very difficult. A high index of suspicion is the surgeon's best ally. Stool sampling and microscopy are effective and cost-efficient diagnostic modalities.

Only advanced infestations are likely to cause mass effect problems, but less severe cases with significantly lower worm counts can lead to equally important presentations, morbidity and mortality, especially if the helminthic body is situated in a crucial anatomical position such as the ampulla of vater. The presentation may vary from asymptomatic infestation to partial to complete

intestinal obstruction by adult worms. Appendicitis, jaundice, cholangitis, pancreatitis are all established complications. Worms causing obstructive symptoms may required procedural intervention and endoscopic extraction. Endoscopic retrograde cholangiopancreatography or even laparotomy may be necessary in more advanced cases. Commencement of antihelminthic medications should not be delayed. Human toxicity to benzimidazoles is relatively low due to the poor systematic absorption, however its efficacy is not in dispute. Albendazole is used effectively in asymptomatic and symptomatic ascaris infestation. Early drug administration is crucial.

It is essential to endeavour to exclude the more common causes of pancreatitis, especially biliary disease. Ultrasound scanning continues to be the best modality for initial assessment[2]. The diagnosis in this case was established beyond doubt, based on the rarity of ascaris infection in this part of the world, the blood tests, the presence of a parasite stuck to the nasogastric tube, the absence of any other pathology and the patient's response to specific treatment. It is a pity that the worm could not be imaged in the biliary tree.

Literature review

We reviewed the available literature to help shed light on the prevalence of ascaris-induced pancreatitis A search of PubMed was performed using the following key MeSH words: pancreatitis, ascaris, case report. No time limit was specified and 58 hits were obtained. Nearly all of the article listed here are simple case reports. The cases varied in presentation, severity and management; complications varied from pancreatitis to cholangitis with modality of treatment ranging from conservative to procedural interventions[3–47].

Teaching points

- Ascaris is a known cause of biliary obstruction.
- Pancreatitis is an uncommon presentation of this infestation.
- The disease is uncommon outside the endemic areas.
- A high index of suspicion will lead to a more prompt diagnosis.
- Particular care should be taken when eliciting a history of recent travel.

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