

## Acute Pancreatitis due to Ascaris Lumbricoides Worm

Saeed Alhindi MD, CABS, FRCSI\* Hasan M Isa, MBBCh, CABP\*\*

**We present a case of obstructive acute pancreatitis due to infestation with ascaris worm in a very young child. The child had an acute abdominal presentation. The investigations showed high serum amylase; the CT scan showed a hypoechoic tubular shadow in the jejunum with evidence for severe pancreatic necrosis. The child was managed conservatively, and received anthelmintic medication. She passed the worm in the stool and recovered completely.**

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Ascaris lumbricoides are round worms, which causes human disease with variable presentations ranging from asymptomatic infestation to very serious complications, such as intestinal obstruction, intestinal perforation, hepatobiliary and pancreatic disease<sup>1-4</sup>. Ascariasis occurs worldwide and it is most common in tropical and subtropical areas due to poor sanitation, and in places where human feces are used as fertilizer<sup>5-8</sup>. The disease is transmitted via the ingestion of fertilized eggs in the contaminated soil. The eggs hatch and release the larva in the intestine. The larva goes to the lungs through the portal circulation and matures further. Eventually, the immature worm is swallowed with the bronchial secretion, and the worm enters the gastrointestinal tract and resides mainly in the lumen of the intestine. The mature female worm produces around 200,000 eggs daily, which are passed in the feces<sup>6</sup>. The mature worm is mobile. It could enter the ampulla of Vater, and obstructs the biliary duct, but rarely enters the pancreatic duct, probably due to its narrow size.

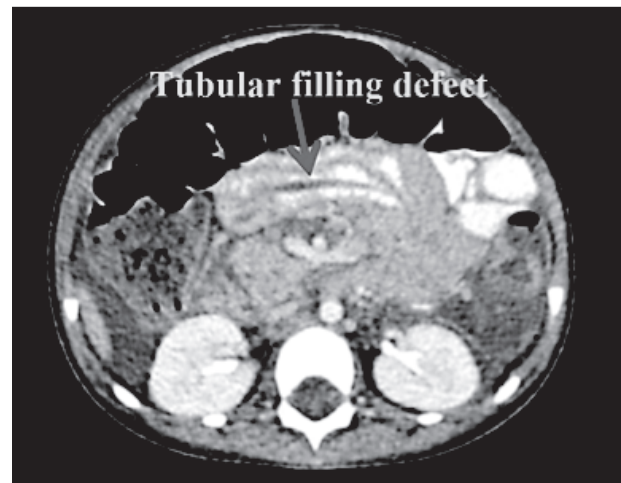
The aim of this report is to present a case of obstructive acute pancreatitis due to Ascaris worm in a very young child. Ascaris worm infestation leading to pancreatitis is a rare complication<sup>9</sup>.

### THE CASE

A thirty-four month-old Indian female living in Bahrain presented with acute abdomen. She visits India every couple of months on a family vacation. During her presentation, it was just a month and a half since she had come back from India. The mother has been giving her Mebendazole; an anthelmintic treatment every six months, based on their family physician advice in India. According to the family, she was never diagnosed with worms, but it was a preventive measure. The last time she has taken the Mebendazole was three months prior to her recent illness.

The patient presented with a two-day history of frequent projectile vomiting, severe diffuse abdominal pain, and abdominal distension. The patient's temperature was 39 degrees Celsius. She looked dehydrated, sick and with diffuse

abdominal tenderness. The serum amylase was elevated at 1652 u/L (normal range 25-115 u/L), the serum lipase was elevated at 1868 u/L (normal range 40-240 u/L), and the urinary amylase was 4764 u/L while the liver enzymes were normal. The white blood cells (WBC) count was elevated at 12,000 with 69% neutrophils, 19% lymphocytes and 1% eosinophils. The ultrasound study was not able to visualize the pancreas because of significant gas in the bowels, but the gallbladder was normal, and there was no evidence of a common bile duct dilatation. The abdominal CT scan revealed a large, well-defined loculated fluid hypodense area involving the proximal part of the pancreatic body and extending to part of the tail region with peri-pancreatic free fluid. The findings were suggestive of acute severe necrotizing pancreatitis. The pancreatic head and the common bile duct were normal, and there was no evidence of biliary obstruction. A tubular hypodense filling defect within the proximal jejunal loops was visualized on CT raising the possibility of a round-worm, see figure 1.

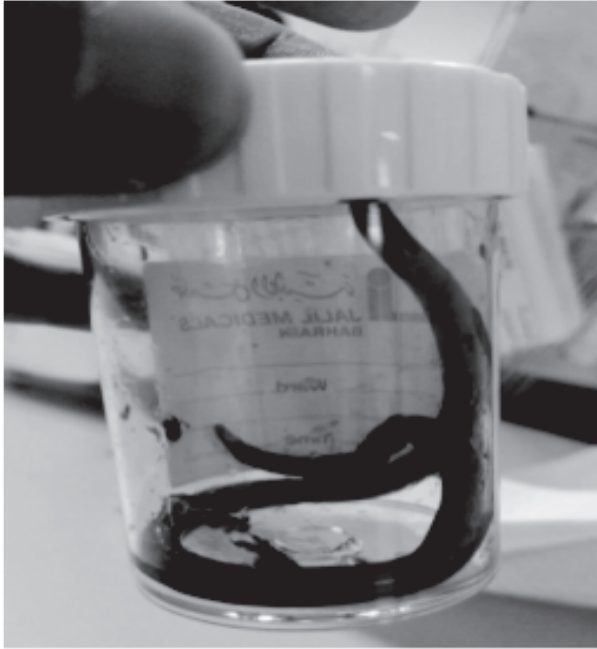


**Figure 1: CT Scan with Contrast Shows a Tubular Filling Defect Raising the Possibility of the Presence of a Worm (Arrow)**

\* Assistant Professor and Senior Consultant Pediatric Surgeon  
Department of Surgery

\*\* Consultant Pediatric Gastroenterologist  
Pediatric Department  
Salmaniya Medical Complex  
P.O. Box 12, Manama  
The Kingdom of Bahrain  
Email: sjalhindi@gmail.com

The stool showed *Ascaris* eggs. The patient was treated conservatively with intravenous (IV) fluids, IV antibiotics and oral Mebendazole 100mg orally twice daily for three days. On the fourth day, the patient passed a viable female *Ascaris* worm in the stool, see figure 2.



**Figure 2: A Viable Mature Female *Ascaris Lumbricoides* Worm**

The passage of a viable *Ascaris* worm in the stool in spite of the completion of the Mebendazole course, made us cautiously give a single additional dose of Albendazole 400mg. The child was showing a gradual improvement which was noticed on the second day of admission until complete recovery. She was discharged on day ten of admission.

## DISCUSSION

According to the World Health Organization (WHO), 1.5 billion people are infected with soil-transmitted helminths worldwide<sup>1,5</sup>. *Ascaris*, hookworm and whipworm are known as soil-transmitted helminths (parasitic worms). An estimated 807 to 1,221 million people in the world are infected with *Ascaris lumbricoides*<sup>6</sup>.

*Ascaris* has different presentations; however, it rarely presents with acute pancreatitis<sup>9,10,11</sup>. It is thought that this is due to the narrow pancreatic duct. In India, biliary ascariasis causes 23% of acute obstructive pancreatitis<sup>12</sup>. In a study of hepatobiliary and pancreatic disease due to *Ascaris lumbricoides* infection, it was found that only seven patients (6.2%) presented with acute pancreatitis<sup>9</sup>. In 1997, Sandouk et al diagnosed pancreaticobiliary ascariasis on the basis of endoscopic retrograde cholangiopancreatographic studies, only 13 patients (4.3%) presented with acute pancreatitis<sup>11</sup>.

The diagnosis of *Ascaris*-induced obstructive pancreatitis in a non-endemic area needs a high index of suspicion.

We were unable to visualize the worm on the ultrasound study. Nevertheless, it is considered a sensitive and a non-invasive radiologic tool. It is estimated that abdominal ultrasonographic studies diagnose up to 85% of the cases of hepatobiliary Ascariasis<sup>13,14</sup>. The strip sign on an ultrasound study, which is a single or multiple linear echogenic strips with a central anechoic shadow is the whole mark for the presence of the *Ascaris* worm<sup>13</sup>. CT scan is another very useful radiographic study. The worm appears as a tubular filling defect on contrast CT studies.

The WHO recommendations aim to eradicate helminthic infections worldwide by the year 2020<sup>5</sup>. They suggested three main control measures: periodical deworming to eliminate infecting worms, health education to prevent re-infection, and improved sanitation to reduce soil contamination with infective eggs<sup>5</sup>. In addition, they suggested Mebendazole 500mg or Albendazole 400mg to be used for periodic deworming<sup>5</sup>. Our patient came from an endemic area and was given the Mebendazole prophylaxis, but still developed Ascariasis, which raises the question how often the deworming should be done to guarantee a better protection. The WHO suggested deworming twice per year for people who live in endemic areas with a prevalence of soil-transmitted helminthic disease of over 50%, but that did not seem to work well for our patient<sup>5</sup>.

In India, which is an endemic area for Ascariasis, 78% of the *Ascaris* induced pancreatitis is mild; while 22% of the cases are severe<sup>12</sup>. Our patient had evidence for severe inflammation on the CT study, but luckily had a favorable outcome.

## CONCLUSION

**A case of obstructive acute pancreatitis due to infestation with *Ascaris* worm in a very young child was presented. The CT scan showed a hypoechoic tubular shadow in the jejunum. The child was managed conservatively, and received anthelmintic medication, passed the worm and recovered completely.**

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