

Duodenal perforation with *Ascaris lumbricoides* in a child: A case report

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ABSTRACT

Gastrointestinal infestation with *Ascaris lumbricoides* is common in temperate and tropical countries. Although heavy worm infestation produces wide range of acute abdominal complications, duodenal perforation in association with ascariasis, especially in children, is rarely reported. We report a case of 5-year-old girl with duodenal perforation secondary to ascariasis.

Key words: *Ascaris lumbricoides*, Duodenal Perforation, Gangrene, Peritonitis

Ascariasis is a helminthic infection of global distribution; with more than 1.4 billion persons infected throughout the world. An estimated 1.2-2 million such cases with 20000 deaths per year occur in endemic areas [1]. The presentation ranges from being completely asymptomatic to acute abdomen following intestinal obstruction and rarely, fatal complications such as perforation and gangrene of intestines. Gastric and duodenal perforation, although rare, few cases are reported in adults [1-4], and it is very rarely reported in children. We report a case of duodenal perforation due to ascariasis in a child.

CASE REPORT

A 5-year-old girl presented to emergency room with severe abdominal pain and vomiting for 4 days. History of passage of worm in vomitus was there two days back. On examination, girl was sick looking with mild pallor, weight 12 kg (below 3rd centile), temperature 100°F, heart rate 140/min, respiratory rate 46/min, and blood pressure of 100/70 mm Hg. Abdominal examination revealed tense distended abdomen, guarding with rebound tenderness and absent bowel sounds. However, no mass could be palpated.

X-ray abdomen revealed evidence of air under diaphragm. On laboratory investigations, hemoglobin was 8.5 g/dl, leukocyte count 14,700/mm³, neutrophils 79%, with normal platelet count, and renal parameters. The patient was admitted with a diagnosis of intestinal perforation secondary to worm infestation.

On emergency laparotomy, peritonitis with massive gangrene involving two-third of small bowel was found preserving around 3 feet of jejunum proximally and 4 inch of terminal ileum distally (Figure 1), worms were seen in peritoneal cavity as well as throughout gangrenous bowel (Figure 2), on further exploration, in anterior wall of first part of duodenum, a perforation was seen with a live worm pouting through it (Figure 3). Pouting worm and

6-7 other worms present in the duodenum were extracted through duodenal perforation opening. Duodenal perforation was repaired with Graham procedure. Thorough peritoneal lavage, resection of involved segment of the intestine with end to end anastomosis was performed. Post-operative period was uneventful. The patient was given intravenous antibiotics for 7 days and discharged on day 10 of hospitalization. Deworming of the patient as well as all other family members were done.

DISCUSSION

Clinical manifestation of ascariasis can vary from asymptomatic child to one with severe disease requiring surgical intervention. Severity of disease depends on the worm burden; heavy worm infestation produces a wide range of acute abdominal complications such as intestinal obstruction, intussusception, cholangiohepatitis, pancreatitis, and acute appendicitis. Intestinal ascariasis may cause torsion and gangrene of the intestine, perforation and peritonitis. Intestinal obstruction is the most common surgical complication with reported prevalence of 9.2 cases per 100,000 persons [5].

GI perforation involving small intestine has been reported in children in approximately 10% cases of surgical presentation. Our patient had duodenal perforation which is rarely reported in children. In a case report from Thailand, endoscopy in a 2-year-old child with massive hematemesis revealed a live ascaris worm adherent to bleeding duodenal ulcer and post-extraction, patient developed pneumoperitoneum suggesting possibility of concealed perforation [6]. In our patient, the ascaris worms probably migrated into the duodenum and exited into the peritoneal cavity through the perforated duodenal ulcer with spillage of intestinal contents causing peritonitis. Multiple worms were seen in the duodenum and peritoneal cavity as well with inflamed gangrenous small bowel implying that duodenal perforation was caused by ascaris.



Figure 1: Resected small bowel with massive gangrene



Figure 2: Multiple tangled worm in resected gangrenous bowel

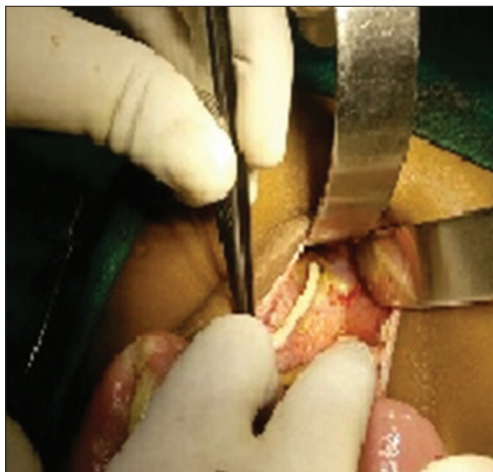


Figure 3: Live ascaris worm pouting through duodenal perforation

The cause of small intestinal perforation remains controversial with two main theories [7]. In tropical countries, patients consistently have a history of diseases associated with intestinal

ulceration such as typhoid enteritis, tuberculosis, and amebiasis. Intestinal ulceration can also be developed due to Crohn's disease, trauma, lymphoma, or NSAIDs ingestion. During extreme conditions such as inflammation, starvation or worm bolus obstruction, some parasites are believed to migrate into ulcer and lead to acute perforation. Another possible explanation is that the large worm bolus can lead to pressure necrosis and gangrene. The diseased bowel in this way becomes susceptible to rupture by the burrowing action of the worms. Thus, primary bowel diseases and intestinal inflammation and gangrene are the two pathogenetic factors hypothesized for small bowel perforation in cases of ascariasis. Bolus of worm causing inflammation and gangrene was the causative factor in our case confirming ascariasis as a cause of duodenal perforation.

CONCLUSION

It is suggested that signs of infestation with *Ascaris lumbricoides* make a diagnosis of intestinal perforation more likely in a patient with acute abdomen. A history of passing parasite in vomitus or stool can be a good clinical clue to this condition. In view of probability of developing perforation peritonitis, we should be vigilant, and prompt surgical treatment should be undertaken at the earliest in a case of acute abdomen with ascariasis infestation. Medical treatment should involve deworming of other siblings and all family members and not just the index case.

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