International Journal of Scientific Reports
Agrawal H et al. Int J Sci Rep. 2024 Dec;10(12):455-457
http://www.sci-rep.com
pISSN 2454-2156 | eISSN 2454-2164

DOI: https://dx.doi.org/10.18203/issn.2454-2156.IntJSciRep20243497

Case Report

Wormball as a cause of acute intestinal obstruction: a case report and brief review

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Received: 05 September 2024
Accepted: 17 October 2024

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ABSTRACT

Soil transmitted helminthic (STHs) infection are mainly caused by *Ascaris lumbricoides* (AL) and commonly affect children worldwide and in India by ingestion of embryonated larva. It can cause various gastrointestinal and hepatobiliary complications. We are presenting a case of 25 years old gentleman who presented to emergency department with feature of intestinal obstruction. Patient was subsequently undergoing emergency exploratory laparotomy and obstructing worms were recovered. Patient did well in postoperative period and discharged after deworming with albendazole. There have been multiple reports of AL causing intestinal obstruction in endemic areas. Acutely sick patient presenting in emergency require resuscitation and may require emergency laparotomy followed by deworming with albendazole. In a patient presented with symptoms and signs suggestive of bowel obstruction, ascariasis should be considered as a differential diagnosis for those from endemic areas.

Keywords: STHs, Ascariasis, Small bowel obstruction, Wormball

INTRODUCTION

Soil transmitted helminthic (STHs) infection of humans are mainly caused by mainly by AL, *Trichuris trichiura*, *Necator americanus* and *Ancylostoma duodenale*. AL is the most prevalent and largest of these. The infection is acquired by the ingestion of the embryonated eggs, and the larvae pass through a pulmonary migration phase for maturation. The normal habitat of the adult worm is the jejunum.[1] Soil-transmitted helminths (STH) infects nearly 2 billion people around the world and is more common in children.[2] According to the world health organization (WHO), around 870 million children live in the high prevalence areas. The warm and moist climate of tropical and subtropical countries provides the ideal environment for the survival of parasite eggs or larvae of these STH. Africa, South Asia and South America are the most affected regions of the world.[3] India alone contributes nearly 25% to the total global cases and it is estimated that 220.6 million children need preventive chemotherapy for STH.[4,5]

Adult parasites in the small intestine can induce various gastrointestinal and hepatobiliary complications depending on their numbers including biliary colic, acute cholecystitis, acute pancreatitis, acute cholangitis, hepatic abscess, ileal perforation, upper gastrointestinal bleeding, volvulus, peritonitis, intussusception, and less commonly intestinal obstruction.[6-12]

Wormball is commonly referred to entangled aggregated Ascaris. Severe infection with Ascaris results in formation of Wormball. Intestinal perforation and peritonitis secondary to Wormball formation is a rare complication but can be a salient one in endemic areas.[7,13] We are reporting a case of one such complication of STH infections where Wormball caused small bowel obstruction (SBO) in 25-years male.

CASE REPORT

A 25-year-old gentleman presented to our tertiary care center in emergency department with complaint of peri-umbilical abdominal pain, vomiting, progressive abdominal distension and non-passage of stool and flatus for 2 days. Patient had past history of pulmonary tuberculosis and took anti-tubercular treatment for 6 months. On examination, blood pressure was 104/60 mmHg, pulse rate was 114 beats per min, respiratory rate was 14 breaths/min and was afebrile. Abdominal examination showed signs of acute intestinal obstruction. The blood biochemistry showed increased total leukocyte and increased blood urea and serum creatinine. A plain erect abdominal x-ray revealed multiple air-fluid levels with regularly spaced valvulae conniventes and paucity of air in the rectum. The provisional diagnosis of SBO secondary to abdomen Koch was made and patient was planned for exploratory laparotomy and proceed. Patient was started on intravenous fluids, catheterized for urine output monitoring. A nasogastric tube was inserted and kept in situ. Written informed consent was taken. Prophylactic shot of a broad-spectrum antibiotic was given (Ceftriaxone 1 gm intravenously and metronidazole 500 mg IV) and was continued in postoperative period. On exploration, small bowel was dilated and large bowel was collapsed. Multiple ascariasis worm balls (6 in number) were present extending from dudeno-jejunal flexure till 20 cm proximal to ileo-caecal junction. (Figure 1).

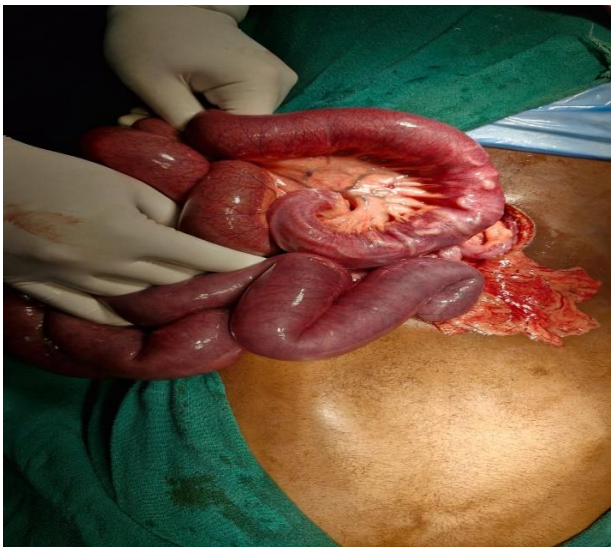

Figure 1: Worm ball infestation in small intestine.

A 5 cm long Heineke-Mikulicz enterotomy was created on a fairly healthy ileal segment and extraction of the ascaris ball was done manually and other wormballs were milked through the enterotomy. Total 80 adult AL were extracted from small intestine (Figure 2). The enterotomy incision was transversely closed by single layer interrupted absorbable suture (Polydioxanone). Adequate peritoneal lavage was given. Postoperatively, the patient was kept nothing per oral (NPO). Maintenance fluids, antibiotics and analgesics were started. On regaining bowel functions, patient was orally allowed. The patient was discharged on the 6th postoperative day. Postoperative course was uneventful. At the time of discharge, patient along with his family members were dewormed with a single dose of albendazole 400 mg orally. Patient was followed up for 1 month and this period was uneventful.

Figure 2: Multiple (80 in number) adult AL extracted from patient small intestine.

DISCUSSION

According to the WHO, around 870 million children live in the high prevalence areas. India alone contributes nearly 25% to the total global cases. We are presenting a case of STHs infection by ascaris causing SBO with peritonitis in the 25-year-old adult male in tertiary care center. Previous study has shown that it can cause various complications including ileal perforation, intussusception, intestinal obstruction, upper gastrointestinal bleeding, volvulus, peritonitis, biliary colic, acute cholecystitis, acute pancreatitis, acute cholangitis and hepatic abscess, intestinal obstruction and intestinal perforation.[7-12] Intestinal AL infestation and associated complications can be investigated with the use of plain radiography, barium examinations, ultrasonography (USG), and Computed tomography (CT) scan. In severe infestations, the aggregated ascaris (worm ball) may appear as a tangled group of thick cords contrasted against the bowel gas in plain abdominal x-ray but may be normal when the ascaris are few in number. The Ascaris appear as elongated, smooth, cylindrical, and frequently coiled radiolucent filling defects within the barium-filled intestinal lumen on barium imaging. Abdominal ultrasound (US) is mainly used to detect the orientation of the worm relative to the probe. However, transducer resolution, the presence or absence of fluid around the

worm, the segment of the worm examined (head or body), and whether the worm is dead or alive have an influence on sonographic findings. Abdominal CT is not the preferred approach for diagnosing ascariasis. However, the worms may frequently be seen within the intestinal lumen through soft-tissue windowing.[9,14] Patients who present with acute intestinal obstruction and peritonitis require emergency laparotomy and complete removal of obstructive worm followed by deworming. The WHO recommended deworming with albendazole (400 mg) and mebendazole (500 mg) of children, women of reproductive age including pregnant mothers (Pyrantel pamoate in the first trimester) in all endemic countries periodically as these drugs are effective, inexpensive and easy to administer so as to reduce morbidity by reducing the worm burden.[1,15-17]

CONCLUSION

STH infection can present in various manner. In a patient presented with symptoms suggestive of intestinal obstruction, STH should be considered as a differential diagnosis especially for those from endemic areas. Medical treatment with albendazole, mebendazole or pyrantel pamoate (pregnancy) should be provided to the index case as well as the family members upon discharge. Deworming for children and pregnant mothers in endemic areas is a recommendation.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

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Cite this article as: Agrawal H, Kumar V, Tanwar H, Maurya SK, Kumar S. Wormball as a cause of acute intestinal obstruction-a case report and brief review. Int J Sci Rep 2024;10(12):455-7.