



# Predicament of Intestinal Obstruction in the Immediate Postoperative Period: A Rare Case Report

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## Abstract

Ascariasis is a common parasitic infection worldwide (9.2 cases per 100,000 persons), especially in the tropical and subtropical developing countries where sanitation and hygiene are poor. It may cause gastrointestinal obstruction, perforation, volvulus, biliary tract obstruction, intussusception, and acute appendicitis. Non-operative and conservative management followed later by an anthelmintic agent will help to relieve the symptoms in most cases. We present a child with anorectal malformation (ARM) who underwent colostomy closure (the final operative steps of ARM), developed intestinal obstruction within the 7<sup>th</sup> postoperative day. We suspected a small anastomosis leakage or adhesive obstruction, but on exploration, we found luminal obstruction by a single large worm. We removed the worm and managed the case successfully.

**Keywords:** Single; worm; obstruction; stoma; ARM

## Introduction

*Ascaris Lumbricoides* is the most common tropical intestinal helminth parasite, and it is estimated that the infested population is 0.8 - 1.2 billion worldwide [1]. Ascariasis can occur in all ages, but it is most common in children between 2 and 10 years of age, and prevalence decreases above the age of 15 years. The massive infestation in children can result in serious complications, which include obstruction of the small intestine, appendiceal lumen, bile duct, and pancreatic duct. Intestinal volvulus, intussusceptions, peritonitis due to perforation of a viscus are also common. Intestinal obstruction has been estimated to occur in 2/1000 of Ascariasis-infested children per year [2]. Worm obstruction is reported in the literature but not reported causing obstruction in a postoperative (PO) patient and that too by a single worm. Obstruction by a single worm is unique and not documented before. Hence we report the case as a single worm causing small bowel obstruction in a PO case of ARM in a 2-year 6-months old girl child.

## Case Presentation

A 2-year 6-month old girl child with ARM was admitted for elective colostomy closure. She underwent two surgical procedures; a diversion sigmoid-colostomy and posterior sagittal anorectoplasty (PSARP) one year back. There was no past history of passing worms through the stoma or evidence of worm infestation. A distal colostogram was done to see the luminal patency of the distal colon. We completed all preoperative blood investigations, 2-dimensional echocardiography, ultrasonography, and distal colostogram to see the luminal patency of the distal colon. She underwent an extra-mucosal colo-colic anastomosis (colostomy closure). There was an uneventful recovery from anesthesia and a smooth PO course for the first two days. However, after 2<sup>nd</sup> PO day (POD), she first showed signs of abdominal distention and started vomiting, giving her sips of water. The status of the child continued to worsen, abdominal distention increased further, and there was no passage of stool and flatus even on the 8<sup>th</sup> POD. During this whole period, no feculent matter came out of her abdominal drain. On 9<sup>th</sup> POD, she developed a toxic look, moderate dehydration, tachycardia of

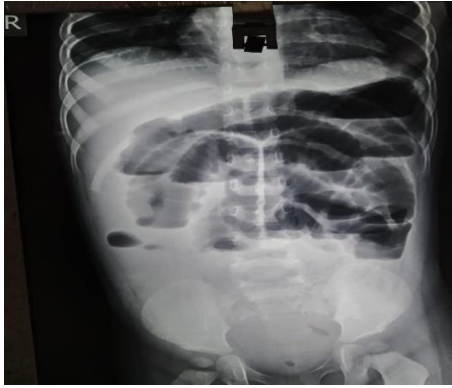
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about 130 bpm, but stayed normotensive. Per abdominal findings were distended and tender abdomen, sluggish IPS, but no rebound tenderness. Per rectal findings were absent of stool staining and rectal ballooning. The serum electrolytes were Na<sup>+</sup>- 139m/mol (135-145); K<sup>+</sup>-4.7m/mol (3.5-5); CL-102m/mol (98-107); U- 15mg/dl (10-40); Cr-0.5mg/dl (0.5-1.5); Albumin- 3.5 g/dl (3.2-5); TLC-10,300X10<sup>9</sup>/ml; Eosinophil-5%. A straight X-ray showed clear evidence of bowel obstruction (Figure 1).



**Figure 1:** Straight X-Ray abdomen shows multiple air-fluid levels in a Post-operative case of stoma reversal in a 2-Year 6-month old girl child with ARM.

Thus, we planned for a re-exploration without any further delay. On exploration, there was dilation of the proximal small gut with luminal stenosis at the level of 20 cm from the duodenojejunal junction (DJ) with the collapse of the distal gut. However, the colo-colic anastomotic was ok. On squeezing the small intestine starting from DJ, a single roundworm of about 6 inches in length was palpated. It was coiled upon itself at that portion of the gut causing small bowel obstruction (regional bowel stenosis by local inflammation). We could milk out it gradually and ultimately we were able to expel it through the anus without breaking it (Figure 2).



**Figure 2:** The operative picture shows a single roundworm of about 6 inches in length which is expelled out through the anus by a gentle milking-manoevre.

The abdominal cavity was cleaned with warm-normal saline and the laparotomy wound was closed. The patient recovered speedily and uneventfully following the redo-surgery, passed stool and flatus within 36 hours, and was discharged on 5<sup>th</sup> POD. On follow-up, the patient was doing well. We started de-worming with antihelminthic drug (Albendazole 400mg), and advised to repeat it 6 monthly.

## Discussion

The most important and final step of management of ARM is the colostomy closure because, the child will pass stool through the anus for the first time after birth. Thus as surgeons, we have to take great responsibilities due to the high expectation of the parents [3]. In such a situation, if the patient doesn't pass stool even after the 9th POD of stoma closure, it becomes disheartening for surgeons and we start criticizing ourselves for any mistake in the previous surgery of PSARP (surgery for neo-anus formation) [4]. We were disappointed and thinking about the failure of stoma reversal because of anastomotic leakage, maybe due to proximal and distal stomal-disparity. The common causes of PO small bowel obstruction are adhesions, electrolyte imbalance, anastomosis leakage, intra-abdominal inflammation, retroperitoneal hemorrhage or inflammation and drugs (like opiates). A negative history of the passage of worm and lack of literature about the worm causing obstruction in this type of scenario had blinded us to miss the condition as a differential diagnosis. Importantly, children playing in contaminated soil may acquire the parasite from their hands and this can be the reason for the greater incidence of ascariasis in boys as they are more exposed to outdoor activities. Our child has had an absent anus since birth and is unlikely to have had such exposure. Had it been not falsely ruled out, we could have managed her with gastrografin orally or hypertonic saline enema per rectally [5]. The condition was very risky to wait further, thus, as a surgeon we had to re-explore the patient with a pre-operative provisional diagnosis of adhesions (with or without anastomosis leak). Intestinal obstruction in the PO period, due to a worm is unthinkable and not even reported to the best of my knowledge after intense search all over the internet [6,7]. All the reported cases of worm obstruction are caused by clusters of worms and otherwise healthy children [8]. Here we found a single worm of 6 inches as the cause for small gut obstruction with regional stenosis. Management of bowel obstruction by worms is enterotomy and removal of worms; it is considered safer than milking [9]. However, in our case, we milked out the worm through the anastomosis and thereafter through the rectum and anus as the distal gut was not that much edematous or friable. We were able to avoid enterotomy perhaps due to a single worm. Caution was taken not to break the worm while milking because it could have released the toxin in the enteral system. Thus to



summarize the notion that clinical disease is largely restricted to individuals with a high worm load is challenged by our reported case [10].

### Conclusion

After reviewing our case, we infer that the possibility of worm obstruction should also be kept in the differential diagnosis while dealing any case of obstruction in the PO period. The awareness of ascariasis and its preventive measures should be included in all health education programs and should be delivered to school children and their mothers to overcome the risk of infestation. Advice should address for proper maintenance of hygiene also equally important to prevent such a singular situation.

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