
Ascariasis causing Intestinal Obstruction in Children: Our Experience

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ABSTRACT

Introduction: *Ascaris lumbricoides* is a parasite that infests the human bowel, common in regions with poor sanitation. Usual treatment is anti-helminthics. Rarely, undiagnosed cases can present with surgical complications. **Materials and Methods:** We report a series of twenty seven cases of pediatric age group admitted with small bowel obstruction as a complication of *Ascaris lumbricoides* infestation. **Results:** The children presented with vomiting, abdominal pain and distention. On examination, most of them had tenderness associated with guarding of the abdominal wall. Diagnosis was made with plain abdominal radiographs and ultrasonography. All 27 cases were initially managed conservatively with 23 patients responding to conservative management and full resolution of symptoms while 4 patients did not respond to conservative management and underwent exploratory laparotomy. **Conclusion:** Ascariasis infestation is a common helminthic disease in developing countries with wide spectrum of clinical presentations, one of which can be an acute abdomen. Low threshold for intervention prevents high mortality and morbidity associated due to volvulus and toxemia.

Keywords: ascariasis, intestinal obstruction, parasites, roundworm

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INTRODUCTION

Ascaris lumbricoides is a parasite common in regions with poor sanitation with infestation occurring in all age groups, most commonly in pre-school children ^[1].

Predisposing factors include poor sanitation, low socioeconomic areas, malnutrition and immune deficiencies. Surgical complications related to Ascariasis do not occur frequently due to common use of anti-helminthic

agents. Small bowel obstruction is a rare clinical manifestation^[2], and can present as either subacute or acute intestinal obstruction^[3].

Subacute obstruction is usually due to mild to moderate general infestation which often resolves successfully with conservative treatment. Acute obstruction differs in that patients are often toxic and present with abdominal distension and tenderness. There may be a mass of the parasite which obstructs the intestinal lumen or obstruction may develop due to resultant volvulus^[4]. Management requires aggressive fluid resuscitation initially with emergency surgery for cases that fail to respond.

MATERIALS AND METHODS

We present a series of 27 cases with intestinal obstruction caused by *Ascaris Lumbricoides* infestation treated at the Dept. of Surgery at Era's Lucknow Medical College and Hospital. The age at time of presentation ranged from 1 to 14 years (mean 6.2 ± 3.4 years), and there were 17 (63%) males and 10 (37%) females.

The duration of illness before visiting our hospital ranged from 2 to 5 days. 19 (70%) of these patients presented with subacute onset and 8 (30%) with acute onset. 13

(48%) patients had a history of passing worms via the mouth or anus.

The clinical presentation included vomiting in 24 (89%), abdominal pain in 23 (85%), fever in 16 (59%), loose stools in 13 (48%), and cough in 6 (22%) patients. During physical examination, most of them had tenderness associated with guarding of abdominal wall and abdominal mass was noted in 7 (26%) patients. Diagnosis of *Ascaris* infestation was suspected from a plain abdominal radiograph ("whirlpool" pattern or longitudinal/transverse cuts of the roundworms), and confirmed by ultrasonography. Malnutrition as defined by weight for age and height for age below fifth percentile was noted for 14 (52%) patients, and stratified as mild (4) moderate (7), or severe (3).

All 27 cases were initially managed conservatively with a nasogastric tube and intravenous fluids. Of these 27 patients, 23 (85%) patients responded to conservative management with full resolution of symptoms. 4 (15%) patients did not respond to conservative management and underwent exploratory laparotomy. These cases required aggressive resuscitation with intravenous fluids and antibiotics before the

surgical procedure. During surgery, two patients had ileal pressure necrosis because of the obstructing intraluminal *Ascaris* bolus. Intestinal resection and end-to-end ileoileal anastomosis was performed. In one

patient, volvulus with gangrene was identified intraoperatively and resection anastomosis was done after extraction of worms [Figure 1].

Figure 1: Extracted worms causing volvulus with gangrene. Resection anastomosis was done in the patient.



In one patient, *Ascaris* bolus was not negotiable so enterotomy and manual extraction of the worms were performed followed by closure of enterotomy [Figure 2]. IV broad-spectrum antibiotics were given postoperatively. Patients received a single dose of albendazole (400 mg) before discharge. All the children had complete postoperative recovery.

Figure 2: Intra-operative view of Enterotomy and manual extraction of the worms.



DISCUSSION

The mode of *Ascaris* infection is by the ingestion of embryonated eggs in raw vegetables, water or soil-contaminated hands.^[5] Intestinal obstruction may result from occlusion of the bowel lumen due to a large number of worms^[2,6]. Mechanical obstruction usually occurs at the level of ileocecal valve and often accompanied by inflammatory reaction in bowel segments

resulting from toxins excreted by the worms. There may be associated volvulus or intussusception caused by the bolus of worms. There have been no reported complications of worms residing in the large intestine.

Plain X-ray abdomen may show air fluid levels or show the worms as a mass characterized by a whirlpool pattern or cigar bundle appearance. Ultrasonography may

show echogenic tubular structures (railway track/winding highway/triple line sign) longitudinally and bull's eye horizontally. Gastrograffin can be used to diagnose as well as to relieve the partial obstruction caused by ascariasis due to its hyperosmolar action.

Conservative management includes adequate fluid and electrolyte replacement with nasogastric tube decompression. Patients are kept nil per orally as the old adage "Starve the patient, Starve the worm". No anthelmintic should be given at this stage, as it may worsen the obstruction by increasing the size of the worms' bolus.

Hypertonic saline enema has been recommended by some authors.

Surgical intervention is needed when intestinal obstruction progresses or peritonitis occurs. If the bowel is viable and the obstruction is at ileum, milking of the worms to caecum can be done carefully^[7]. If the obstruction is at jejunum or if there are multiple masses, enterotomy should be done with removal of worms. In cases presenting with bowel gangrene, perforation, or intussusception with non-viable bowel, resection with primary anastomosis may be required^[8]. Anthelmintic drugs can be given postoperatively and personal hygiene must be emphasized.

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