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Original Research Paper

General Surgery

ACUTE INTESTINAL OBSTRUCTION IN CHILDREN DUE TO ASCARIASIS : A CASE SERIES

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ABSTRACT Ascarislumbricoides is a common helminthic infestation in tropical and sub-tropical areas. Heavy worm infestation can cause intestinal obstruction, partially or completely. Most cases can be managed conservatively with antihelminthics. Infrequently, it leads to acute intestinal obstruction that requires emergency surgical management. This case series has been presented in view of the relatively rare presentation of ascariasis as a cause of small bowel obstruction in the paediatric age group.

KEYWORDS :

INTRODUCTION:

Ascaris lumbricoides is a common cause of worm infestation in tropical and subtropical regions of the world. In India, it is relatively more prevalent in the region of Jammu and Kashmir. (1) One of the serious complication of Ascariasis is intestinal obstruction caused by an aggregated mass of worms, which may present acutely or subacutely.(2) Emergency surgical treatment is necessary in acute presentations. (3) Sub-acute presentations can be treated conservatively with antihelminthics until spontaneous resolution occurs.(4)(5) Ascariasis as a cause of intestinal obstruction is relatively rare and accounts for upto 1.5 to 7% of cases of small bowel obstruction in India.(6) We present three cases of *A. lumbricoides* as a cause of small bowel obstruction in children.

CASE PRESENTATION 1:

A 7 year old male presented to the hospital with chief complaints of pain abdomen and abdominal distension for 3 months with aggravation of symptoms for the past 3 days. There was history of constipation for the past 3 days. There was also history of vomiting of worms 1 day back. There was no history of loose motions, yellowish discoloration of skin and sclera or fever. There was history of passage of worms in the stools on and off in the past. On examination, pallor was present. His pulse rate was 94 beats/min and his respiratory rate was 34 breaths/min. On per abdomen examination, mild, diffuse tenderness was present along with distension of the abdomen . Bowel sounds were exaggerated. Rest of the systemic examination was unremarkable. Laboratory investigations revealed haemoglobin level of 9 gm%. All the other investigations including complete blood count, renal function tests and liver function tests were normal. Ultrasound abdomen showed normal hepatobiliary and pancreatic system. X-Ray abdomen revealed multiple air fluid levels and was suggestive of small intestinal obstruction.

The patient was taken up for exploratory laparotomy via an upper transverse incision. Whole of the small gut from duodenojejunal flexure upto the ileocaecal valve was loaded with worms. The worms were impacted at the DJ flexure extending into the duodenum for about 5 cm and at about 70 cm proximal to the ileocaecal valve extending roughly about 30 cm in length. The caecum and ascending colon were collapsed. The bowel wall was healthy and no pre-gangrenous changes were present. Enterotomy was done about 75 cm proximal to the ileocaecal valve and the impacted worms were removed. Thorough milking of the gut was done. The enterotomy was closed in two layers primarily. Peritoneal lavage was done and a peritoneal drain was kept in place. Post-operative period remained uneventful. The patient was put on parenteral antibiotics, analgesics and proton pump inhibitors. Albendazole was given on the third post-operative day. The patient was discharged on the 7th post-op day.

Fig 1 : Intraoperative image of *Ascaris lumbricoides* Removed via enterotomy

CASE PRESENTATION 2 :

A 9 year old male was admitted with chief complaints of pain abdomen and abdominal distension on and off for the past one year. The patient had been experiencing severe pain abdomen and persistent vomiting for the past 2 days. There was history of passage of worms per rectally on several occasions in the past. On examination, the patient was pale and emaciated. His pulse rate was 100 beats/min and his respiratory rate was 36 breaths/min. On per abdomen examination, there was mild tenderness along with distension of whole of the abdomen . Bowel sounds were exaggerated. Laboratory investigations revealed haemoglobin level of 8.5 gm%. Rest of the investigations including complete blood count, renal function tests and liver function tests were normal. Ultrasound abdomen showed dilated gut loops. X-Ray abdomen revealed multiple air fluid levels and was suggestive of acute intestinal obstruction.

The patient was taken up for exploratory laparotomy via an upper transverse incision. Whole of the small gut was loaded with worms. The worms were impacted at about 80 cm proximal to the ileocaecal valve extending roughly about 30 cm in length. The caecum and ascending colon were collapsed. The bowel wall however, showed pregangrenous

changes. The patient was given 100 % hyperbaric oxygen for five minutes intraoperatively. This was followed by the reversal of pregangrenous changes. An enterotomy was done and the worms were removed. The enterotomy was finally closed in two layers by primary suturing. Post-operative period remained uneventful. The patient was put on parenteral antibiotics, analgesics and proton pump inhibitors. Albendazole was given on the third post-operative day. The patient was discharged on the 10th post-op day.

Fig 2 : Roundworms removed via enterotomy

CASE PRESENTATION 3 :

A 9 year old male presented to the surgery emergency with history of diffuse pain abdomen for the past 2 months. There was history of constipation on and off in the past. There had been an aggravation of symptoms over the past 2 days. There was also history of two episodes of vomiting of worms 1 day back. On examination, the patient was pale and dehydrated. His pulse rate was 104 beats/min and his respiratory rate was 30 breaths/min. Per abdomen examination revealed distension of the abdomen along with diffuse tenderness present in the whole of abdomen. Rest of the systemic examination was normal. Laboratory investigations including complete blood count, renal function tests and liver function tests were normal. Ultrasound abdomen showed normal hepatobiliary and pancreatic system. X-Ray abdomen was suggestive of intestinal obstruction.

The patient was taken up for exploratory laparotomy via an upper transverse incision. The worms were present in the small bowel at about 50 cm proximal to the ileocaecal valve extending roughly about 20 cm in length. The caecum and ascending colon were collapsed. The bowel wall was healthy and no pre-gangrenous changes were present. Thorough milking of the gut was done upto the caecum. The patient was put on parenteral antibiotics, analgesics and proton pump inhibitors. Albendazole was given on the third post-operative day. The patient was discharged on the 8th post-op day.

DISCUSSION :

Ascariasis is a common parasitic infestation particularly in areas of poor fecal sanitation.(7) The embryonated eggs are ingested along with contaminated food and water. The fertilized eggs hatch in the intestine and the larvae that are released reach the portal circulation and from there, into the right side of the heart and the pulmonary circulation. The larvae are then coughed up by the host and swallowed back into the intestine and develop into adult worms. (8) The clinical features are variable between asymptomatic to severely symptomatic depending on the worm load of the patient. Worm migration in patients, particularly adults can cause acute cholecystitis, acute cholangitis, liver abscess, acute pancreatitis, perforation and intestinal obstruction.(9) Thus, roundworm obstruction should be kept as one of the most common possibilities of intestinal obstruction in pre-school and school-going age group in endemic areas.(4) Management is dependent on the clinical presentation. Subacute infestations can be managed conservatively with antihelminthics.(10) In acute intestinal obstruction, the type of surgery depends on the findings during the laparotomy. If the bowel is viable, careful milking of the worms is done upto the caecum while avoiding trauma. In case of obstruction present at multiple levels, enterotomy is done via a longitudinal incision with removal of worms with sponge-holding forceps. If the bowel wall is non-viable, resection and primary anastomoses may be required. (11) If there is a perforation and there are worms freely moving in the peritoneal cavity, it is preferable to create a stoma.

CONCLUSION:

In conclusion, roundworm obstruction is an infrequent cause of acute intestinal obstruction in children. The clinical presentation is variable depending on the worm load of the patient and the complications that may occur during the systemic migration of the larvae. Management includes antihelminthic treatment. Acute intestinal obstruction due to worms requires emergency laparotomy and the type of surgery is dependant on the findings at the time of laparotomy. Early diagnosis of this condition is important to minimize surgical morbidity. Proper sanitation and awareness is essential for minimizing the risk of infection.

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