ORIGINAL ARTICLE

CONSERVATIVE TREATMENT OF SMALL BOWEL OBSTRUCTION CAUSED BY ROUND WORMS IN CHILDREN BY USING KLEEN ENEMA

Tariq Waheed, Mohammad Imran, Waheed Akhtar, Inayat Ur Rehman

Department of Paediatric Surgery, Khyber Teaching Hospital, Peshawar - Pakistan

ABSTRACT

Objectives: To determine the effectiveness of kleen enema in relieving intestinal obstruction caused by ascaris lumbricoides in children.

Material and Methods: This retrospective study was performed in Pediatric Surgery Department of Khyber Teaching Hospital from October 2011 to September 2013. A total number of 33 patients were admitted. Patients were treated with intravenous fluids, intravenous antibiotics, nasogastric suction and with kleen enema, given per rectally. Those patients in which obstruction was not relieved within 72 hours, were then operated.

Results: In 28 patients (84.8%) out of 33 intestinal obstruction was relieved by using kleen enema. 5 patients (15%) required laprotomy. Out of 33 patient 19 (57.57%) were males and 14 (42.4%) were females.

Conclusion: Kleen enema was very effective in relieving intestinal obstruction. The advantage of using kleen enema is its ready availability as compared to the other enemas used in such cases.

Key Words: Gastrointestinal Ascariasis, intestinal obstruction, kleen enema.

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INTRODUCTION

Ascariasis is a helmenthic infestation and according to WHO committee on helmenthic infestation, one out of every four of the world population is infected. Poor hygiene and low socioeconomic conditions have been the main factors incriminated. Ascariasis occurs at any age but is most frequent between the age of 2 and 10 years. Above the age of 15 years its prevalence decreases[1,2]. Although the helmenthic infestation can present with silent form or chronic symptomatology, the massive infestation in children can give rise to serious complications, like small intestinal obstruction[3,4] bile duct, pancreatic duct, and appendiceal lumen obstruction[5], volvulus of small bowel[6], intussusceptions[7], peritonitis due to perforation of intestine[8], liver abscess and pulmonary abscess[9,10]. Every 2 out of 1000 children who harbor round worms in their small bowel develop intestinal obstruction per year.

Conservative management for intestinal worm obstruction is advocated in many studies[11,12,13] and can be done wth nasogastric suction, intravenous fluid administration, normal saline enema[12], hypertonic saline enemas[13] and instillation of oral piperazine salt[3]. In few studies gastrografin[14,15] was used for removal of ascaris lumbricoides with variable results. All these methods were used in incomplete small bowel obstruction only but we preferred kleen enema for the first time in our study because of its ready availability in both complete and incomplete small bowel obstruction with very good results.

MATERIAL AND METHODS

This retrospective study was conducted at Pediatric Surgery unit of Khyber Teaching Hospital, Peshawar, Pakistan from September 2011 to October 2013. Total 33 patients (19 male and 14 female) with small bowel obstruction caused by Ascaris lumbricoides without any evidence of peritonitis were included in this study. Patients who had peritonitis at the time of presentation

Dr. Tariq Waheed (Corresponding Author)
Assistant Professor
Paediatric Surgery, Khyber Teaching Hospital,
Peshawar - Pakistan
Cell: 0313-960-9053
Email: dr.tariqwaheed@gmail.com

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were excluded from this study. Detailed history, with special emphasis on any passage of worms in vomitus or through rectum was taken. All patients were initially treated conservatively by keeping them nil orally, passing a nasogastric tube for decompression, starting intravenous fluids and antibiotics. After getting the informed consent from the parents, patients were started with kleen enema per rectally, twice a day. The conservative treatment was abandoned if patient developed sign and symptoms of peritonitis or abdominal pain and distension did not improve after 72 hours of conservative treatment. These patients were monitored with measurement of girth of the abdomen and X-ray of the abdomen performed every 24 hours. X-ray erect abdomen performed at the time of admission was assessed for the number of air-fluid levels. X-ray erect abdomens were then repeated at 24, 48 and 72 hours. Decrease in the intensity of pain abdomen and abdominal distension , reduction in the girth of abdomen and passage of worms in stools were good indicators. If there was no improvement in the clinical condition of the patient within 72 hours of conservative treatment or clinical condition of the patient deteriorated then surgical treatment was considered.

RESULTS

Total 33 patients were included in the study. Out of which 19 (57.57%) were males and 14 (42.4%) were females (male to female ratio 1.35-1). Most of the patients (72.7%) presented between 4-9 years of age. The clinical features included abdominal pain in all 33 patients(100%), abdominal distension in 22 patients (66%), constipation in 17 patients (51%), vomiting in 20 patients(60.6%), passage of worms in vomitus, 15 patients (45%), passage of worms in stools, 17 patients (51%), abdominal mass in 7 patients (21%) and visible loops in 6 patients (18%). On abdominal examination the most common findings were abdominal distension (66%) and abdominal tenderness (60%) X-rays and ultrasound abdomen was performed in all patients, ultrasound was more sensitive in detecting Worms in intestine (75%).

Out of 33 patients only 5 required surgical intervention (15%) rest responded to conservative treatment. Conservative management consisted of nil per orally, naso-gastric tube aspiration, Intravenous fluids and antibiotics. Kleen enema was given twice

Table 1: Age at presentation

Age in years	No. of patients & percentages
2-4	4 (12.1%)
5-9	24 (72.7%)
10-12	5 (15.1%)

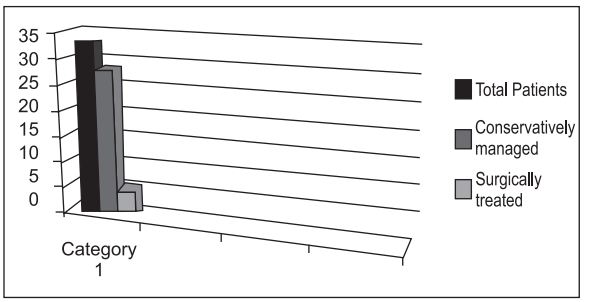

Figure 1: Shows total No. of patients and those treated conservatively

Figure 2: X-ray erect abdomen showing worms in the intestine

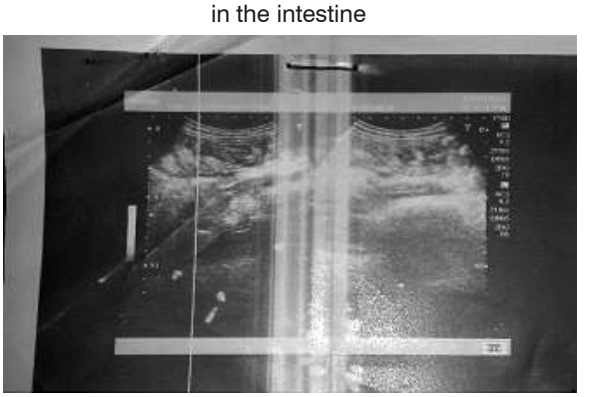

Figure 3: Ultrasound abdomen showing worms in the intestine

a day. Antispasmodics and antihelminthics were not used during the acute phase of intestinal obstruction. Antispasmodics were given only in severe abdominal colic. Operative procedures included milking of worms into cecum (3 patients), enterotomy and removal of worms in two patients. Mean stay in the hospital for conservative treatment was 5.01 days (range 3-7 days). In cases who were operated mean hospital stay was 8.6 days (range 8-9 days), there was no mortality only one patient developed incisional hernia, which was repaired later on.

DISCUSSION

Intestinal obstruction due to round worms in children is more common because of small luminal

diameter of intestine and an increase worm load[16,17]. Transmission is via oro-fecal route, by ingestion of contaminated water or food. The Ascariasis is the most common parasite infestation of humans and about fourth part of the world population is infected. The released larvae from the eggs in the intestine go into a pulmonary migration phase. The larvae attain sexual maturity within three months after reaching the small intestine[18] The incidence of intestinal obstruction is 20-30%[19,20].

Most patients (72.7%) in our study presented between 4-9 years of age which is almost similar to the results of N.E. Agugua et al[21] who reported highest incidence in children aged between 3-7 years (74%). Most patients in our study had pain abdomen (100%) and abdominal distension (60%) at the time of presentation which is similar to many reported series[19,22,23]. Male dominated in numbers over females in this study in a ratio of 1.35:1. Other studies have shown the same results[24,25].

In order to reach a proper diagnosis history of passage of worms through the rectum or through the mouth is important 18 In our study the number of patients who vomited worms were 15 patients (45%), and patients who passed worms in stools were 17 in numbers (51%), Villamizar et al[3] reported that 50% of their patients had history of passage of worms through mouth or through anus. Diagnosis of small bowel obstruction causd by ascaris lumbricoides is based on history and is supported by X-ray abdomen and ultrasound of the abdomen[26,27].

Conservative management for intestinal worm obstruction is advocated in many studies[11,12,13] and can be done with nasogastric suction, intravenous fluid administration, normal saline enema[12], hypertonic saline enemas[13] and instillation of oral piperazine salt[3]. In few studies gastrografin[14,15] was used for removal of ascaris lumbricoides with variable results. In all of these studies conservative management was offered in partial intestinal obstruction only, but in our study we offered conservative treatment with kleen enema in both compete and in incomplete small bowel obstruction. 28 out of 33 patients (84.8%) responded to conservative treatment, only 5 patients (15%) required surgery. There was no mortality and only one patient developed incisional hernia which was later on repaired. Paralyzing agents, especially those causing spastics paralysis, should be avoided in patients with small bowel obstruction caused by round worms because of the risk of causing complete obstruction and making surgery more complex.

In patients who responded to conservative treatment with kleen enema mean hospital stay duration was 5.01 days which is similar to the other studies like Soomro MA et al[19] reported mean hospital stay of 4±1.69 days. In patients who were operated mean hospital stay was 8.6 days (range 8-9 days). The treatment proposed in our study (nasogastric aspiration, intravenous fluids and antibiotics and kleen enema) the response to conservative therapy was good (pain decreases, worms are passed through rectum and reduction in abdominal distention). If worms were not passed after 3 days of conservative treatment or patient deteriorated clinically then surgical intervention was considered (only 5 children in this study). Those patients in which surgery was performed, 3 were managed by milking of worms into cecum, and in other 2 enterotomies and removal of worms, was performed.

The exact mechanism of action of kleen enema in relieving small bowel obstruction is not known but it is postulated that it probably works by stimulating mass movements in the colon. These mass movements also increase small bowel motility leading to disentanglement of worms bolus and then their expulsion through the anus.

CONCLUSION

Parital or complete small bowel obstruction without evidence of peritonitis can be treated effectively by using naso gastric aspiration intravenous fluids, antibiotics and kleen enemas which is safe, cost effective, easily available and requires less hospital stay.

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AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under:

Waheed T: Idea & data collection.
Imran M: Drafting of manuscript.
Akhtar W: Bibilography.
Rehman I: Supervised the Research.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.