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Worm Obstruction In Children: Has Anything Changed Post Deworming Compaigns. A Tertiary Care Study.

Syeed Rayees Ahmad[1], Aijaz A Rather[2]
[1]*Senior resident, Department of general Surgery, SKIMS, MCH Bemina.*
[2]*Professor and HOD, Department of general Surgery , SKIMS,MCH Bemina.*
Corresponding Author: Syeed Rayees Ahmad

Abstract: *A comprehensive and retrospective study was conducted at post graduate department of general surgery SKIMS Medical College, Bemina over a period of 5 years from February 2012 to March 2016 where about 70 patients (children) of acute small gut obstruction were studied. The aim of this study was to find and decode the commonest cause of intestinal obstruction in our population with emphasis on age, sex and regional distribution. While studying it was found that the leading cause of obstruction was due to Ascariasis (73%) followed by adhesion obstruction(11.4%).The most vulnerable age group was between 4 to 11 years with peak between 4to 7 years, and majority of patients were from rural background. Conservative treatment was effective in maximum number of patients (71%) and lesser number of patients*
(29%) needed surgery. Delayed reporting to hospital increased morbidity in worm obstruction patients.
Key words: *Ascariasis, anastamosis,enterotomy,*

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I. Introduction

Infection with *Ascaris* occurs principally in under developed countries with a humid climate, but in some areas of developed countries 8 - 25% of the children are infested. In India about 70% of childrens stool have been infested with round worm ova, of which 85% cases of ascariasis are found in Kashmir (1).Children's are mostly infested because of contact with the soil infected with faeces and lead to malabsorption , protein and vitamin deficiency (2). They develop into adults in the jejunum and survive there for approximately I year. Complication rate is 2 per 1000 infested children per year, being maximal when the worm burden exceeds 100 . Obstruction of the intestine by a bolus of worms, biliary ascariasis, pancreatitis and acute appendicitis are the commonest complications necessitating surgical treatment(3).

II. Material And Methods

A comprehensive and retrospective study was conducted at post graduate department of general surgery SKIMS Medical College , Bemina over a period of 5 years from February 2012 to March 2016 where about 70 patients (children) of acute small gut obstruction were studied. The study was passed by the ethical committee of our medical college. A total of 70 patients with partial or complete intestinal obstruction due to round worms without signs and symptoms of peritonitis were admitted during this study. Patients who presented with signs and symptoms of peritonitis and pneumoperitoneum were excluded from this study. All patients were initially subjected to conservative treatment (nil by mouth, intravenous fluids, nasogastric tube aspiration, rectal enemas (glycerine plus liquid paraffin enema) after getting their informed consent. They were closely monitored with assessment of vital parameters, abdominal girth measurement and serial abdominal X-ray. The abdominal radiograph at admission was evaluated for the number of air-fluid levels and the diameter of the dilated loops was recorded. Serial follow-up X-rays were taken at 8, 24, and 48 hours. Clinical improvement was defined as a decrease in abdominal pain and distension, decrease in abdominal girth and associated passage of flatus or stool. Radiological improvement was defined as a decrease in number of dilated bowel loops or in the diameter of dilated small bowel. During monitoring if the condition of patients did not improve or deteriorated according to clinical or radiological parameters, they were considered for surgical treatment. The treatment protocol followed at our medical college is conservative with appropriate intravenous fluids, nasogastric suction, antibiotic and anthelmintic therapy (piperazine salt 75mg/kg) followed by rectal enemas (glycerine plus liquid paraffin enema) for three consecutive days.

III. Results

Figure 1: Out of 70 cases male children were more infected than females. The most common age group was between 8-11 years.

SEX DISTRIBUTION				
Age in years	Male	Female	Total	Male/ Female Ratio
4-7	26 (57.8%)	19(42.2%)	45	1: 0.73
8-11	10 (58.8)	7 (41.2)	17	1:0.70
12-14	4(50%)	4(50%)	8	1:10
Total	40(57.1%)	30 (42.9%)	70	1:0.75 (57.1%:42.9%)

Figure 2: Children from rural area are more infected with round worm infestation than urban.

REGIONAL DISTRIBUTION	
Rural	44 (62.0%)
Urban	26 (37%)

Figure 3: As per etiology worm obstruction was found to be major cause of obstruction in children than other causes.

ETIOLOGY	
Worm Obstruction	51 (73%)
Adhesion Obstruction	8 (11.4 %)
Intussusception	3 (4.3 %)
Obstructed Inguinal Hernia	2 (2.86 %)
Band Obstruction	2 (2.68 %)
Volvulus	1 (1.4 %)
Intestinal tuberculosis (ileal)	1 (1.4%)
Unknown etiology	2 (2.86%)

Figure 4: Conservative management was effective in majority of cases followed by surgical intervention.

WORM OBSTRUCTION MANAGEMENT	
Total No. of Patients	51
1. Conservative Management	37 (72.5%)
2. Operative	14 (27.5%)
Operative procedure	No. of patients
a. Enterotomy with removal of worms	6
b. Small bowel resection with E-E Anastomosis	5
c. Kneading of worms (milking)	3

IV. Discussion

Ascariasis being the most prevalent heliminthic infection involving one forth of population world wide with estimated 1.4 billion population approximately involved world wide leading to 20000 deaths annually in endemic areas(4). It has varied presentations with being silent or chronic , sometimes the massive infestation leads to urgent surgical intervention. The prevalence of ascariasis is highest in children aged 2-10 years, with the highest intensity of infection occurring in children aged 5-15 years (5). Children playing in contaminated soil may acquire the parasite from their hands and this can be the reason for greater incidence of this condition in boys as they are more exposed to outdoor activities; similar high incidence in male patients is also reported by other authors.

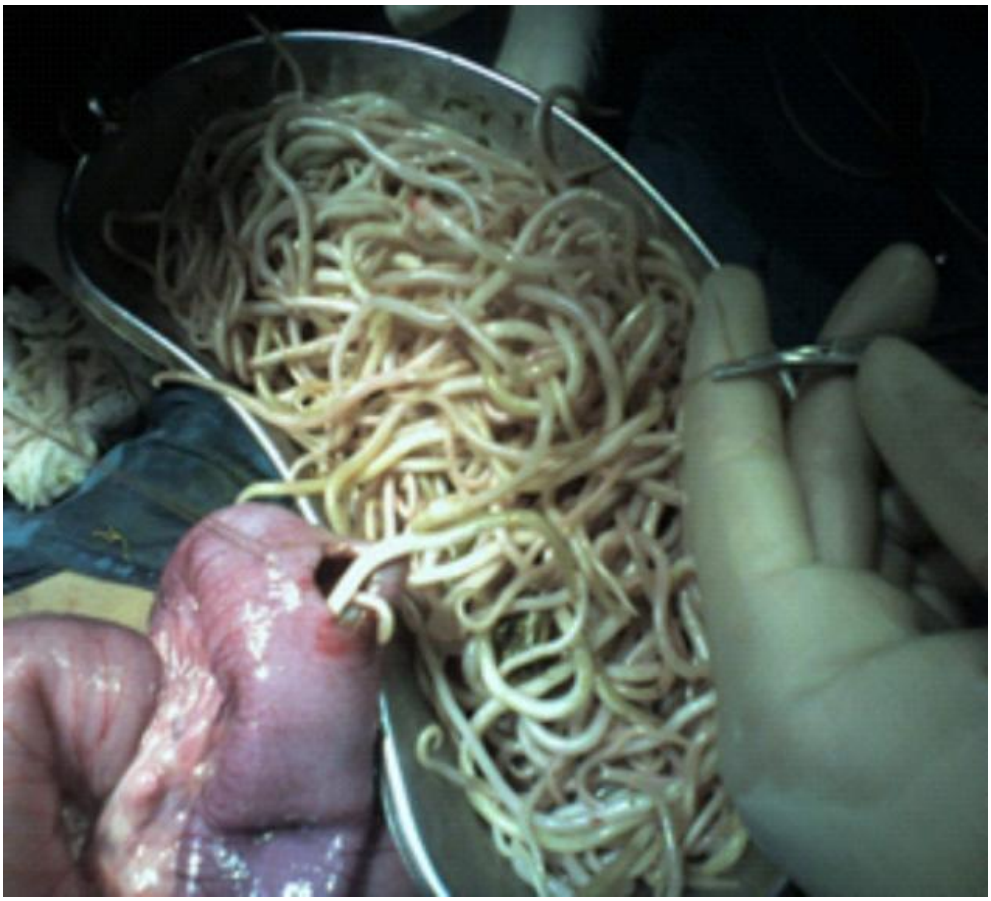
The majority of infestations with Ascaris lumbricoides are asymptomatic. However, the burden of symptomatic disease worldwide is still relatively high because of the high prevalence of disease. Clinical disease is largely restricted to individuals with a high worm load (6).

Heavy infestations with Ascaris are frequently believed to result in abdominal discomfort, anorexia, nausea and diarrhoea. However, it has not been confirmed whether or not these non-specific symptoms can truly be attributed to Ascariasis (7). A mass of worms can obstruct the bowel lumen in heavy Ascaris infestation, leading to acute intestinal obstruction. The obstruction occurs most commonly at the ileocecal valve. Symptoms include colicky abdominal pain, vomiting and constipation. Vomitus may contain worms. Approximately 85 percent of obstructions occur in children between the ages of one and five years (8). Sometimes an abdominal mass that changes in size and location on serial examinations (9)may be appreciated. Complications including volvulus, ileocecal intussusception, gangrene, and intestinal perforation occasionally result (10).

Our Medical College caters referrals from five major big districts of Kashmir; Srinagar, B a r a m u l l a , A n a n t n a g , Pulwama and Bandipora because of its prime location.. The majority of surgical admissions in surgical emergency include worm colic/ worm obstruction and most of the patients respond to conservative treatment (iv fluids, R/T suctions and enemas). Majority of the Worm colic patients responded to this standard management and were discharged within 24hrs. DAYALAN criteria (persistence of worm mass for more than 24hrs, persistence of abdominal pain &tenderness and rising pulse rate, toxaemia out of proportion to severity of obstruction) were used to decide about the need for surgical intervention. If early and prompt treatment is started in children, the morbidity and mortality can be prevented to a greater extent .We observed that the children who report late have often gut gangrene or fluid and electrolyte imbalance or toxaemia leading to high mortality.

Out of total 70 gut obstruction patients, 51where caused by worms (ascariasis) and majority belonging to rural areas of Kashmir. The reason being that there is still lot of illiteracy and poor hygiene, lack of sanitary facilities, use of open field defecation, use of human excreta as manure, and eating of raw uncooked vegetables (salad). Out of these 51 patients, 37 patients (72.5%) responded to effective conservative management including drip/suction & proctoclysis enemas. In a study conducted on worm obstruction the author stressed that most common mode of management is conservative and about 80% 0f patients are managed conservatively with nasogastric suction and IV fluids. Clinical judgement and radiological assessment was done to decide about the

surgery.14 patients underwent laparotomy which failed to respond to conservative treatment. Out of which kneading of worms was done in 3 patients by milking the worms from jejunum/ ileum into colon. Care was taken to avoid rough handling of gut so as to prevent the serosal tears which are vulnerable in edematous obstructed gut. In 7 patient's enterotomy was done as gut loops where over distended and edematous making kneading difficult. A 1-2 cms size enterotomy wound was made in most distended part of the small gut and worms where retrieved by using a sponge holding forceps. Enterotomy was closed by interrupted 3-0 vicryl. 5 patients had gangrene of small gut where resection of small gut with end to end anastomosis was done. All these patients did remarkably well and no anastomotic leak occurred in any of these patients. The next cause of small gut obstruction was adhesion obstruction. Eight patients (11.4%) patients had adhesion obstruction. Three patients from this group had been previously operated for acute appendicitis (one of these patients had appendicular abscess drained previously), one patient had been previously operated for worm obstruction, one patient had enteric perforation and one had congenital bands, and one patient had been operated for intestinal tuberculosis (gut resection) and one patient had no records of previous surgery. Seven of these patients where managed by effective drip/suction and proctoclysis enemas and got deflated within 24 hours. One patient underwent adhesion lysis who failed to respond to conservative treatment. Three patients had intussusception out of which one got reduced with hydrostatic reduction, two where operated out of which one got reduced manually after warm saline compresses and did not have any gut resection as gut was healthy. One patient had gangrene of small gut so underwent resection and end to end anastomosis. Two patients reported with obstructed inguinal hernia, were kept for observation with elevation of foot end of bed and sedation, hernia got reduced and where operated in the next elective list. One patient with volvulus had gangrene of small gut for which resection anastomosis was done, the cause of volvulus was a congenital band between ileum and parietal wall. one patient had ileocecal tuberculosis was managed with anti-tubercular drugs. In two patients actual cause of obstruction could not be ascertained, they responded to conservative treatment.



V. Conclusion

Worm obstruction is still the commonest cause of acute intestinal obstruction in children in our part of the country. Majority of the patients are from rural areas due to lack of health education, poor hygiene and sanitation, poverty and low standard of living, use of open field defecation, use of human excreta as manure, and eating of raw uncooked vegetables (salads). Early and prompt treatment is essential to prevent morbidity and

mortality in these patients. A mass deworming programme of children in endemic areas should be taken at public health to save the population from the dreadful complications because of worms, inspite of the recent few years of introduction of deworming programmes the incidence of infestation by worms has not come down which may be either due to resistance to anti helminthics ,decrease out reach programmes or inefficient participation.

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