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The spectrum of paediatric intestinal obstruction

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***Abstract*---**Background: Acute intestinal obstruction is very common surgical emergency in paediatric age. The purpose of this study was to determine the aetiology, clinical presentation, management and outcome of intestinal obstruction in children in a tertiary care hospital. Material & methods: This was a retrospective study of paediatric patients who presented with intestinal obstruction to the paediatric surgical unit. he study period was for one year. Data was extracted from the records. Statistical Package for Social Science (SPSS) version 23 was used for data entry and analysis. Data were expressed as percentages and mean. Results: There were 80 cases of paediatric intestinal obstruction seen during the study period. A total of 6200 children were admitted into the children's ward of the hospital during the study period, out of which intestinal obstruction accounted for 1.20%. Most of the patients (43.75%) presented with abdominal pain. Most common etiology was Ascariasis. Conclusion: The present study concluded that most of the patients presented with abdominal pain. Most common etiology was Ascariasis followed by Adhesions. Only 2.5% were discharged against medical advice.

***Keywords*---**ascariasis, paediatric intestinal obstruction, abdominal pain.

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Introduction

Intestinal obstruction occurs when the normal flow of intestinal contents is interrupted. This obstruction can occur at any level of the intestinal tract. Intestinal obstruction is a surgical emergency because of potential for intestinal ischaemia leading to perforation and peritonitis.[1] Majority of the paediatric patients with intestinal obstruction present with common symptoms of abdominal distension, constipation or failure to pass meconium, vomiting, fluid and electrolyte imbalance etc. Majority of birth defects present in neonatal age group, but infantile hypertrophic pyloric stenosis commonly occurs around the age of 3 weeks. Intussusception is commonly seen in healthy children of 6-11 months of age. The onset of signs and symptoms of intestinal obstruction also give some idea about the diagnosis.[2] Age, environmental and social factors may play a role in the spectrum of IO aetiology.[3,4] Many of these etiologies are congenital in origin and need staged repair with good functional outcome. Diagnosis of etiology and management of obstruction require both clinical and surgical expertise along with the judicious use of various diagnostic modalities. Though the classical presentation is pain abdomen and vomiting; further investigations are required to come to a preoperative diagnosis.[5-10] The purpose of this study was to determine the aetiology, clinical presentation, management and outcome of intestinal obstruction in children in a tertiary care hospital.

Material and Methods

This was a retrospective study of paediatric patients who presented with intestinal obstruction to the paediatric surgical unit. Paediatric patients older than 1 month but less than 16 years were recruited into the study. Intestinal obstruction in neonates was excluded from this study. The study period was for one year. Diagnosis of intestinal obstruction was made based on the patients' clinical presentation and examination findings by the pediatric surgeon. Necessary investigations such as abdominal ultrasound and x-rays were done. Data was extracted from the records. The information extracted include the age, gender, presenting symptoms, diagnosis, duration of symptoms before presentation, time interval between presentation and intervention, treatment offered, complications of treatment, outcome and duration of hospital stay. Statistical Package for Social Science (SPSS) version 23 was used for data entry and analysis. Data were expressed as percentages and mean.

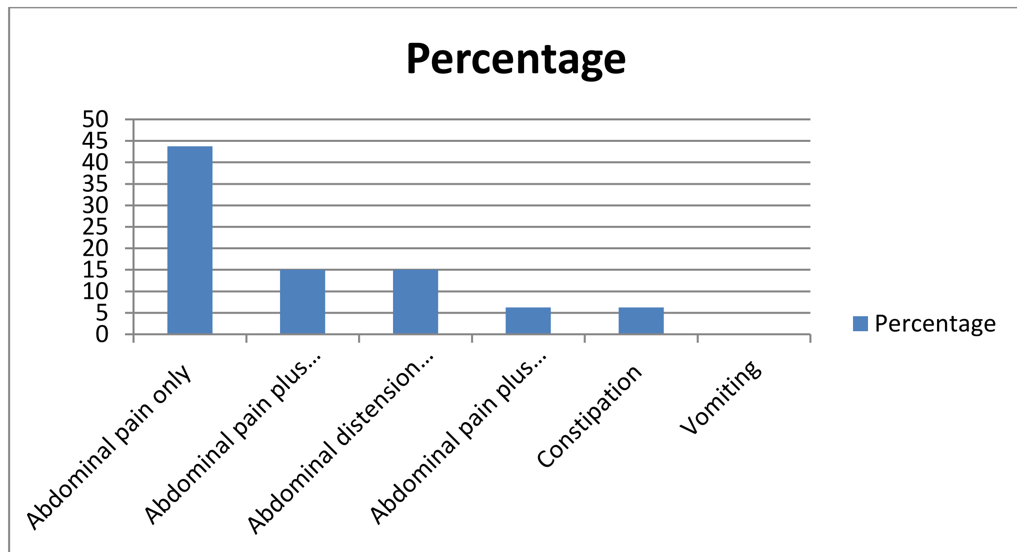
Results

There were 80 cases of paediatric intestinal obstruction seen during the study period. A total of 6200 children were admitted into the children's ward of the hospital during the study period, out of which intestinal obstruction accounted for 1.20%. There were 55 (68.75%) males and 25 (31.25%) females. The mean age of the patients was 53.2 months and the mean length of hospital stay was 11.5 days. The mean duration of symptoms before presentation was 3.1 days. 7 patients (8.75%) presented to the hospital within 24 hours of onset of their symptoms, 22 patients (27.5%) presented between 24 and 72 hours and 51 (63.75%) presented after 72 hours. The mean duration between presentation and operative intervention was 2.2 days. 9 patients (11.25%) had operative treatment

within 24 hours of presentation to the hospital; 45 patients (56.25%) had surgery 24 to 72 hours after presentation while 26 patients (32.5%) had surgery 72 hours after presentation to the hospital. Most of the patients (43.75%) presented with abdominal pain. Most common etiology was Ascariasis followed by Adhesions. 45 patients were managed operatively and 35 patients were managed non-operativly. 95% patients did well and were discharged. 2.5% patients died while 2.5% were discharged against medical advice.

Table 1
Clinical presentations of the patients

Symptoms	N(%)
Abdominal pain only	35(43.75%)
Abdominal pain plus distension	12(15%)
Abdominal distension only	12(15%)
Abdominal pain plus vomiting	5(6.25%)
Constipation	5(6.25%)
Vomiting	2(2.5%)



Graph 1. Clinical presentations of the patients

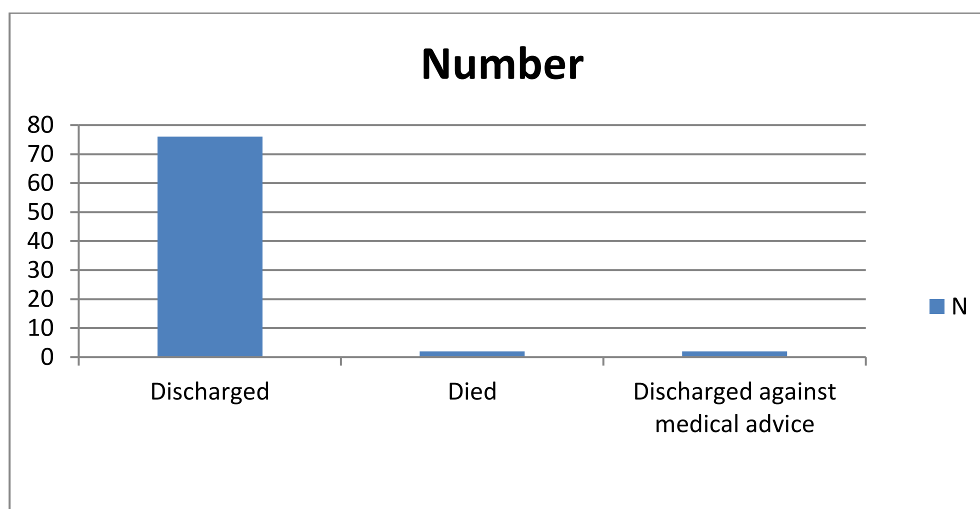
Table 2
Distribution of cases by etiology and management

Etiology	Cases	Management	
		Operative	Non-operative
Ascariasis	26	8	18
Adhesions	18	9	9
Intussusception	11	10	1
Small bowel volvulus	6	6	0
Anorectal	4	4	0

Malformations			
Malrotation	3	3	0
Fecal impaction	2	0	2
Hirschsprung's disease	2	2	0
Other	8	3	5
Total	80	45	35

Table 3
Outcome

Outcome	N(%)
Discharged	76(95%)
Died	2(2.5%)
Discharged against medical advice	2(2.5%)



Graph 2. Outcome

Discussion

In paediatric surgical practice, intestinal obstruction is one of the most common emergencies encountered almost on daily basis and contributes significantly to the paediatric surgical disease.[11,12] Unlike in adults where post-operative adhesions and neoplasms account for most intestinal obstruction; intussusception and obstructed external hernias dominate intestinal obstruction in children.[13,14] Intestinal obstruction in children can be divided into neonatal and nonneonatal types.[15] There were 80 cases of paediatric intestinal obstruction seen during the study period. A total of 6200 children were admitted into the children's ward of the hospital during the study period, out of which intestinal obstruction accounted for 1.20%. There were 55 (68.75%) males and 25 (31.25%) females. The mean age of the patients was 53.2 months and the mean length of hospital stay was 11.5 days. The mean duration of symptoms before presentation was 3.1 days. 7 patients (8.75%) presented to the hospital within 24 hours of onset of their

symptoms, 22 patients (27.5%) presented between 24 and 72 hours and 51 (63.75%) presented after 72 hours. The mean duration between presentation and operative intervention was 2.2 days. 9 patients (11.25%) had operative treatment within 24 hours of presentation to the hospital; 45 patients (56.25%) had surgery 24 to 72 hours after presentation while 26 patients (32.5%) had surgery 72 hours after presentation to the hospital. Most of the patients (43.75%) presented with abdominal pain. Most common etiology was Ascariasis followed by Adhesions. 45 patients were managed operatively and 35 patients were managed non-operativly. 95% patients did well and were discharged. 2.5% patients died while 2.5% were discharged against medical advice.

Park CH and Woo et al also studied clinical features in their study in 77 paediatric patients with intestinal obstruction. He found abdominal distension as the commonest symptom in 76 % of patients followed by not passing stool/meconium in 64%, excessive crying in 60%, visible peristalsis in 34% and vomiting in 4% of patients while present study also found same features ordered in 40.6%, 11.7%, 38.6%, 41.6% and 20% patients respectively.[16] Saha et al also found ARM (35%) as a most common cause of G.I. obstruction followed by Hirschsprung's disease (22.9%).[17] Memon AM et al found that Maximum cases of intestinal obstruction were in neonatal period and least in 5-14 years. Sex ratio is 2.5:1 (male to female). ARM was the major cause of obstruction in neonatal (<1month) age group. IHPS and Hirschsprung's disease were most common cause of GI obstruction in 1 month to 1 year age group in our study. 4 of our cases did not have accurate diagnosis and were responded well to conservative management. Most of the patients presented with complain of not passing stool followed by distension of abdomen. 85.94% of cases are congenital in our study. Large gut portion was involved in majority of cases. Overall survival rate was 91.40%.[18] In the two studies from Kashmir reported ascariasis to be the cause of IO in 63-77% of the study cohort.[19,20] Ascariasis is a common infection in the tropics, and is associated with poor hygiene and low socioeconomic conditions that are more prevalent in rural areas such as western Kenya.[20]

Conclusion

The present study concluded that most of the patients presented with abdominal pain. Most common etiology was Ascariasis followed by Adhesions. Only 2.5% were discharged against medical advice.

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