



Aetiological Factors of Intestinal Obstruction in Children and their Outcome in a Tertiary Care Hospital: a Retrospective Study

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ABSTRACT

Background- Intestinal obstruction in childhood is a common problem of surgical emergency. Childhood intestinal obstruction can either be congenital or acquired and both types result in high morbidity and mortality in developing countries

Aim- The study was undertaken to examine the aetiology of childhood obstruction and their outcome in a tertiary care hospital.

Materials and methods- All infants and children presenting with sign and symptoms of intestinal obstruction were included in the study. Surgical intervention was carried out. Patients were divided in to two groups. Group I included infants and group II toddlers and children. Cause of intestinal obstruction and outcome were recorded.

Results- A total of 36 patients over a period of two year (Jan-2014 to Dec 2015) with an age range of 1 day to 12 years were included in the study. Among these 10 (27.78%) were female and 26 (72.22%) were male with M:F ratio was 2.6:1. Small bowel obstruction was seen in majority of case (83.3%). Majority of cases were due to intussusceptions (25%) followed by imperforated anus (16.6%), intestinal worms (11.1%), nonspecific mesenteric lymphadenitis (11.1%), bowel atresia (8.33%), tuberculosis (8.33%), volvulus (5.5%), viral necrotising enteritis (5.5%) and strangulated hernia (2.77%) respectively. Mortality was seen 16.66 % of cases. Most occurred in the neonates.

Conclusion- Pattern of intestinal obstruction varies at different age group in aetiology. Congenital cause, imperforated anus was commonest in group I. While in group II intestinal intussusception, was the commonest cause of obstruction followed by intestinal worm and lymphadenitis. Outcome depends on underlying condition

KEYWORDS

INTRODUCTION-

Intestinal obstruction is a potentially life threatening condition, if undiagnosed or improperly managed can progress to vascular compromise which causes bowel necrosis, perforation, sepsis and death. [1]

The various causes of intestinal obstruction in children include intussusception, bands and adhesions, volvulus, hernias, abdominal tuberculosis and obstruction due to worm infestation. [2,3,4] causes of intestinal obstruction varies at different age group and outcome also depend upon the underlying condition. Hence, early recognition and prompt treatment is required.

METHODOLOGY:

This study was conducted in the Department of General surgery Government Medical College and Hospital Haldwani, from January 2014 to December 2015. Patients were divided in to two groups. Group I included infants and group II toddlers and children. All the patients upto 12 years of age who presented with non passage of stool, pain abdomen, vomiting and distention of abdomen and underwent surgery, were included. Patients with history of chronic constipation, trauma, post diarrhoeal distention, with free gas on x-ray abdomen, obstruction resulting from compression by tumors and patients managed conservatively were excluded. Detailed history was taken and a thorough physical examination, including digital rectal examination, performed on all the patients. Baseline investigations including CBC and ESR, serum electrolytes, renal function tests were done. Plain x-ray abdomen and

x ray chest were obtained in all cases. Ultrasound abdomen and contrast studies were done in suspected cases of intussusception, malrotation and intestinal worms. All the patients underwent exploratory laparotomy. The cause of intestinal obstruction and outcome of were recorded. Each patient was followed up weekly for one month and monthly for three months in outpatient department.

RESULTS:

During the study period a total of 36 patients were operated. There were 26 (72.22%) males and 10 (27.28%) females. The age of the patients ranged from one day to 12 years. Out of the 36 patients 83.33% had small bowel obstruction and rest 16.67% had large bowel obstruction.

The common clinical presentations are shown in table 1. The various aetiological factors and sex distribution for intestinal obstruction is depicted in table 2.

Over all, the intussusception was the commonest aetiological factor (25%) followed by imperforate anus (16.6%), intestinal worm (11.1%), nonspecific mesenteric lymphadenitis (11.1%), bowel atresia (8.33%), tuberculosis (8.33%), volvulus (5.5%), viral necrotising enteritis (5.5%) and strangulated hernia (2.77%) respectively. Obstruction due to congenital anomalies was commonest in group I. While in group II intestinal intussusception was the commonest cause of obstruction followed by intestinal worm and lymphadenitis. Mortality was 16.67% and maximum deaths were due to intestinal atresia among group I (table2). Exploratory laparotomy and surgical

procedures performed depending upon the cause of intestinal obstruction.

DISCUSSION-

Intestinal obstruction is a common paediatric surgical problem and cuts across the different age groups in children. Its occurrence in children may be acute or chronic. Presentation in the neonate is usually acute and is the most common emergency surgical condition seen in them. [5,6]

The causes of intestinal obstruction also have regional variations. In our series most frequent congenital cause was imperforated anus and among acquired causes the intussusception was the commonest. Intussusception remains the commonest cause of bowel obstruction in infants and children as reported by many authors. [7,8,9] In the present study also commonest cause of intestinal obstruction was Intussusception with male to female ratio was 8:1 Hazara et al [9] also found male preponderance of intestinal obstruction. Whereas, in other studies obstructions were seen in patients with almost equal sex ratio. [10, 11,12]. In the present no lead point was seen in any patient . This observation correlates with other studies. [11,12]. The reason may be attributed to the age factor as most of the patients in our study were of younger age group (up to 1 year) Intussusception in older children is relatively less common and often present with lead point.[11]

Ascariasis was the second most common cause of obstruction in the present study accounting 11.11% of acquired intestinal obstruction. Roundworm related intestinal obstruction is more common in children because of the smaller diameter of the lumen of the bowel and, often, an increased worm load. In a study from Kashmir, 63.2% of intestinal obstruction in children has been reported to be caused by ascaris Lumricoides.[13] Ascariasis is a common problem in the tropics. Poor hygienic and low socioeconomic conditions have been the main factors incriminated. [14] Common surgical problems caused by Ascariasis infestation include small intestinal obstruction, volvulus, intussusception and perforation usually involving the ileum. [14,15,16] Roundworm obstruction should be the differential diagnosis of all cases of intestinal obstruction in children in endemic area like ours.

In the present study, imperforated anus was the leading cause congenital obstruction (16.66%) followed by atresia (8.33%) and band and adhesion (2.77%). The bands/adhesion may be congenital or inflammatory in aetiology. [1,11]. Inflammatory bands are more common cause of intestinal obstruction. [11,12] as compared to congenital . In a study by Hussain et al [11] adhesions constituted the second most common cause of bowel obstruction, while in series from Pakistan [12] they were the commonest cause in children above one year and second commonest cause in children less than one year of age. Tuberculosis of abdomen as a cause of intestinal obstruction was found in 3 (8.33%) cases in our study. In all the affected cases adhesion between the loops of small intestine with characteristic tubercles on the serosa of the intestine were observed.

Congenital band was found in only one case in our study. Whereas, congenital peritoneal bands were the cause of intestinal obstruction in 4 (7.3%) of the cases in different study[10]

Mortality was seen 16.66 % of cases. Mortality was attributed to the late presentation of the cases due to remote and difficult geographic terrain in Uttarakhand, this resulted in the delay in initiation of the treatment. New born baby who failed to pass meconium or had an imperforate anus are readily brought to notice by the attending nurse. It is important for the the emergency medical officer to diagnose it early and refer to the surgeons.

Pattern of intestinal obstruction varies at different age group in aetiology. Congenital cause, imperforated anus was commonest in group I. While in group II intussusception was the commonest followed by intestinal worm and nonspecific mes-

enteric lymphadenitis. Outcome depends on underlying condition.

Table 1. Clinical features of intestinal obstruction

Serial no.	Clinical features	Percentage
1.	Vomiting	86.6
2.	Abd. Pain	83.3
3.	Absolute constipation	80.0
4.	Abdominal distension	66.7
5.	Palpable bowel loops	60.0
6.	Visual peristalsis	56
7.	Bleeding per rectal	20
8.	Bowel sounds	
	Normal	23
	Exaggerated	42
	Diminished	24
9.	Per rectal exam.	
	Normal	51.5
	Balloned up	26.2
	Blood (red currant jelly)	23.3

Table-2. Etiological Factors of intestinal obstruction

Aetiology	Cases	%	Male	Female	Mortality	%
Imperforate anus	6	16.66	4	2	1	16.6
Bowel atresia	3	8.33	2	1	2	66.67
Intussusception	9	25.00	8	1	2	22.22
Nonspecific mesenteric lymphadenitis	4	11.11	3	1	-	-
Intestinal worms	4	11.11	2	2	-	-
Ileal diverticula	1	2.77	1	-	-	-
Tuberculosis	3	8.33	1	2	-	-
Volvulus	2	5.55	2	-	1	50
Viral necrotizing enteritis	2	5.55	1	1	-	-
Strangulated hernia	1	2.77	1	-	-	-
Adhesions and bands	1	2.77	1	-	-	-

Table 3- Age wise group distribution of the cases (Group I included infants and group II toddlers and children)

Serial no.	Age group (years)	No. of cases	Percentage
1	Group I Infants (0-1 year)	13	36.11
2	Group II Toddler and children(1-12)	23	63.99

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