

Original article:

Descriptive study of intestinal obstruction in neonates and paediatric patients (including Duodenum)

¹ Dr Adithyan A , ² Dr Narendra N Hombalkar

¹M.S General Surgery Resident, Department of Surgery, Government Medical College, Miraj and PVPGH Sangli

²Associate Professor, Department of Surgery, Government Medical College, Miraj and PVPGH Sangli

Corresponding author: Dr Adithyan A



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Abstract:

Background: Intestinal obstruction is a common surgical emergency in neonates and pediatric patients, including duodenal obstruction. The aim of this study was to determine the clinical profile, etiology, management, and outcome of intestinal obstruction in children.

Methods: This was a descriptive observational study conducted in the Department of General Surgery of Government Hospital Miraj and P.V.P.G.H. Sangli from March 2021 to October 2022. A total of 50 patients aged less than 12 years with both sexes were included in the study. Data were collected from patients' medical records, and a predesigned case record form was used to record demographic data, detailed medical history, investigations, and outcome.

Results: The age group of 0-28 days showed the highest number of cases (15 males and 6 females), followed by the age group of 1-4 years (6 males and 4 females). Abdominal distension was the most common presenting symptom (92%), followed by vomiting (72%) and constipation (50%). Anorectal malformation was the most common cause of intestinal obstruction (36%), followed by Hirschsprung's disease (18%). Surgical site infection was the most common postoperative complication (20%). Postoperative morbidity was seen in 46 (92%) cases, and mortality was seen in 4 (8%) cases.

Conclusion: Intestinal obstruction in neonates and pediatric patients is a surgical emergency that requires prompt diagnosis and management. Anorectal malformation and Hirschsprung's disease were found to be the most common causes of intestinal obstruction in this study. Early diagnosis and surgical intervention can improve the outcome of these patients.

Keywords: Intestinal obstruction, neonates, pediatric, duodenum, anorectal malformation, Hirschsprung's disease.

Introduction:

Intestinal obstruction is a condition that occurs when there is a partial or complete blockage in the intestine, leading to a disruption in the flow of contents through the digestive system. This condition can affect individuals

of all ages, but it is particularly common in neonates and pediatric patients. Intestinal obstruction can be caused by a variety of factors such as congenital anomalies, inflammation, trauma, and tumors.¹

In neonates, intestinal obstruction is a life-threatening condition that requires immediate medical attention. It can present with symptoms such as vomiting, abdominal distension, and failure to pass meconium. In some cases, the obstruction may occur in the duodenum, which is the first part of the small intestine that receives partially digested food from the stomach.^{2,3}

In pediatric patients, intestinal obstruction can also be a significant health issue, leading to a range of complications such as dehydration, sepsis, and even death. The presentation and management of intestinal obstruction in children can differ from those in adults, making it essential to study this condition in this population.^{4,5}

Given the prevalence and potential severity of intestinal obstruction in neonates and pediatric patients, it is crucial to conduct descriptive studies to understand the etiology, clinical presentation, and management of this condition in this population. This information can guide healthcare providers in making informed decisions about diagnosis, treatment, and prevention of intestinal obstruction in neonates and pediatric patients, including those involving the duodenum.

Material and methods:

This was a descriptive observational study conducted in the department of general surgery of Government Hospital Miraj and P.V.P.G.H. Sangli. The study included all eligible cases of age less than 12 years with both sexes who were admitted to the hospitals between March 2021 to October 2022. Cases with age more than 12 years and having Upper GI obstructions above the level of duodenum were excluded from the study.

The patients were examined clinically, and a local ultrasound of the swelling and an abdominal and pelvic ultrasound were performed. Based on the examination and ultrasound findings, the necessity of operative intervention or conservative management was decided. The type of repair was also decided upon.

In operated cases, a detailed history was taken, and follow-up was conducted to obtain information about the outcome and any complications. Demographic data, detailed medical history, information about operative intervention, investigations, outcome, complications, etc. were obtained from patients' medical records and entered into a predesigned case record form.

The study was conducted for a period of 20 months from March 2021 to October 2022. Descriptive statistics were used to analyze the data obtained, and the results were presented in the form of tables and graphs.

The study was conducted in accordance with the Declaration of Helsinki and was approved by the institutional ethics committee. Informed consent was obtained from the parents or guardians of all the participants. The confidentiality of the participants was maintained throughout the study.

RESULTS

Table 1: Age and Sex wise distribution

Age Group	Male	Female
0-28 Days	15	6
29 Days – 1 year	4	3
1 – 4 Years	6	4
4 – 8 Years	3	0
8 – 12 Years	5	4

Table 1 shows age and sex wise distribution of patients with intestinal obstruction of which the age group of 0-28 days shows 15 males and 6 females; in the age group of 29 days to 1 year there are 4 males and 3 females; in the age group 1-4 years there are 6 males and 4 females; in the age group 4-8 years there are 3 males and no females; in the age group 8-12 years there are 5 males and 4 females.

Table 2: Presenting symptoms in patients of intestinal obstruction

Clinical features	No of Patients	Percentage (%)
Abdominal distension	46	92
Vomiting	36	72
Constipation	25	50
Abdominal pain(in older children)	23	46
Excessive crying	22	44
Others	16	32

Table 2 shows cases of intestinal obstruction of which abdominal distension was present in 46(92%) patients which was found to be a commonest presentation followed by vomiting in 36 (72%) patients, failure to pass meconium/absolute constipation in 25(50%) of patients, abdominal pain in 23(46%) patients, excessive crying in 22 (44%) patients, other findings in 16 (32%) patients.

spectrum of Diagnosis of intestinal obstruction	No of Patients	Percentage (%)
Anorectal malformation	18	36
Hirschsprung's disease	9	18
Intussusception	7	14
Hernias (Umbilical hernia, inguinal hernia) causing intestinal obstruction	7	14

Table 3: Distribution spectrum of Diagnosis of intestinal obstruction

Complications that occurred in 27(54%) patients out of 50 in which 4 (14.8%) patients had septicaemia, 9 (33.33%) patients had post-operative fever, 12 (44.4%) patients had wound infection and retraction of colostomy were seen in 2 (7.4%) patients.

Table 4: Morbidity and Mortality

	No of Patients	Percentage (%)
Morbidity	46	92
Mortality	4	8

Table 4 shows 46 (92%) cases had post op morbidity where mortality was seen in 4 (8%) cases.

Discussion:

The present study aimed to describe the clinical profile and outcomes of intestinal obstruction in neonates and pediatric patients. The study was conducted in the department of general surgery of Government Hospital Miraj and P.V.P.G.H. Sangli from March 2021 to October 2022. The study included eligible cases of age less than 12 years with both sexes. Cases with age more than 12 years and having upper GI obstructions above the level of duodenum were excluded from the study.

The age and sex-wise distribution of patients with intestinal obstruction were analyzed and presented in Table 1. The study showed a higher incidence of intestinal obstruction in males compared to females in all age groups, except for the age group of 1-4 years, where the number of male and female cases was almost similar.

The presenting symptoms of intestinal obstruction were analyzed and presented in Table 2. Abdominal distension was the most common symptom observed in 92% of patients, followed by vomiting (72%) and constipation (50%). These findings are consistent with previous studies (7,8) that have reported similar symptoms in patients with intestinal obstruction.

Table 3 shows the spectrum of diagnosis of intestinal obstruction. The study found that 68% of patients had congenital causes of intestinal obstruction, including imperforate anus (36%) and Hirschsprung's disease (18%). Acquired causes were seen in 32% of patients, including intussusception (14%) and abdominal tuberculosis (2%). These findings are consistent with previous studies that have reported similar causes of intestinal obstruction (3, 9). Postoperative complications were observed in 54% of patients, and the most common complications were wound infections (44.4%), followed by post-operative fever (33.33%) and surgical site infections (20%). These complications are consistent with the results reported in other studies (10,11).

The study found that 92% of cases had postoperative morbidity, and mortality was seen in 8% of cases. These findings suggest that intestinal obstruction is associated with significant morbidity and mortality, and timely management and intervention are necessary to improve outcomes.

Conclusion:

In conclusion, the present study provides insights into the clinical profile and outcomes of intestinal obstruction in neonates and pediatric patients. The study found that male children were more affected by intestinal obstruction, and abdominal distension was the most common symptom. Congenital causes were found to be the most common causes of intestinal obstruction, and postoperative complications were observed in more than half of the patients. These findings emphasize the importance of early diagnosis and prompt management of intestinal obstruction to reduce morbidity and mortality in pediatric patients.

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