

Original Research Article

# Pattern of dynamic intestinal obstruction in adults

Abdul Ghader Barazaneh Moghadam<sup>1</sup>, Syed Asif Shah Harooni<sup>2\*</sup>

<sup>1</sup>Associate Professor, <sup>2</sup>Assistant Professor

Department of Surgery, Deccan College of Medical Sciences, Hyderabad, India

\*Corresponding author email: [asifshahms@gmail.com](mailto:asifshahms@gmail.com)

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## Abstract

**Background:** In aboral direction, when the intestinal contents cannot be forced further, a situation arises known as intestinal obstruction.

**Aim:** Aim was to evaluate the common causes of intestinal obstruction.

**Methods and materials:** This study was a retrospective study which was conducted from January 2015 to April 2017 in Department of Surgery in Deccan College of Medical Sciences Hyderabad. This study consisted of 60 patients who were admitted in department of surgery who were presented with acute intestinal obstruction and patients who underwent operative management were included in the study. The patients who conservatively managed the obstruction and who were below 12 years of age were excluded from the study.

**Results:** 60 patients underwent management operatively during the two years duration with the paediatric group excluding from the study (age below 12 years) and others got treatment conservatively. Males were more compared to female patients who constituted 39 (65%) males and 21 (35%) females. The most common occurrence of intestinal obstruction was in the age group of 42-51 years (33.3%). The most common presenting complaint is abdominal pain. The most common type of bowel obstruction is small intestine. Adhesion and band is the most common cause of intestinal obstruction 25 (41.6%), followed by Malignancy 15 (25%), obstructed hernia 5(8.3%), Volvulus 5 (8.3%), Stricture 4 (6.6%), Ileac tuberculosis 2 (3.3%), SMA thrombosis 2 (3.3%), superior mesenteric artery thrombosis 2 (3.3%). The most common type of surgery was adhesiolysis which constituted 20 (33.3%) followed by Resection and ostomy which constituted 10 (16.6%). The most common post-operative complication was wound infection which constituted 18 (30%).

**Conclusion:** The most common cause of bowel obstruction is adhesive intestinal obstruction followed by malignant bowel obstruction. Early diagnosis, perioperative management and general condition of patients are keys in the successful management of acute intestinal obstruction.

## Key words

Cardiovascular responses, Laryngoscopy intubation, Diltiazem, Lignocaine.

## Introduction

In aboral direction, when the intestinal contents cannot be forced further, a situation arises known as intestinal obstruction [1]. Transport of intestinal contents depends on a state which is intact of intestinal lumen and on peristalsis. The major one of the cause of mortality and morbidity is intestinal obstruction [2]. In abdomen surgery, it is a problem which is frequently encountered that requires admission immediately [3]. Intestinal obstruction manifestations can range from a good appearance fairly with only very slight discomfort of abdomen and distension to a state of hypovolemic or septic shock requiring an operation [4]. It can be acute or chronic onset. It can be classified into dynamic obstruction and adynamic obstruction. Dynamic obstruction is mechanical obstruction [5]. A dynamic obstruction is paralytic ileus or pseudo obstruction. It may be classified as small bowel obstruction and large bowel obstruction. The approach diagnostic and therapeutic to obstruction of bowel must be systematic. 75% of the cases are of small bowel obstruction which is the main aetiology of obstruction; the other causes include hernias, inflammatory bowel disease, internal hernias, volvulus and strictures. This was a retrospective study which was conducted in patients operated for acute intestinal obstruction in Department of Surgery of Deccan College of Medical Sciences, Hyderabad whose main aim was to evaluate the common causes of intestinal obstruction.

## Materials and methods

This study was a retrospective study which was conducted from January 2015 to April 2017 in Department of Surgery in Deccan College of Medical Sciences, Hyderabad. This study consisted of 60 patients who were admitted in department of surgery who were presented with acute intestinal obstruction and patients who underwent operative management were included

in the study. The patients who conservatively managed the obstruction and who were below 12 years of age were excluded from the study. A detailed investigation was done which included history of patient, physical examination, x-ray abdomen, ultrasound abdomen, barium studies, CT scan abdomen were recorded. A proforma was recorded which had records of each patient with age, sex, symptoms, past surgical and medical history, diagnostic workshop, obstruction aetiology, operative information, mortality and morbidity.

## Results

60 patients underwent management operatively during the two years duration with the paediatric group excluding from the study (age below 12 years) and others got treatment conservatively.

**Table - 1** shows that males were more compared to female patients who constituted 39 (65%) males and 21 (35%) females.

**Table – 1:** Sex distribution.

Sex	Number of patients	Percentage
Male	39	65%
Female	21	35%

**Table - 2** shows that the most common occurrence of intestinal obstruction was in the age group of 42-51 years (33.3%).

**Table – 2:** Age distribution.

Age group (years)	Number of patients
12-21	6
22-31	4
32-41	11
42-51	20
52-61	15
62-71	2
72-80	2

**Table - 3** shows that the most common presenting complaint is abdominal pain. The

most common type of bowel obstruction is small intestine.

**Table – 3:** Presenting complaints and type of obstruction of bowel.

Complaints	Number of patients
Abdominal Pain	60 (100%)
Constipation	52 (86.6%)
Vomiting	50 (83.3%)
Abdominal Distension	48 (80%)
Type of bowel obstruction	Number of patients
Small intestine	40 (66.6%)
Large intestine	20 (33.4%)

**Table - 4** shows that Adhesion and band is the most common cause of intestinal obstruction 25 (41.6%), followed by Malignancy 15 (25%), obstructed hernia 5 (8.3%), Volvulus 5 (8.3%), Stricture 4 (6.6%), Ileac tuberculosis 2 (3.3%), SMA thrombosis 2 (3.3%), superior mesenteric artery thrombosis 2 (3.3%).

**Table – 4:** Cause of intestinal obstruction.

Cause	Number of patients
Adhesion and band	25(41.6%)
Malignancy	15(25%)
Obstructed hernia	5(8.3%)
Volvulus	5(8.3%)
Stricture	4(6.6%)
Ileac tuberculosis	2(3.3%)
SMA thrombosis	2(3.3%)
Miscellaneous	2(3.3%)

**Table – 5:** Type of surgery.

Cause	Number of patients
Adhesiolysis	20 (33.3%)
Resection and ostomy	10(16.6%)
Resection and anastomosis	8(13.3%)
Hemicolectomy	7(11.6%)
Diversion colostomy	6(10%)
Hernia repair	5(8.3%)
Loop ileostomy	2(3.3%)
Stricturoplasty	2(3.3%)

**Table - 5** shows that the most common type of surgery was adhesiolysis which constituted 20

(33.3%) followed by Resection and ostomy which constituted 10 (16.6%).

**Table – 6:** Type of post-operative complications.

Type of post-operative complications	Number of patients
Wound infection	18(30%)
Respiratory infection	11(18.3%)
Complication related to ostomy	10(16.6%)
Sepsis	8(13.3%)
Compartment syndrome	7(11.6%)
Anastomotic leak	3(5%)
Burst abdomen	3(5%)

**Table - 6** shows the most common post-operative complication was wound infection which constituted 18 (30%).

## Discussion

Nilotpal Chakma, et al. [6]; conducted a study which aimed to highlight the causes of intestinal obstruction in this geographical area and also other patient related relevant factors like age, sex, previous surgeries, presenting symptoms, type of surgeries performed, post-operative complications and mortalities. This retrospective study was conducted at Department of Surgery of AGMC and GB Pant Hospital, Agartala, Tripura from November 2012 to November 2016. A total of 87 patients presenting to Surgery Department with acute intestinal obstruction and who underwent operative management were included in this study. The study group comprised of 87 cases of acute intestinal obstruction in age group of above 12 years. The common age group affected was 41-50 years, common sex was male, the commonest cause of acute intestinal obstruction in this study was adhesion and band (41.4%) followed by malignancy (26.4%). The other causes of intestinal obstruction are obstructed hernia (9.2%), volvulus (6.9%), stricture (5.7%), ileocecal tuberculosis (3.4%), superior mesenteric artery thrombosis (3.4%). The most common operation performed was adhesiolysis (39%) followed by resection and anastomosis

(17.2%) and the most common post-operative complication observed was wound infection (29.9%). The mortality in this study was 9.2%. This study observed that adhesive intestinal obstruction is the most common cause of bowel obstruction followed by malignant bowel obstructions. Intestinal obstructions due to obstructed hernia are reduced because of practice of elective hernia surgery. Successful outcome in the management of acute intestinal obstruction mostly depends upon general condition of patients, early diagnosis & skilful perioperative management. Urgessa Soressa, et al. [7]; conducted a study in Africa, acute intestinal obstruction accounts for a great proportion of morbidity and mortality. Ethiopia is one of the countries where intestinal obstruction is a major cause of morbidity and mortality. This study aims to determine prevalence, causes and management outcome of intestinal obstruction in Adama Hospital in Oromia region, Ethiopia. A hospital based cross-sectional study design was used. Data covering the past three years were collected from hospital medical records of sampled patients. The collected data were checked for any inconsistency, coded and entered into SPSS version 16.0 for data processing and analysis. Descriptive and logistic regression analyses were used. Statistical significance was based on confidence interval (CI) of 95 % at a p-value of < 0.05. 262 patients were admitted with intestinal obstruction. The prevalence of intestinal obstruction was 21.8 % and 4.8% among patients admitted for acute abdomen surgery and total surgical admissions, respectively. The mortality rate was 2.5% (6 of 262). The most common cause of small bowel obstruction was intussusceptions in 48 patients (30.9 %), followed by small bowel volvulus in 47 patients (30.3 %). Large bowel obstruction was caused by sigmoid volvulus in 60 patients (69.0 %) followed by colonic tumor in 12 patients (13.8 %). After controlling for possible confounding factors, the major predictors of management outcome of intestinal obstruction were: duration of illness before surgical intervention (adjusted odds ratio (AOR) = 0.49,

95 % CI: 0.25–0.97); intra-operative findings [Viable small bowel volvulus (SBV) (AOR = 0.08, 95 % CI: 0.01–0.95) and viable (AOR = 0.17, 95 % CI: 0.03–0.88)]; completion of intra-operative procedures (bowel resection and anastomosis (AOR = 3.05, 95% CI: 1.04–8.94); and length of hospital stay (AOR = 0.05, 95% CI: 0.01–0.16). Small bowel obstruction was more prevalent than large bowel obstruction. Intussusceptions and sigmoid volvulus were the leading causes of small and large bowel obstruction. Laparotomy was the most common methods of intestinal obstruction management. Bowel resection and anastomosis was the commonest intra-operative procedure done and is associated with postoperative complications. Wound infection in the affected area should be improved because it is the most common postoperative complication. This can be decreased by appropriate surgical technique and wound care with sterile techniques. S Bethsy Priscilla, et al. [8], conducted a study to study the incidence and various etiology of intestinal obstruction, the various modes of presentation, the importance of early diagnosis and management, the role of imaging studies in determining the site and etiology and the mortality rate and the morbidity rate in acute intestinal obstruction. This study was conducted at Government Tirunelveli Medical College and Hospital. It is a descriptive study that included 100 patients who were diagnosed to have acute intestinal obstruction based on clinical, biochemical, and radiological features. The patients who are managed conservatively without surgical intervention are excluded. Among the total number of patients admitted with acute intestinal obstruction large intestine obstruction was found in 17 cases and small intestine obstruction was found in 83 cases. Obstructed inguinal hernia was the most common cause of acute intestinal obstruction. Acute intestinal obstruction remains to be one of the common surgical emergencies. Males are commonly affected mostly during their fifth decade. Obstructed/strangulated inguinal hernia remains to be the most common cause followed by adhesions. They usually present with

abdominal pain with multiple air-fluid levels in their X-ray abdomen erect view. Earlier diagnosis and timely intervention are associated with excellent prognosis. Dr. A. Ravi Theja, et al. [9]; conducted a prospective study to identify and analyze the clinical presentation of patients with acute mechanical bowel obstruction in our department, the etiology of obstruction as well as management and outcome of these patients. Of the 116 patients of acute intestinal obstruction, 78 patients suffered from bands and adhesions and 13 patients suffered from sigmoid volvulus. The mean age of the patients was 32 years, 28 patients suffered from gangrene of the bowel and mortality rate was 13%. Vijayakumaran Pillai, et al. [10]; conducted a study to study the demographic pattern and the mode of management in these patients. This was a hospital based Cross sectional study conducted at the General Surgery department, Government Medical College Hospital, Trivandrum. The study period was for 18 months, from April 2014 to September 2015. Study subjects included patients admitted in the surgical wards with intestinal obstruction. Sample size was calculated to be 204 based on reference study. All values are presented as means and percentages. Males were found to be affected much more than females. In 70% of patients, small bowel was the bowel predominantly involved. Adhesions were the commonest etiological factor followed by obstructed hernias. Most of the patients underwent operative management. Small bowel was the most commonly obstructed part of the bowel while adhesions and hernia form the commonest reasons for intestinal obstruction in our setting. Appendicectomy and laparotomy for perforation peritonitis caused the most postoperative adhesions. Phillip L. Chalya, et al. [11]; Dynamic bowel obstruction is a common and potentially dangerous surgical emergency with high morbidity and mortality worldwide. No prospective study has been done on this subject in our setting. This study was conducted to describe in our region, the aetiology, clinical presentation, management

and outcome of dynamic bowel obstruction. Data were analyzed using SPSS software system. A total of 342 patients were studied. Males outnumbered females by a ratio of 2.1: 1. The median age of patients at presentation was 34 years (range 11 to 78 years). Obstructed hernias (32.7%) were the commonest cause of dynamic bowel obstruction. Abdominal pain (100%) and vomiting (86.5%) were the most frequent presenting symptoms. Thirty-one (9.1%) patients were HIV positive. Small bowel was the commonest site of obstruction accounting for 89.2% of cases. Herniorrhaphy was the most frequent surgical procedure performed in 112 (32.7%) patients. Surgical site infection (38.8%) was the most common post-operative complication and it was significantly associated with HIV positivity and low CD 4+ count ( $p < 0.001$ ). The overall median of length of hospital stay was 26 days (range 1 to 72 days). Patients who had post-operative complications stayed longer in the hospital and this was statistically significant ( $p = 0.022$ ). Mortality rate was 14.3%. Delayed presentation, HIV positivity, low CD 4 count ( $< 200$  cells/ $\mu$ l), high ASA class and presence of complications were the main predictors of mortality ( $p < 0.001$ ). Obstructed hernias remain the commonest cause of dynamic bowel obstruction in our setting and contribute significantly to high morbidity and mortality. The majority of patients present late when the disease becomes complicated. Early diagnosis and timely definitive treatment are essential in order to decrease the morbidity and mortality associated with this disease.

## **Conclusion**

The most common cause of bowel obstruction is adhesive intestinal obstruction followed by malignant bowel obstruction. Early diagnosis, perioperative management and general condition of patients are keys in the successful management of acute intestinal obstruction.

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