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Original Research Article

Evaluation and Outcome of Clinical, Etiological and Surgical Management of Acute Intestinal Obstruction in the Adults

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Abstract:

Background: An obstruction in the forward propulsion of the contents resulting from neurological or mechanical reasons is known as an acute intestinal obstruction. The purpose of the current study was to assess the causes, clinical manifestations, surgical techniques, and results in our institution's acute intestinal obstruction patients.

Methods: Present study was retrospective study conducted in patients >18 years age, diagnosed as case of intestinal obstruction, underwent emergency laparotomy for acute intestinal obstruction at Department of General Surgery, SKMCH, Muzaffarpur, Bihar from August 2023 to January 2024.

Results: In total, 92 cases were examined in this study. There was a noticeable 72.83 percent male predominance and a 2.68:1 male to female ratio. Most common age group was between 41-50 years (26.09%) followed by 51-60 years (20.65%) and 61-70 years (16.3%) age group. In present study most common sign and symptoms were abdominal tenderness (89.13%), abdominal pain (85.87%), vomiting (83.7%), abdominal distension (75%) and constipation (60.87%). In present study most common etiology noted was adhesive obstruction (41.3%), obstructed inguinal hernia (27.17%), incisional hernia (9.78 %) and sigmoid volvulus (6.52%). Other less common causes were ileocecal tuberculosis (3.26%), ascending and descending colon growth (3.26%), rectum/anal canal growth (3.26%), sigmoid colon growth (2.17%), internal hernia (2.17%) and intussusception (1.09%). Adhesiolysis + Resection Anastomosis (44.57%) was most common surgical procedure followed by herniorrhaphy (36.96%) and resection anastomosis (15.22%). Sepsis (15.22%), urinary tract infection (13.04%), wound infection (11.96%), basal atelectasis (6.52%) and burst abdomen (6.52%) were common complications noted in post-operative period. In present study 9.72% mortality was noted.

Conclusion: Treatment for acute intestinal obstruction is primarily successful when the cause is addressed first, followed by prompt diagnosis, effective management, and treatment of the obstructions clinical consequences.

Keywords: Acute Bowel Obstruction, Intra-Abdominal Adhesions, Obstructed Hernia, Resection Anastomosis.

Introduction

Acute intestinal obstruction, which is a common surgical emergency worldwide, is described as a restriction in the forward passage of the contents resulting from mechanical or neurological causes. [1] Either the large or small bowel may become obstructed. There are two basic types of small intestinal obstruction: functional obstruction (disturbances in gut motility, often known as ileus) and mechanical obstruction (physical barrier or obstruction). Either a mechanical obstruction or colon dilatation in the absence of an anatomic lesion can cause large bowel obstruction. An uncommon kind of obstruction known as intussusception arises when a section of the colon intrudes into another.[2] Large bowel obstruction, bowel obstruction in an unscarred abdomen, and bowel obstruction in young age all require early surgery. By preventing irreversible ischemia and trans mural necrosis, early detection and vigorous treatment can lower mortality and long-term morbidity. Even though the death rate from acute intestinal obstruction is declining as a result of advances in pathophysiology knowledge, enhanced diagnostic methods, fluid and electrolyte balance, stronger antimicrobials, and intensive care expertise, the death rate still hovers around 10% to

15%, with the figure rising in developing nations. [3]The surgical management outcome of intestinal obstruction remains a challenge to the healthcare system, despite the advances in medical science, the development of a safe surgery checklist, enhanced monitoring and related safety practices during anesthesia, surgical technique, and conservative management. [4] The purpose of the current study was to assess the causes, clinical manifestations, surgical techniques, and results in our institution's acute intestinal obstruction patients.

Material and Methods

The patients in this study were those who, between August 2023 and January 2024, received emergency laparotomy in the Department of General Surgery at Sri Krishna Medical College and Hospital in Muzaffarpur, Bihar, due to acute intestinal obstruction. This study included patients over the age of 18 who had been diagnosed with intestinal obstruction and had undergone emergency laparotomy for acute obstruction; patients undergoing conservative management were excluded from cases of dynamic intestinal obstruction caused by peritonitis or paralytic ileus. Numerous facts have been collected from case papers, including demographic, clinical, laboratory, radiographic, intraoperative, postoperative, and histological findings. Depending on what was discovered during surgery, patients underwent different operations. Following surgery, data was collected for a period of six months. A descriptive statistical analysis was conducted.

Results

In total, 92 cases were examined in this study. There was a noticeable 72.83 percent male predominance and a 2.68:1 male to female ratio. The age group that was most prevalent was between 41 and 50 years old (26.09%), followed by 61 and 70 years old (16.3%) and 51 to 60 years old (20.65%).

Table 1: Age and Gender Incidence

Age (years)	Male (%)	Female (%)	Total (%)
19-30	6(6.52%)	2(2.17%)	8(8.7%)
31-40	9(9.78%)	3(3.26%)	12(13.04%)
41-50	17(18.48%)	7(7.61%)	24(26.0%)
51-60	13(14.13%)	6(6.52%)	19(20.65%)
61-70	11(11.96%)	4(4.35%)	15(16.3%)
71-80	8(8.7%)	3(3.26%)	11(11.96%)
≥81	3(3.26%)	0	3(3.26%)
Total	67(72.83%)	25(27.17%)	92

The most prevalent signs and symptoms in the current study were constipation (60.87%), vomiting (83.7%), abdominal distension (75%), abdominal tenderness (89.13%), and abdominal pain (85.87%).

Table 2: Sign and Symptoms

Sign and symptoms	No. of cases	Percentage
Abdominal tenderness	82	89.13%
Abdominal pain	79	85.87%
Vomiting	77	83.7%
Abdominal distension	69	75.0%
Constipation	56	60.87%
Increases bowel sounds	49	53.26%
Decreased or absent bowel sounds	35	38.04%
Abdominal rigidity	25	27.17%
Groin swelling	11	11.96%

Adhesive obstruction (41.3%), obstructed inguinal hernia (27.17%), incisional hernia (9.78%), and sigmoid volvulus (6.52%) were the most frequently reported etiologies in the current study. The following less frequent reasons were reported: sigmoid colon growth (2.17%), internal hernia (2.17%), rectum/anal canal growth (3.26%), ileocecal TB (3.26%), ascending and descending colon growth (3.26%), and intussusception (1.09%).

Table 3: Etiology of intestinal obstruction

Etiology	No. of cases	Percentage
Adhesive obstruction	38	41.3%
Obstructed inguinal hernia	25	27.17%
Incisional hernia	9	9.78%

Sigmoid volvulus	6	6.52%
Ileocecal tuberculosis	3	3.26%
Ascending and descending colon growth	3	3.26%
Rectum/anal canal growth	3	3.26%
Sigmoid colon growth	2	2.17%
Internal hernia	2	2.17%
Intussusception	1	1.09%

Adhesiolysis + Resection Anastomosis (44.57%) was most common surgical procedure followed by herniorrhaphy (36.96%) and resection anastomosis (15.22%).

Table 4: Type of surgery operations

Procedures	No. of cases	Percentage
Adhesiolysis + Resection Anastomosis	41	44.57%
Herniorrhaphy	34	36.96%
Resection and Anastomosis	14	15.22%
Hartman's Procedure	6	6.52%
Double barrel ileostomy	3	3.26%
Jejunostomy	2	2.17%
Colostomy	11	11.96%
Hemicolectomy	6	6.52%

Common problems observed in the post-operative period included basal atelectasis (6.52%), ruptured abdomen (6.52%), urinary tract infection (13.04%), wound infection (11.96%), and sepsis (15.22%). 9.72% of deaths in the current study were reported.

Table 5: Post-operative complications

Type of postoperative complication	No. of cases	Percentage
Sepsis	14	15.22%
Urinary tract infection	12	13.04%
Wound infection	11	11.96%
Basal atelectasis	6	6.52%
Burst abdomen	6	6.52%

Discussion

When deciding how to treat intestinal blockage, one should take into account laboratory and radiographic results, as well as the clinical presentation of pain, vomiting, distension, and constipation. It has been discovered that a delayed operation, insufficient preoperative resuscitation, and late presentation significantly impact the outcome. [5]

The most prevalent age group in the current study was Male predominance (72.83%) was observed, with the most prevalent age group being between 41 and 50 years old (26.09%), followed by 51 to 60 years old (20.65%). It is in line with the research done by Souvik et al. [6] and Deshmukh et al. [7]. There have been reports of variations in the aetiological pattern of dynamic bowel obstruction between different geographical areas and even within the same country.

In present study most common etiology noted was adhesive obstruction (41.3%), obstructed inguinal hernia (27.17%), incisional hernia (9.78%) and sigmoid volvulus (6.52%). Findings of etiology of present study was comparable with other study groups like Thampi et al. [8] and Gayathri V et al. [9] A study conducted by Adhikari S et al., [10] in eastern India showed that hernias were the most common cause of intestinal obstruction. In study by Priscilla SB et al., [11] 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.

Arun Katari [12] studied 50 patients, 44% of patients had rebound tenderness and 36% had exaggerated bowel sounds. Postoperative adhesions (36%) were most common cause of intestinal obstruction followed by obstructed hernia (30%) and sigmoid volvulus (14%).

Among cases of obstructed hernia (n=14), inguinal hernia (n=8), femoral hernia (n=1), umbilical hernia (n=1) and incisional hernia (n=4) were causes. Junaid Alam et al., studied acute intestinal obstruction in 263 patients, noted males preponderance (66.15%) and commonest age group affected was 41-50 years. Abdominal pain was the most common presenting symptom followed by abdominal distension.

Most common radiological finding was multiple air fluid levels seen on X-ray abdomen. Main cause of obstruction was ileocecal tuberculosis followed by Adhesions and Bands. Small bowel obstruction was present in 81.36% cases and large bowel obstruction in 18.63% cases. The most common surgical procedure was segmental bowel resection with end to end anastomosis.

Most of the cases recovered without any complications (78.32%). Wound dehiscence, burst abdomen was the major cause of morbidity. 5.32% mortality rate was reported. commonly seen in patients with strangulated hernia and increased age. Similar findings were noted in present study. In study by Janga J et al., [14] incidence of acute intestinal obstruction was 3%, with a M: F ratio of 1.38:1. The commonest age group affected was 31-40 years. Major cause of obstruction was obstructed hernia (36%) followed by adhesions and bands (26%), sigmoid volvulus (12%), TB abdomen (8%) and malignant obstruction (6%).

Surgery was the mainstay of treatment, with herniorrhaphy, adhesiolysis and resection - anastomosis being the most commonly performed procedures. Post-operative complications noted were – wound infection (12%), respiratory infection (6%) and prolonged ileus (6%). In the present study of 50 cases, 5 patients (10%) died due to septicemia and MODS. Similar findings were noted in present study. In study by Gadhavi JM., [15] management of small bowl obstruction was adhesiolysis (n=14), resection and anastomosis (n=8), hernia repair (n=8) followed by resection, volvulus derotation (n=2) and Mekels diverticulectomy (n=2). For the management of large bowl obstruction colostomy (n=8), resection and anastomosis (n=4), intussusceptions milking (n=2), volvulus derotation (n=2) and right hemicolectomy (n=4). Emergency surgical intervention is considered to be the standard treatment of choice for patients with dynamic (mechanical) bowel obstruction.

The majority of the research participants received emergency surgery. The period of time that passes between the beginning of the bowel obstruction and surgical intervention is one of the numerous variables influencing the surgical outcome in patients with dynamic bowel obstruction. [10] An excellent outcome is achieved with prompt obstruction detection, adept surgical technique, competent operative management, and rigorous postoperative care.

Conclusion

Treatment for acute intestinal obstruction is primarily successful when the cause is addressed first, followed by prompt diagnosis, effective management, and treatment of the obstructions clinical consequences.

Males are often impacted largely in their fifth decade of life. Strangulated or blocked inguinal hernias are the second most common cause, after intra-abdominal adhesions.

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