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Research article

STUDY OF SURGICAL MANAGEMENT OF INTESTINAL OBSTRUCTION FROM CENTRAL INDIA: A CROSS SECTIONAL STUDY

Dr. Pradeep M. Wagh, Dr. Samadhan Patil*

District Hospital Nashik Maharashtra, India.

ABSTRACT
Intestinal obstruction is a common surgical emergency with high mortality and morbidity rates. About 15% of all emergency room visits for acute abdominal pain are due to intestinal obstruction. Acute intestinal obstruction may manifest in a variety of ways, from a relatively normal appearance with only minor abdominal pain and distension to a condition of hypovolemic or septic shock (or both) that necessitates an emergency procedure. In present study we aimed to evaluate surgical management of intestinal obstruction at our tertiary hospital. The current research included patients aged 21 to 80 who had an acute intestinal obstruction that was surgically treated. After initial resuscitation, patients with strong signs and symptoms of acute obstruction were treated with an appropriate surgical procedure. All of the information was recorded in a preformat and analyzed using descriptive statistics. 144 patients had surgery for acute intestinal obstruction during the study period. 51 to 60 years old was the most common age group (26 %), followed by 41 to 50 years old (21 %). In a ratio of 2.8:1, male patients were more frequently affected than female patients. Previous abdominal surgery (56 %), diabetes (31 %), smoking (25 %), hypertension (24 %), and bronchial asthma/ COPD (15 %) were all found to be common comorbidities in this research. Postoperative adhesions (47 %), malignancy (15 %), obstructed hernia (11 %), and Koch's abdomen were the most common causes of intestinal obstruction in this report (8 %). Adhesiolysis (47 %), resection and anastomosis (22 %), diversion colostomy (13 %), and hernioplasty were the most common surgical procedures in this study (11 %). The most common postoperative complications were fever (15%) and wound infection (11%) respectively. The post-operative mortality rate was 13%. (9 patients). Complications such as septicemia, peritonitis, and respiratory infection account for the majority of deaths. Intestinal obstruction is often caused by postoperative adhesions. Early operative procedures, in combination with clinical diagnosis and radiological findings, may enhance the outcome of acute intestinal obstruction.

KEYWORDS: surgical management, acute intestinal obstruction, adhesions, adhesiolysis

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CORRESPONDENCE:
Dr. Samadhan Patil* ✉ dua.shilpa@gmail.com
Address - District Hospital, Nashik Maharashtra, India

INTRODUCTION
Intestinal obstruction is a common surgical emergency with high mortality and morbidity rates. About 15% of all emergency room visits for acute abdominal pain are due to intestinal obstruction. [1,2] The "obstruction" may be mechanical or, in the case of functional obstruction, "pseudo-obstruction," or ileus, it can be attributed to inadequate motility without any physical obstruction. [3] Intestinal obstruction is often caused by adhesions (postoperative or post-inflammatory), gallstone ileus (mechanical bowel obstruction), hernias, worm obstruction due to Ascaris lumbricoides, and volvulus (an axial twist of the gastrointestinal tract around its mesentery). [4, 5, 6] Acute intestinal obstruction may manifest in a variety of ways, from a relatively normal appearance with only minor abdominal pain and distension to a condition of hypovolemic or septic shock (or both) that necessitates an emergency procedure. [7,8]

Nausea, vomiting, colicky stomach pain, and inability to pass flatus or faces are some of the most common symptoms. [9-11,16] Abdominal distension, a tympanic tone (on percussion), and hyper-peristaltic bowel sounds (on auscultation) are all symptoms that point to the diagnosis. [12-16] If there is evidence of vascular compromise or perforation, or if symptoms do not improve with proper bowel decompression, surgery should be performed right away. [17] To avoid morbidity and mortality, early diagnosis of obstruction, skilled operative management, proper procedure during surgery, and intensive postoperative care are critical.[(18,19)] In present study we aimed to evaluate surgical management of intestinal obstruction at our tertiary hospital.

MATERIAL AND METHODS
The current research was performed over a two-year cycle in the general surgery wards of a tertiary healthcare center in Central India. The study was prospective and observational, and the institutional ethical committee gave its approval. Patients aged 19 to 80 years old with acute intestinal obstruction who were surgically treated were eligible. Patients treated conservatively, patients deemed unfit for surgery, dynamic intestinal obstruction due to peritonitis, electrolyte deficiency, or diabetes, and patients unable to participate in the study were all excluded. The patient had a full comprehensive history, which was recorded in a detailed inquiry. Evidence of dehydration and its magnitude were investigated during the physical examination, and vital parameters were registered. The results of a systemic examination, an abdominal examination, and a per rectal examination were reported.

In all patients, laboratory tests such as CBC (Complete Blood Count), BT (Bleeding Time), CT (Computed tomography), Urine for albumin estimation and microscopy, LFT (liver function test), and RFT (Renal function test) were performed. In all cases, a radiological examination such as an upright abdominal X-ray was performed, and in some cases, a barium enema, ultrasound examination, or CT scan was performed. Nasogastric decompression with Ryle's tube insertion and antibiotic prophylaxis was begun immediately after admission resuscitation with IV fluids. All bedside parameters (such as pulse rate, blood pressure, respiratory rate, urine output, urine output, abdominal girth, bowel sounds, tenderness, and guarding) were carefully monitored. After initial resuscitation, patients with strong signs and symptoms of acute obstruction were treated with an appropriate surgical procedure. When required, histopathological analysis of the resection/biopsy specimen was performed. The patient's general condition and toxemia were closely monitored during the postoperative period, and all parameters were reported hourly or fourth hourly. Following surgery, Aspiration through a nasogastric tube, intravenous fluids, and antibiotics were given. Any complications were identified and treated as needed. Patients were followed up on for three months after they were discharged from the hospital. All of the information was recorded in a proforma and analyzed using descriptive statistics.

RESULTS

144 patients had surgery for acute intestinal obstruction during the study period. 51-60 years old was the most common age group (26 %), followed by 41-50 years old (21 %). In a ratio of 2.8:1, male patients were more frequently affected than female patients.

Table 1: Age and sex incidence

Age (years)	Male (%)	Female (%)	Total (%)
21-30	10	6	16 (11 %)
31-40	22	6	28 (19 %)
41-50	24	6	30 (21 %)
51-60	28	10	38 (26 %)
61-70	14	6	20 (14 %)
71-80	8	4	12 (8 %)
Total	106	38	144 (100 %)

Table 1 shows previous abdominal surgery (56 %), diabetes (31 %), smoking (25 %), hypertension (24 %), and bronchial asthma/ COPD (15 %) were all found to be common comorbidities in this research.

Table 2: Comorbidities

Comorbidities	No. of patients	%age
Previous abdominal surgery	80	56 %
Diabetes	44	31 %
Smoking	36	25 %
Hypertension	34	24 %
Bronchial asthma/ COPD	22	15 %
Previous malignancy	18	13 %
Coronary artery disease	14	10 %
Pulmonary tuberculosis	12	8 %
HIV	8	6 %
Chronic kidney disease	6	4 %

Table 2 shows Postoperative adhesions (47 %), malignancy (15 %), obstructed hernia (11 %), and Koch's abdomen were the most common causes of intestinal obstruction in this report (8 %). Other disorders include volvulus (6 %), mesenteric ischemia/thrombosis (4 %), diverticula (3 %), intussusception (3 %), stricture (1 %), and GIST (gastrointestinal stromal tumour) (1 %).

Table 3: Causes of obstruction

Cause	No. of patients	%age
Adhesions/Band	68	47 %
Malignancy	22	15 %
obstructed hernia	16	11 %
Koch's Abdomen	12	8 %
Volvulus	8	6 %
Mesenteric Ischemia/ Thrombosis	6	4 %
Diverticula	4	3 %
Intussusception	4	3 %
Stricture	2	1 %
GIST	2	1 %

Table 3 shows Adhesiolysis (47 %), resection and anastomosis (22 %), diversion colostomy (13 %), and hernioplasty were the most common surgical procedures in this study (11 %).

Table 4: Surgical procedure

Surgical procedure	No. of patients	%age
Adhesiolysis	68	47 %
Resection and anastomosis	32	22 %
Diversion colostomy	18	13 %
hernioplasty	16	11 %
Sigmoidopexy	6	4 %
Sticturoplasty	2	1 %
Hartmann's procedure	2	1 %

Table 4 and 5 shows the most common post-operative complications were fever (15%) and wound infection (11%) respectively. Prolonged ileus (11%), septicemia (10%), fecal fistula (4%), burst abdomen (4%), and short bowel syndrome (4%) were the other complications (1 %). The post-operative mortality rate was 13%. (9 patients). Complications such as septicemia, peritonitis, and respiratory infection account for the majority of deaths.

Table 5: Postoperative complications

Post-operative complications	No of patients	%age (%)
Fever	22	15 %
Wound Gaping	18	13 %
Prolonged Ileus	16	11 %
Septicemia	14	10 %
Faecal Fistula	6	4 %
Burst Abdomen	6	4 %
Short Bowel Syndrome	2	1 %

DISCUSSION

Bowel obstruction, whether caused by hernias, neoplasms, adhesions, or biochemical disruptions, remains one of the most common intra-abdominal problems encountered by general surgeons in their practice. [9, 10,11] the most common age group in this study was 41-60 years of age, followed by 21-40 years of age. 2.68:1 was the male-to-female ratio. Souvik et al.[3] Viji D.[4] and Ramrao B.,[5] and Priscilla S.[6] all saw a similar trend. Males are more likely than females to have obstructed inguinal hernias and sigmoid volvulus, which may explain why males outnumber females by a large margin. The most common cause of intestinal obstruction in this study was adhesions (postoperative or post-inflammatory). Our findings are comparable to those of Thampi et al. [7] Postoperative adhesions were the most common cause, accompanied by obstructed/ strangulated inguinal hernia, malignancy, intussusception, volvulus, tuberculosis, and mesenteric ischaemia, according to Ojo E. [8] Hernias were found to be the most common cause of intestinal obstruction in a study conducted by Adhikari S. in eastern India. Previous abdominal surgery is a clinical entity

with a high rate of intestinal obstruction and particular risk factors. Intraperitoneal adhesions are common in patients that have a laparotomy for a variety of reasons, and the rate of re-admissions due to adhesions ranges from 5% to 20%. The most popular procedures that cause adhesions are appendectomies, gynecological operations, cholecystectomies, and large bowel cancer resections. Intraoperative preventive techniques such as starch-free gloves, avoiding excessive peritoneal dissection, avoiding spillage of intestinal contents or gallstones, reducing remaining surgical material, and preferring laparoscopic techniques may reduce the risk of adhesions and should be used in all patients. Reddy. [1] performed a systematic analysis to determine small bowel obstruction and found adhesions (65%), hernias (10%), neoplasms (5%), Crohn's disease (5%), and other rare causes as etiologies of small bowel obstruction (15 %).

Colon or rectal cancer, diverticular disease, or colon volvulus are the most common causes of large-bowel obstruction in adults. Colonic volvulus causes obstruction by twisting a redundant part of colon on its mesentery. The occurrence of colonic volvulus varies across the world, with historical evidence pointing to higher rates in parts of India, Africa, and the Middle East. Release of adhesions for postoperative adhesions (40 %), resection of anastomosis for obstructed/strangulated hernia and for ischemic bowel (22 %), release of constricting agents and herniorrhaphy for obstructed/strangulated hernia cases (18 %), derotation of volvulus and sigmoidopexy (4 %) were the surgical management for acute intestinal obstruction in (8 %). The current research found similar results. Soressa.[21] looked at 262 patients, with 94 % of them undergoing surgical treatment and 24.6 % of them developing complications in the post-operative period.

Wound infections accounted for 39.3 % of all complications, which fits our findings. Facial dehiscence affected 17.8% of patients, anastomotic leak affected 12.5%, pelvic complication or pneumonia affected 10.7%, and septic shock affected 8.9%. The size and depth of the incision, the surgical site, antibiotic prophylaxis, tools and suture material, and wound closure technique all play a role in wound infection. Wound infection is exacerbated by smoking, hypertension, diabetes mellitus, obesity, immunosuppression, and steroid usage. In the current report, the mortality rate was 13%. Other research, such as those by Souvik.[3] (7.35%), Viji D.[4] (9%), Ramrao B. [5] (6.2%), and Madziga A.[18] (9.14%), found lower rates. The majority of deaths occur in elderly people who seek care late and have pre-existing conditions such as diabetes mellitus, heart disease, or respiratory disease. In cases of compound volvulus (sigmoid volvulus with ileosigmoid knotting), acute mesenteric ischaemia, and malignancies, patients with early onset of bowel gangrene have had poor outcomes. In cases of bowel obstruction and intestinal perforation, Ashindoitiang.[19] recommend using abdominal X-rays, including erect abdomen X-rays, because they improve diagnostic value. Although Geng.[20] found no evidence that abdominal x-ray aids in the diagnosis of the underlying cause. In patients with suspected bowel obstruction, the role of computed tomography (CT) abdomen in the diagnosis of bowel obstruction has recently grown.

CONCLUSION

In the surgical area, acute intestinal obstruction is still a major surgical emergency. Intestinal obstruction is often caused by postoperative adhesions. Early operative procedures, in combination with clinical diagnosis and radiological findings, may enhance the outcome of acute intestinal obstruction. When clinical and initial traditional radiographic results are inconclusive or strangulation is suspected, a CT scan is recommended for evaluation. While, with a better understanding of pathophysiology, improvements in diagnostic methods, fluid and electrolyte correction, more potent antimicrobials, and intensive care information, mortality from acute intestinal obstruction is decreasing.

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