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A comparative study of conservative and surgical management in intestinal obstruction

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Abstract

Intestinal obstruction is a condition that disrupts the normal movement of intestinal contents, which may result from either a mechanical blockage or impaired intestinal motility without the presence of an obstructing lesion. Small bowel obstruction (SBO) is classified into three types: extraluminal, intrinsic, and intraluminal. This retrospective observational study examined patients who presented with this condition at the A&E department of the surgical unit. A total of 100 patients were included in the study, with 71 managed through conservative treatment and 29 undergoing surgical intervention. The most commonly reported symptoms were abdominal pain and vomiting. Among those who underwent surgery, the average hospital stay was 3.5 days, whereas for conservatively managed patients, the mean duration was 2.4 days. Surgical findings indicated that 2 had abdominal TB, 1 had intussusception, 6 had obstructed hernias, 6 had strictures, and 18 had adhesions. The choice of surgical procedure depended on the underlying cause of obstruction. Additionally, a history of prior abdominal surgery was more frequently observed among those whose obstruction resolved without surgical intervention. The study concludes that adhesions from previous surgical procedures are a significant cause of SBO. The two primary approaches to managing this condition are conservative treatment and surgical intervention, with the selection of a specific method depending on multiple patient-related factors and clinical judgment which plays a crucial role in determining the appropriate management strategy and the timing of surgical intervention.

Keywords: Intestinal Obstruction, Adhesions, Dynamic Obstruction.

INTRODUCTION

Intestinal obstruction is defined as a disruption in the normal movement of intestinal contents, which may occur due to mechanical blockage or impaired intestinal motility in the absence of a physical obstruction. It is characterized by the inability to pass flatus or feces for more than

6–12 hours. Patients commonly experience symptoms such as vomiting, abdominal distension, and colicky abdominal pain (Pandey, Agarwala, & Chumber, 2005; Shelton, Thoedore, & Welton, 2003; Tumage, Heldmann, & Cole, 2006; Whang & Zinner, 2005; Winslet, 2004). The condition may resolve on its own in some cases, while others require conservative treatment. The history of small bowel obstruction management dates back to the 3rd or 4th century, when Praxagoras performed an enterocutaneous fistula to alleviate bowel obstruction.

Although surgery was recognized as a successful treatment option, nonoperative techniques remained widely used until the late 18th century. These included laxatives, hernia reduction methods, ingestion of heavy metals, and the use of leeches to eliminate toxic agents from the blood. So far, it is understood that bowel obstruction occurs due to the following reasons:

- Obstruction arising from extraluminal adhesions, hernias, carcinomas, and abscesses.
- Obstruction intrinsic to the bowel wall (e.g., primary tumors).
- Intraluminal obturator obstruction (e.g., gallstones, enteroliths, foreign bodies, and bezoars).

Large bowel obstructions are classified as either dynamic (mechanical) or adynamic (pseudo-obstruction). Mechanical obstruction occurs when the large bowel is blocked at the luminal, mural, or extramural level, leading to increased intestinal contractility as a physiological response to clear the obstruction. Patients with intestinal obstruction are often critically ill and require continuous evaluation and monitoring of their clinical condition and vital signs to determine the appropriate timing for surgical intervention.

Objectives

This study aims to:

- Analyze the clinical profile and presenting features of patients with acute intestinal obstruction (AIO).
- Evaluate the role of diagnostic investigations in identifying AIO.
- Determine the underlying causes of AIO in the studied patients.
- Identify the predictors of symptom relief in patients with AIO.
- Monitor patient progress and evaluate the outcomes of different management approaches.

MATERIALS AND METHODS

This study was conducted in a major hospital located in Karachi city and included a total of 100 patients. Patients presenting with abdominal pain were assessed using a predesigned questionnaire. The inclusion criteria comprised individuals diagnosed with intestinal obstruction, identified by symptoms such as abdominal pain, increased bowel sounds, tenderness, distension, dehydration, and constipation. All participants were informed about the study's objectives, and written consent was obtained. Patients who were either unfit for surgery or unwilling to participate were excluded from the study.

The study followed a retrospective observational methodology. Patients arriving at the hospital’s Accident and Emergency department were screened to identify cases of acute intestinal obstruction (AIO).

Methodology

This retrospective observational study included all patients presenting with features of intestinal obstruction at the Emergency and Outpatient Departments of the surgical unit. Patients were screened to identify cases of acute intestinal obstruction (AIO), and informed consent was obtained before their inclusion in the study.

A brief interview was conducted with each patient to record their complaints, medical history, previous illnesses, co-morbid conditions, past surgeries, and prior treatments on a pre-specified data sheet. Clinical assessments included blood sugar levels, hemogram, urine routine and microscopy, and serum electrolyte analysis.

The patient history focused on key symptoms such as pain and its characteristics, abdominal distension, vomiting, flatus, and passage of feces. Additionally, patients were asked about any previous abdominal illnesses, past abdominal surgeries, and related medical conditions.

Clinical examinations were performed, emphasizing fever, abdominal signs such as distension, palpable or visible bowel loops, bowel sound characteristics, the presence of lumps, and tachycardia. A digital rectal examination was conducted for all patients, with findings duly recorded. Abdominal X-rays in supine and erect positions were performed, noting the presence of multiple air-fluid levels, colonic gas, and dilated bowel loops.

In line with clinical assessment and investigation results, conservative management was initially started. Patients were instructed to withhold oral intake, and a nasogastric tube was inserted to aspirate gastrointestinal secretions. Intravenous fluids were administered, and any electrolyte imbalances were corrected.

Observations were made to assess the relief of obstruction, including reduced vomiting, passage of feces and flatus, improvement in pain scores, decreased abdominal girth and tenderness, reduced nasogastric tube output, and the disappearance of palpable bowel loops. Regular monitoring for signs of strangulation, such as tachycardia, abdominal tenderness, and fever, was carried out. If signs of strangulation developed, emergency surgery was performed. If the patient did not experience relief after a few hours of conservative management, an exploratory laparotomy was carried out.

If the patient's condition improved within a few hours of conservative treatment, further investigations were performed to explore any relevant history or symptoms. This included CT scans of the abdomen, ultrasound of the abdomen and pelvis, and other special investigations to identify any signs suggesting the cause of intestinal obstruction.

If these investigations provided sufficient information to confirm a diagnosis of a lesion explaining the symptoms of AIO, surgical intervention was performed. If the investigations did not yield conclusive information, additional diagnostic tests were conducted.

RESULTS AND DISCUSSION

Table 1

Patient Age Details

Age Interval	Patients
20-30	24
31-40	21
41-50	18
51-60	7
61-70	25
Above 70	5
Total	100

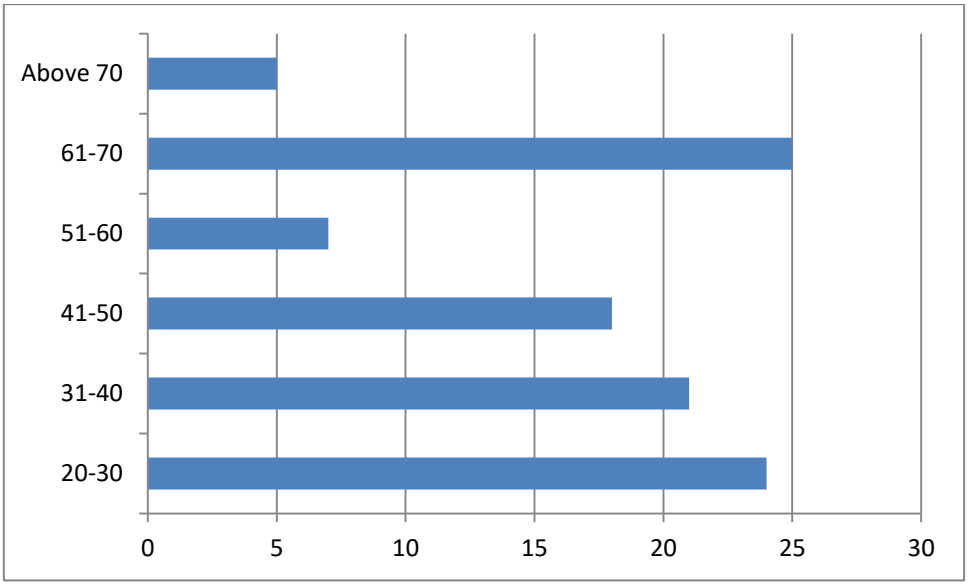
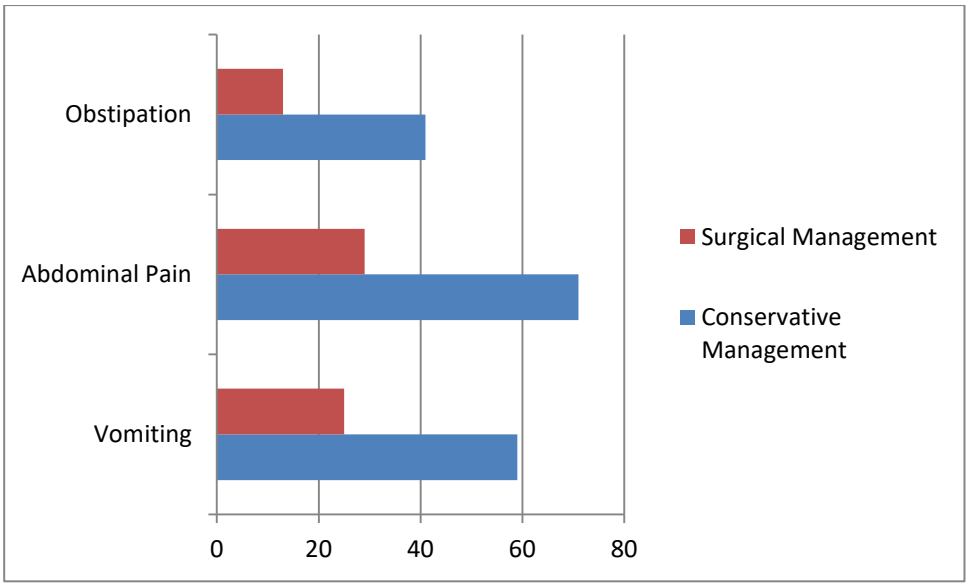


Figure 1: Age Distribution

This study observed 100 patients diagnosed with acute intestinal obstruction at a public hospital in Nigeria. Of these, 71 patients received conservative treatment, while 29 underwent surgical management. There were 67 male and 33 female patients. In terms of age, 24 patients were in age category of 20 to 30 years; 21 were in 31 to 40 years; 18 were in 41 to 50 years; 7 were in 51 to 60 years; 25 were in 61 to 70 years; and 5 were above 70 years.



The most common symptoms reported by the patients included abdominal pain, vomiting, and obstipation. The patients who were managed conservatively (n=71) experienced abdominal pain (71); vomiting (59); and obstipation (41). Similarly, among the patients who were managed surgically (n=29) experienced abdominal pain (29); vomiting (25); and obstipation (13).

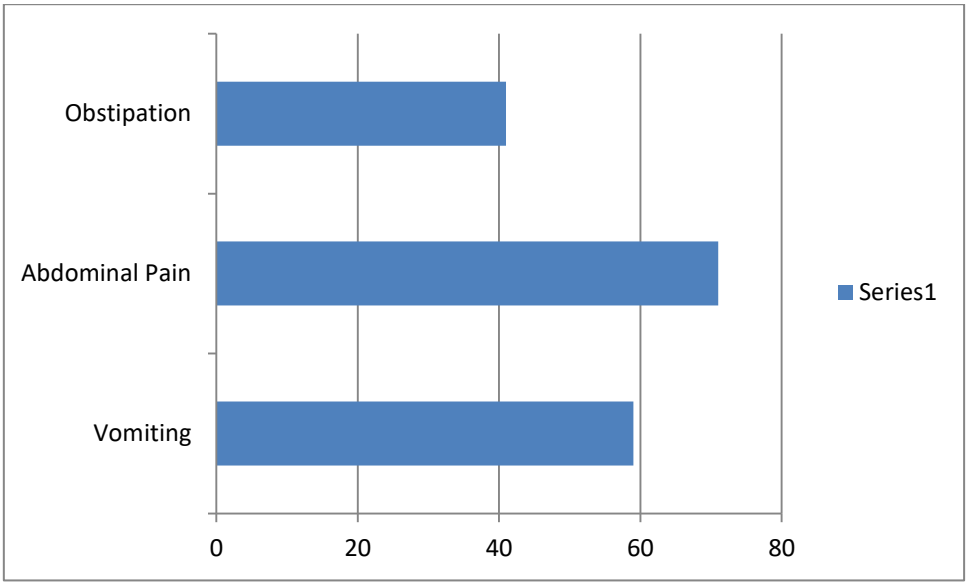


Figure 2: Symptoms and Physical Findings

Out of the 100 patients, 59 had a history of previous abdominal surgery. Among these, 48 patients had undergone exploratory laparotomy for conditions such as abdominal trauma, perforation, gynecological procedures, appendicectomy, and others. 8 patients developed symptoms of obstruction following laparoscopic tubal ligation (T.L.).

Table 2
CT Scan Findings

CT Scan Finding	No. of Patients
Bowel Thickening	12
Stricture	7
Malrotation	7
Tb	2
Intussusception	2
Total	30

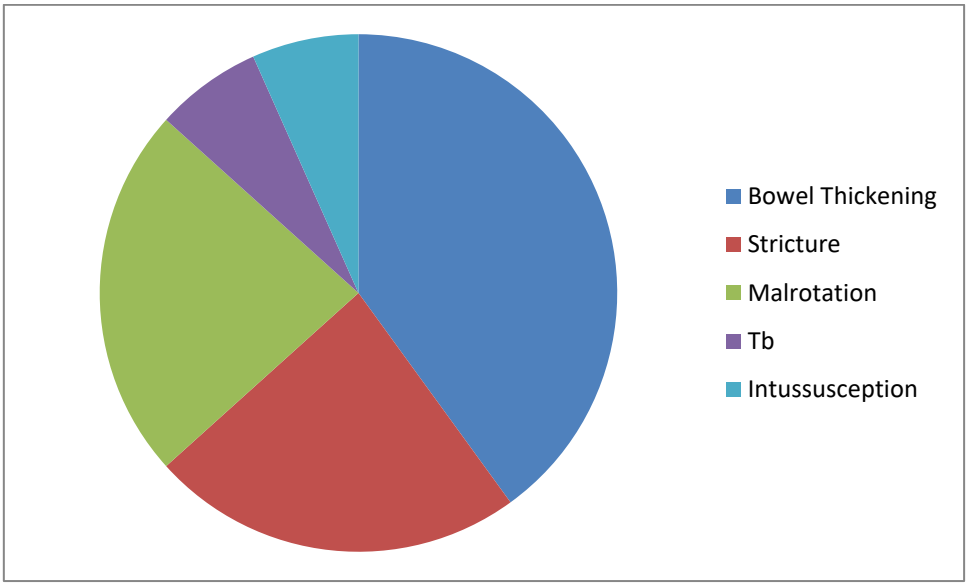


Figure 3:CT Scan Findings

Out of the total 100 patients, 30 were investigated using CT scans. The findings included 12 patients with bowel thickening, 7 with strictures, 7 with malrotation, 2 with tuberculosis (TB), and 2 with intussusception.

In conservatively managed patients, vital signs and other parameters were monitored, including abdominal tenderness, nasogastric tube output, increased vomiting, and abdominal distension.

Patients who exhibited signs of peritonitis, strangulation, or hemodynamic instability underwent surgical intervention. The average duration of hospital stay for surgically managed patients was 3.5 days, while for conservatively managed patients, it was 2.4 days. Among the surgically managed patients, 2 had abdominal TB, 1 had intussusception, 6 had obstructed hernias, 6 had strictures, and 18 had adhesions.

We also compared the demographic features and presenting symptoms of patients who were managed conservatively and successfully relieved. It was observed that those who were relieved conservatively had a higher occurrence of a history of abdominal surgery. For conservatively managed patients, the time to relief ranged from 1 to 4 days, with an average of 3 days. In contrast, surgically managed patients took 1 to 5 days, with an average of 2.9 days, to experience relief.

CONCLUSION

Based on the study, we conclude that a common cause of small bowel obstruction (SBO) is prior abdominal surgery. However, no definitive criteria could be identified for determining the success of conservative management versus surgical intervention. Clinical decisions play a crucial role in guiding the management of SBO and in determining the timing of surgical intervention. Further research into methods for controlling and treating SBO is essential, given its high frequency, associated morbidity, healthcare costs, and impact on patient disability.

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