

ORIGINAL RESEARCH

Assessment of clinical profile of patients with intestinal obstruction in tertiary care centre: A cross-sectional study

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Abstract

Background: The term "bowel blockage" refers to any mechanical or functional obstruction of the small or large bowel that stops intestinal contents from moving through the colon. Bowel obstruction can occur in either the small or the large bowel.

Materials and method: This observational cross-sectional study was performed in a tertiary care hospital. The study population has been calculated by using G-power software which was determined to be 300 patients. Patients were determined to have acute or subacute intestinal blockage with the assistance of a patient's history, physical examination, relevant blood and radiographic studies such as chest x-rays, abdominal x-rays, ultrasonography, and if necessary, a CT scan.

Results: The mean age was 46.02±20.60 (12-80) years with 63.2% males and 36.8% females. Abdominal pain, Constipation, Nausea and vomiting, Abdominal tenderness, Abdominal distension, Anorexia, Weight loss, and Guarding and rigidity among 95.6%, 94.4%, 92.8%, 94.4%, 94.0%, 93.6%, 93.6% and 95.6% respectively. Majority reported the etiology for intestinal obstruction to be Adhesion (31.2%). Majority of the cases presented at more than 72 hours (41.6%). Conservative treatment was done for 28.8% and Operative treatment for 71.2% cases. Wound infection was reported among 24.7% and Mortality reported among 8.0% patients.

Conclusion: Because it is the most prevalent surgical complication in the area, wound infection should be improved in the area that is the subject of the study. The most common causes of blockage in the small intestine and the large gut were adhesions and malignant tumours, respectively.

Introduction

Any mechanical or functional obstruction of the small or large intestines that restricts the passage of intestinal contents through the gut is referred to as a bowel obstruction.^[1,2] Bowel blockage is one of the main causes of morbidity and the use of financial resources,

accounting for more than 3% of surgical emergencies.^[3-6] Millions of individuals, of all ages, are severely impacted, and it has enormous direct and indirect cost implications on the healthcare system and the patients who are afflicted. It also has a huge impact on surgical side effects and hospital admissions.^[7,8]

Colicky stomach discomfort, distension, vomiting, and constipation are the four defining characteristics of IO. The location and kind of blockage have an impact on how these symptoms manifest. [9,10]

IO is primarily categorised as either a small bowel obstruction (SBO) or a large bowel obstruction (LBO) based on the anatomical location; [11] depending on the pathophysiology of the blockage, it can also be either mechanical or functional. [12] Small bowel blockage is more common, though. [2] Adherence, hernias, and cancers are the main causes of obstruction; they are more common than other conditions including Crohn's disease, gallstones, volvulus, and intussusceptions. [2,3,13] In general, adhesion is the most frequent cause of blockage and one of the most frequent surgical complications.^[7,14,15]

Small intestinal blockage comes in two different varieties. These intestinal obstructions are dynamic (mechanical) and adynamic (paralytic ileus). While peristalsis opposes the mechanical blockage in a dynamic intestinal obstruction, it may not exist or exist in a non-propulsive form in an adynamic intestinal obstruction. [16] In several regions of Asia, such as India, Iran, and Pakistan, diseases that call for urgent surgical procedures frequently include mechanical IO.^[8,17]

With a few rare exceptions, conservative therapies like nasogastric tube placement, intravenous antibiotics, or intravenous fluid resuscitation may typically alleviate mechanical IO; unrelieved IO calls for further investigation. According to prior research, 12 % of patients with primary conservative therapy will get a repeat IO, and 8 to 32 % of patients with surgical treatment for adhesion bowel obstruction would experience a repeat IO.^[9,17]

In as little as 6 hours, a strangulating blockage can develop into an infarction and gangrene. Prior to arterial occlusion, there is venous blockage, which causes fast ischemia of the gut wall. Gangrene and perforation result from the ischemic bowel becoming edematous and infarcting, respectively. Strangulation from a large-bowel blockage is uncommon (except with volvulus).^[3] Severe, ongoing discomfort may be a sign of strangulation. The abdomen is not painful in the absence of strangulation. Peristalsis that is very vigorous, high-pitched, and accompanied by rushes and cramps is usual.^[6,7]

Abdominal x-rays obtained while standing and supine are recommended and are frequently sufficient to identify blockage. Strangulation may only be clearly diagnosed by laparotomy, however thorough serial clinical examination may offer an early warning. Elevated WBCs and acidosis may be signals that strangulation has already taken place, but if the venous outflow from the strangulated loop of bowel is reduced, these symptoms might not be present.^[8-10]

One of the most frequent surgical emergencies involving the abdomen is small intestine blockage. The patient may pass away if the minor intestinal blockage is not treated in a timely manner. About 85% of total small-bowel blockages require surgery, compared to 85% of partial small-bowel obstructions that are treated non-operatively. Therefore, early diagnosis and fast treatment are essential.^[18]

The current investigation was carried out with the intention of determining the characteristics of individuals who were diagnosed with intestinal blockage as well as the outcomes of their conditions.

Materials and method

This observational cross-sectional study on the was carried out in a hospital that specialises in providing tertiary care.

Sample Size

The study population has been calculated by using G-power software which was determined to be 300 patients.

Study population

Patients over the age of 18 who had a clinical diagnosis of intestinal blockage and an air fluid level in the abdomen x-ray measuring more than 3 centimetres were considered eligible for participation in the study. Patients who did not provide their consent to take part in the trial were not considered for participation.

Study procedure

All patients were chosen in accordance with the inclusion and exclusion criteria after receiving institutional ethical committee permission. For each patient, a thorough medical history, physical examination, and standard & pertinent investigations were performed. With the aid of the patient's history, physical examination, pertinent blood tests, and radiographic studies such as chest x-rays, abdominal x-rays, ultrasonography, and if necessary a CT scan, patients were diagnosed with acute or subacute intestinal blockage. The majority of patients with a score under 3 received exploration, while those with a score of 3 were treated conservatively. Based on this unique severity score, an observational study was conducted to compare patients who received exploratory treatment to those who had conservative treatment.

Statistical analysis

The statistical analysis was carried out using the statistical programme SPSS version 21.0 after the data had been imported into Microsoft Excel. The chi-square test was used to compare frequency, while the student t-test was utilised to compare mean values between the two groups. When the p-value was less than 0.05, it was deemed significant.

Results

Table 1: Distribution of study population according to age and gender

		Frequency	%
Age groups	18-30 years	105	35.0%
	31-50 years	65	21.7%
	51-70 years	77	25.7%
	> 70 years	53	17.7%
Gender	Male	183	61.0%
	Female	117	39.0%

Majority of the subjects belonged to 18-30 years (35.0%) and males (61.0%) among study population.

Table 2: Distribution of study population according to Signs and symptoms

Signs and symptoms	Frequency	%
Abdominal pain	288	96.0%
Constipation	285	95.0%
Nausea and vomiting	280	93.3%
Abdominal tenderness	284	94.7%
Abdominal distension	281	93.7%
Anorexia	282	94.0%
Weight loss	280	93.3%
Guarding and rigidity	288	96.0%

Most of the subjects had the symptoms of Abdominal pain and Guarding & rigidity (96.0%) followed by Constipation among (95.0%), Abdominal tenderness among 236 (94.7%), Anorexia (94.0%), Abdominal distension (93.7%), Nausea & vomiting and Weight loss (93.3%).

Table 3: Distribution of study population according to Etiological factors

Etiological factors	Frequency	%
Adhesion	131	43.7%
Bands	11	3.7%
Gangrenous Obstructed Hernia	7	2.3%
Intussusception	33	11.0%
Malignancy	27	9.0%
Obstructed hernia (Non gangrenous)	17	5.7%
Tuberculosis	63	21.0%
Volvulus	11	3.7%

The etiology for intestinal obstruction was Adhesion among 43.7%, Bands among 3.7%, Intussusception among 11.0%, Malignancy among 9.0%, Non-gangrenous Obstructed hernia among 5.7%, Gangrenous obstructed hernia 2.3%, Tuberculosis among 21.0% and Volvulus among 3.7%.

Table 4: Distribution of study population according to Time of presentation, Location and Degree of obstruction

		Frequency	%
Time of presentation	< 24 hours	33	11.0%
	24-48 hours	83	27.7%
	48-72 hours	67	22.3%
	> 72 hours	117	39.0%
Location	Large intestine	99	33.0%
	Small intestine	201	67.0%
Degree of obstruction	Complete	107	35.7%
	Incomplete	193	64.3%

Majority of the cases presented at more than 72 hours (39.0%). The location of obstruction was Small intestine among 67.0% cases and Large intestine among 33.0% cases. The degree of obstruction was found to be complete among 35.7% and incomplete among 64.3% cases.

Table 5: Distribution of study population according to Management

Treatment	Frequency	%
Conservative	90	30.0%
Operative	210	70.0%
Operative	36	12.0%
	10	3.3%
	9	3.0%
	8	2.7%
	31	10.3%
	9	3.0%
	69	23.0%
	26	8.7%
	12	4.0%

Conservative treatment was done for 90 (30.0%) and Operative treatment for 210 (70.0%) cases.

Table 6: Post-operative complications among study population

	Frequency	%
Wound infection	82	27.3%
Wound dehiscence	36	12.0%
Anastomotic leak	47	15.7%
Bleeding	13	4.3%
Intraabdominal collection	44	14.7%
Stoma complication	24	8.0%
Systemic complications	83	27.7%
Sepsis	60	20.0%
Shock	59	19.7%
Malnutrition	31	10.3%

Wound infection was reported among 27.3%, Wound dehiscence among 12.0%, Anastomotic leak among 15.7%, Bleeding among 4.3%, Intraabdominal collection among 14.7%, Stoma complication among 8.0%, Systemic complications among 27.7%, Sepsis among 20.0%, Shock among 19.7% and Malnutrition among 10.3%.

Table 7: Distribution of mortality among the study population

Mortality	Frequency	%
Yes	28	9.3%
No	272	90.7%

Mortality was reported among 20 (8.0%) patients.

Discussion

One of the most prevalent surgical emergencies seen in the emergency room is acute intestinal blockage brought on by mechanical causes.^[19,6] Hospital admissions are frequent as a result of this issue, which has a significant financial impact.^[3,20]

Majority of the subjects in the current study were aged 18-30 years (35.0%) with a mean age of 47.08–20.93 years. According to Maniselvi S. et al.,^[21] and Osuigwe AN et al.,^[22] the most prevalent age range affected was 61-70 years. The most frequent age range as per the research by Adhikari et al.^[23] was 20–60 years (64.03 %) followed by >60 years (26.7 %). In our study, there were 61.0% males and 39.0% females. The research by Maniselvi S et al.^[21] found coincidental findings, including the observation that 76 % of patients were male. This was consistent with studies by Osuigwe AN et al.^[22] and Tiwari et al.^[11] in which the male to female ratio was 2.1.9 and 1.85:1, respectively.

According to the study by Maniselvi S et al.,^[21] stomach pain was the most typical presenting symptom, followed by vomiting and abdominal distention. Markogianonakis H et al.^[2] found that the main symptoms were increased bowel sound (66%), abdominal distention (65.3%), and guarding, whereas the main indicators were abdominal discomfort (74%) vomiting (78.6%), and constipation (90%). These findings are consistent with the literature, notwithstanding minor variances that were noted.^[25-29]

The clinical characteristics of vomiting (78 %), constipation (86.66 %), and distension were found by Tiwari et al (90%).^[11] 53.33 % of patients had abdominal pain, while 78.33 % of cases had vomiting. Constipation was evident in 86.6 % of patients and distention in 90% of them. Additionally, this was comparable to other research teams like Adhikari et al. [23]

In a study of individuals with large bowel obstruction caused by volvulus, distension was the most prevalent sigmoid volvulus sign (79%) and discomfort and constipation were the most common symptoms (58%) and 55% of patients had cecal volvulus (89%).^[27] Furthermore, stomach discomfort, nausea, vomiting, and abdominal distension were the most prevalent symptoms and indicators, respectively, in a review of patients with blockage brought on by small and large intestine intussusception. [28]

Tenderness, which was present in 92 % of patients, was found to be the most prevalent symptom, followed by guarding and stiffness, which were both observed in patients, according to Maniselvi S et al.^[21] According to results in the literature, adhesions (28%) and blocked inguinal hernias (34%) were the most prevalent causes of intestinal blockage. Inguinal hernias were the most prevalent kind of hernia (70.5 %), followed by incisional hernias (23.5%). The remainder was made up of other variations. The most frequent cause of strangling hernias, occurring in 2 instances, was an inguinal hernia, which was followed by an incisional hernia.^[29]

In current investigation, the etiology for intestinal obstruction was Adhesion among 43.7%, Bands among 3.7%, Intussusception among 11.0%, Malignancy among 9.0%, Non-gangrenous Obstructed hernia among 5.7%, Gangrenous obstructed hernia 2.3%, Tuberculosis among 21.0% and Volvulus among 3.7%.

One of the most prevalent reasons for surgical hospitalizations globally is acute intestinal blockage. Adhesions^[30] appear to be the most frequent cause in the West as well as in several regions of Asia and the Middle East, despite the fact that the aetiology differs.^[31,32]

Our analysis supported the findings of Tiwari et al.^[11] and Adhikari et al.^[23] who found that adhesion was the most prevalent cause of intestinal obstruction (33.3 %) and 9 %, respectively. Post-operative adhesions (28 %), TB abdomen, and ileal perforation related to Crohn's disease were the most frequent causes of small intestinal blockage. This is consistent with the majority of research conducted on small bowel obstruction,^[33] although it contrasts from a study conducted in eastern India, where blocked hernias are more frequently the source of blockage.^[34]

The most frequent findings among patients who underwent surgery, according to Akrami et al.^[24], were adhesion bands (46.7 %), masses (16.2%), and hernias (6.5 %). Only 33.3% of patients with all of these symptoms received surgery with a certain diagnosis of intestinal blockage, and 66.7 % were monitored. The most significant findings in the patients who had surgery owing to intestinal obstruction in this research were adhesion band, mass, and hernia, which is consistent with earlier studies.^[2,3,7] In addition to Crohn's disease [6,34], which account for 3–7 % and 2 %, respectively, of small bowel obstruction cases, bowel volvulus^[3,6,35] and intussusception^[36,37] account for 4–15 % and 4–8 %, respectively, of instances of total blockage.

The hospital stay in the current research lasted 9.27 ± 3.93 days, with a range of 6-27 days. According to the *Yilma study*,^[38] the average hospital stay was 9.39 days, ranging from a minimum of 4 days to a maximum of 23 days. 8 days on average were spent in the hospital.

In the current study, conservative therapy was used in 31.2% of instances, while surgical treatment was used in 68.8% of cases. This was comparable to Yilma's research,^[38] Nineteen % of the patients responded to conservative therapy, the majority of whom had adhesions and required laparotomies in 81% cases.

According to *Tiwari et al.*,^[11] surgical management for many cases of bowel strangulation in which the viability of the bowel was in question included the release of adhesions, resection, and anastomosis as well as for ischemic bowel, malignancy, strictures, release of constricting agents like band, derotation of volvulus, and sigmoidoscopy.

Conclusion

In summary, this study found that small bowel blockage was more common than big bowel obstruction. The most common reasons for minor and big intestinal blockage, respectively, were adhesions and malignancy. The most frequent intra-operative surgery was intestinal resection and anastomosis, whereas the most frequent method of managing IO was laparotomy. The most frequent postoperative consequences were face dehiscence and wound infection.

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