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Original Research Article

Study of acute intestinal obstruction management and its outcome

Valarmathi M.*

General Surgery, Sree Balaji Medical College and Hospital, Tamil Nadu, India

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***Correspondence:**
Dr. Valarmathi M.,
E-mail: valarmathimurugan369@gmail.com

ABSTRACT

Background: Acute intestinal blockage (AIO) is a common abdominal emergency with a high morbidity and mortality rate. Early blockage diagnosis, skilled operative management, correct technique during surgery and intense postoperative therapy yield superior results. The aim was to study the aetiology, clinical presentation, therapy and outcomes of patients with IO who presented in the emergency department.
Methods: This prospective study was conducted at the general surgery department from June 2019 to May 2021. The study comprised 60 patients with IO who presented to the OPD or emergency room and the data was analysed.
Results: Among 60 patients with IO, peak incidence was observed in patients above 50 years of age, predominantly among males. Abdominal pain turned out to be the most common symptom of IO in our patients. Patients obstructed in the small intestine were found to be predominant. Post-operative adhesions were the most common cause of IO.
Conclusions: Early diagnosis, proper preoperative hydration, fast investigations, and early operational intervention were found to increase survival in patients with intestinal obstruction in the current study.

Keywords: Etiology, Outcome, Intestinal obstruction

INTRODUCTION

AIO continues to be one of the most common intraabdominal disorders encountered in general surgery practice. It occurs when digestive contents are not propelled and passed normally. AIO is categorised into two forms based on etiopathogenesis. Mechanical obstruction is defined by the obstruction of the bowel (luminal, mural or extramural), which results in increased intestinal contractility as a physiologic response to the obstruction. An inability of the intestine defines pseudo obstruction to contract.[1] Obstruction of the small or large bowel, whether caused by a hernia, tumour, adhesions or biochemical abnormalities, continues to be a significant source of morbidity and mortality.[2]

Additionally, AIO is classified according to several additional variables including the time of presentation, the duration of obstruction (acute or chronic), the amount of obstruction (partial or full) and the kind of obstruction (simple, closed-loop or strangulation obstruction). The last two are classified as complex obstructions.[3] Mechanical bowel obstruction causes are shifting in pattern in developing nations due to improved health care facilities, early access to hospitals and a rising rate of early surgical surgery.[4]

Obstruction of the GI tract is a substantial source of morbidity and mortality, particularly when coupled with bowel gangrene or perforation. While intestinal blockage is easily detected, the obstruction's underlying cause, except surgical adhesions and external hernias, is difficult to determine preoperatively.[5] Early detection and timely care can help avoid irreversible ischemia, lowering mortality and long-term morbidity. Postoperative adhesions and hernias are the most common causes of intestinal blockage. They squeeze the gut extrinsically.

Less often occurring reasons are tumours and bowel strictures, which result in intrinsic gut blockage.[6]

IO necessitates a prompt and accurate diagnosis and prompt, rational and effective treatment.[7] Accurate early diagnosis of intestinal strangulation in patients with mechanical bowel blockage is critical for deciding on emergency surgery or safely managing carefully selected individuals without surgery.[8] In addition, intestinal obstruction management aimed to resolve the underlying cause and reverse the physiologic abnormalities caused by the obstruction.[9]

IO has a variety of causes, with adhesions accounting for the most number of cases, strangulated hernia accounting for the next significant causes, malignancy accounting and volvulus accounting for IO in a smaller number of cases. Small bowel obstruction (SBO) is a more prevalent complication and a difficult clinical problem to manage. Large bowel obstruction (LBO) is most frequently caused by colorectal cancer, with lesions in the sigmoid or rectosigmoid region.[10]

The mode of presentation of all forms of IO is identical in all age groups, although the fundamental cause varies with age. Because of the variety of symptoms it presents and the variety of treatment choices available, it can provide diagnostic and therapy issues. The surgeon must exercise sound judgement to recognise the diagnosis and plan the appropriate course of action. Each patient's care must be tailored to their specific clinical situation and the progression of the disease pathology, among other considerations.[11]

Hence, the following study was conducted to examine the many causes and modalities of intestinal blockage presentation and assess the importance of various severity indicators of obstruction in facilitating early recognition, diagnosis and timely abdominal exploration.

METHODS

This prospective study was conducted in the department of general surgery at Sree Balaji medical college and hospital. A total number of 60 cases of acute intestinal obstruction have been studied from June 2019 to May 2021.

Inclusion criteria

All patients with symptoms and signs of AIO who were admitted to the general surgery department were included in the study.

Exclusion criteria

Pediatric and adynamic IO cases were excluded.

After admission, all patients with a provisional diagnosis of acute intestinal blockage were evaluated clinically. In all patients, necessary diagnostic and biochemical examinations were performed at the time of admission. Appropriate statistical parameters will be used to analyse the data. A proper surgical process was followed. Age, sex, symptoms, signs, possible causal factors, operational findings, operating procedure used and postoperative complications were all tabulated.

Data were presented as frequency and percentages.

RESULTS

In this study, 60 patients with AIO were included. The majority of patients were in the age group above 61 years (35%), followed by 41 to 50 years (18.3%) (Figure 1).

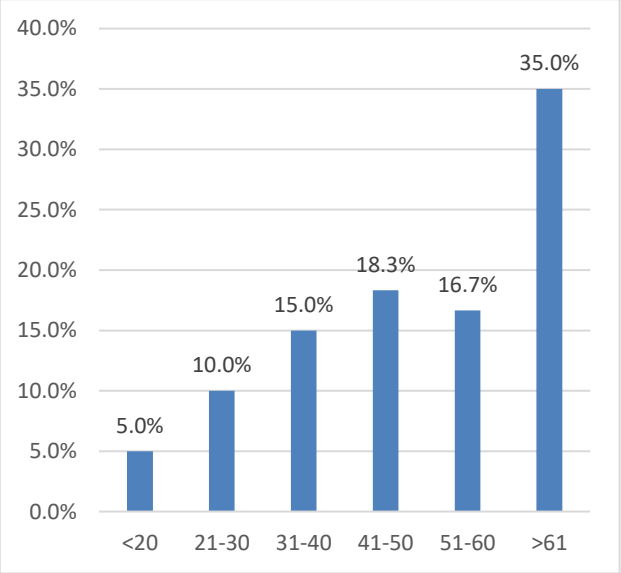

Figure 1: Age distribution.

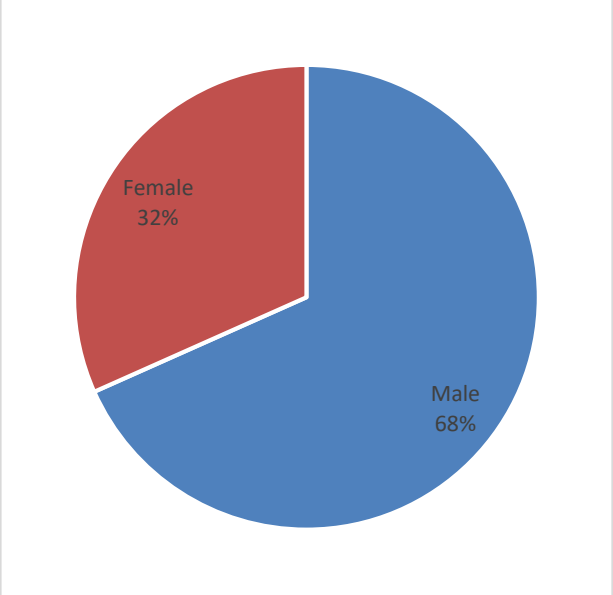

Figure 2: Gender distribution.

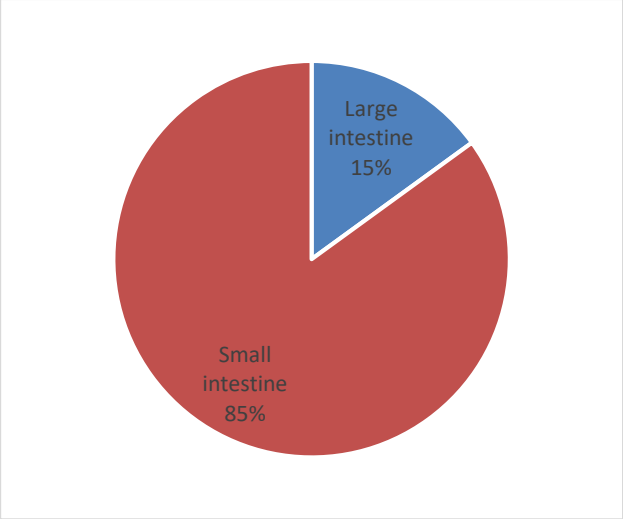

Figure 3: Site of obstruction.

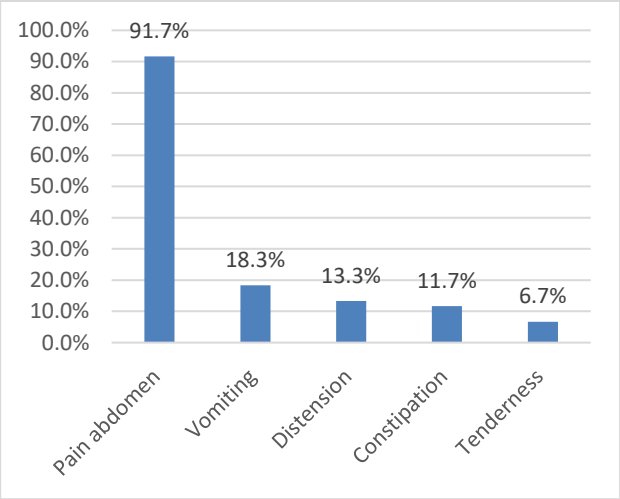

Figure 4: Symptoms and signs.

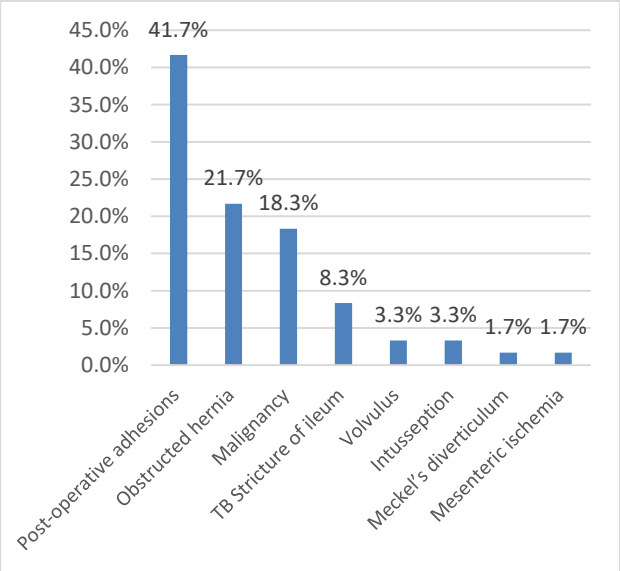

Figure 5: Etiology of AIO.

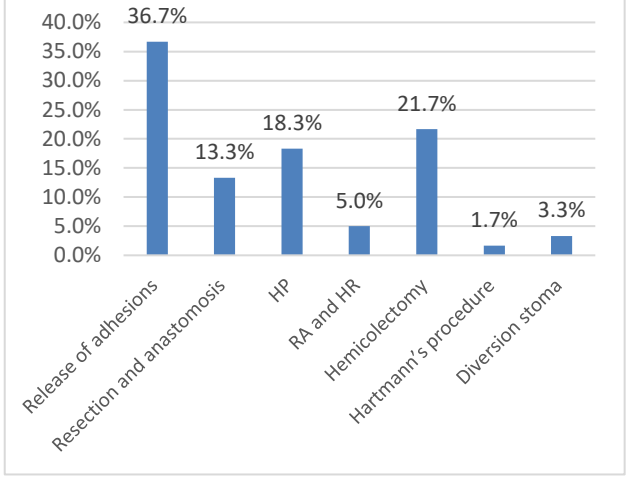

Figure 6: Management of AIO.

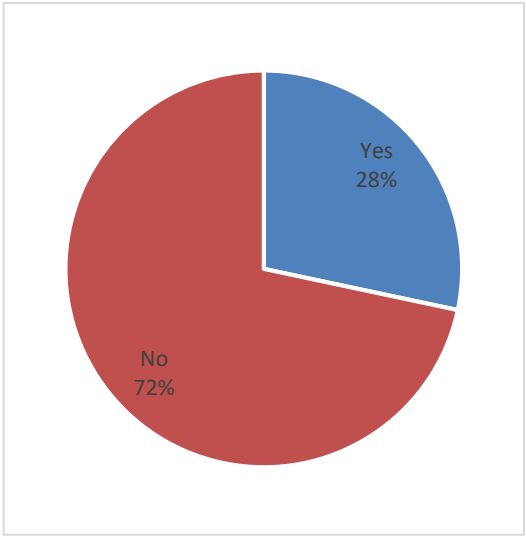

Figure 7: Prevalence of morbidity.

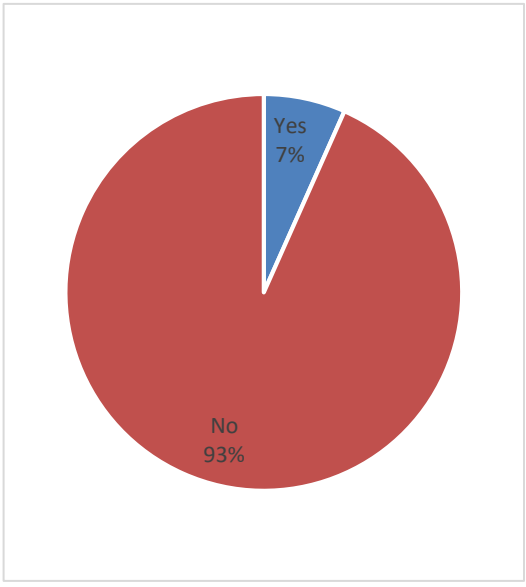

Figure 8: Prevalence of mortality.

In this study, male predominance was seen, a higher number of male patients had an AIO (Figure 2).

Out of the total 60 patients, 9 patients had an obstruction in the large intestine and 51 patients had an obstruction in the small intestine (Figure 3).

Pain in the abdomen was the commonest symptom in acute intestinal obstruction (Figure 4).

Etiology shows that adhesive obstruction was found to be the most common cause, followed by obstructed hernia (Figure 5).

The most common surgical procedure was adhesiolysis and the next common procedure was hemicolectomy followed by hernioplasty (Figure 6).

In this study, the morbidity rate was 28.3% and the mortality rate was 6.7% (Figure 7 and 8).

DISCUSSION

IO is a substantial cause of morbidity and financial expense in hospitals worldwide and a significant cause of emergency surgery department admissions. With varied etiology, IO has been found to occur in all age groups.[12] Intestinal blockage is treated in a variety of ways and has evolved significantly over the last two centuries. Early detection of obstruction, skilled surgical management, good technique during surgery and intense postoperative care all contribute to a favourable outcome.[13] The purpose of this study was to evaluate the several causes and manifestations of IO and to find the prevalence of various severity indicators that might confer timely prognosis, offering a better management strategy.

The more vulnerable people for IO were found to exist among the age group >61 and people above 40 years were at risk in the next level. A similar higher incidence of IO in the likely age group was recorded in a study performed by Shivakumar et al who reported a surged occurrence in people >60 years of age.[1] In a study conducted by Gayathri et al the incidence of IO occurred in peak among patients >50 years of age.[3] Thampi et al also reported the existence of IO in all groups, with a predominant occurrence in people >50 years of age.[14]

A distinct dominance of IO occurrence in male patients was detected in this study, with a high prevalence of 68.3%, while only 31.7% of patients were female. Various researchers also recorded a likely male-dominated incidence of IO. Shivakumar et al in their analysis, demonstrated a clear predominance of males over females with respect to the occurrence of IO among 50 patients analysed.[1] Their study reported 33 male patients (66%) and 17 female patients (34%) with IO. The male to female ratio in their study was 1.95:1. Nasiruddin et al also reported peak incidence of IO among males with a prevalent % of 66.[5] Tiwari et al also recorded that IO was found to occur predominantly in males (65%) compared to females (35%).[13]

Abdominal pain turned out to be the most common symptom of IO in our patients, with the occurrence of 91.7% followed by vomiting (18.3%), distension, constipation and tenderness in sequential order. In an earlier study a similar symptom of abdominal pain was recorded as most recurrent.[1] However, the second most recurrent symptom was found to be abdominal distension. However, the more common symptoms with a significant prevalence were accounted for the presence of abdominal pain, vomiting, distension, constipation and tenderness. Another study also designated abdominal pain as the most common symptom followed by vomiting as the second most prevalent symptom, similar to our study.[5] Tiwari et al in their study, however, found the peak incidence of distension in the abdomen as the most recurrent symptom closely followed by constipation and vomiting.[13]

About the site of obstruction, the small intestine was more common than that of the large intestine. A similar increase in the presence of obstruction of the small intestine was reported by Shivakumar et al.[1] A similar upsurge in the small intestine obstruction was also reported by Sharma et al with a higher incidence % of 76% than large intestine obstruction (24%).[15] Additionally, it was discovered that the incidence of big bowel obstruction increased with age, reaching a peak around the age of 60. According to another study also among IO patient, proportions of small intestine obstruction was found to be higher.

While analysing the causes for the instigation of IO, postoperative adhesions record the most number. Obstructed hernia along with malignancy reasoned next more prevalent cause. Shivakumar et al also recorded postoperative adhesion as the most common cause of IO occurrence followed by hernia obstruction.[1] Thampi et al also reported postoperative adhesion as the major cause of IO.[14] Through his prospective descriptive study, Malik et al also declared that postoperative adhesions accounted for more cases, followed by abdominal tuberculosis and various forms of obstructed/strangulated hernias.[17] Thus, there was a clear shift in the aetiology of AIO, with surgical adhesions and abdominal TB being the most often encountered causes, rather than obstructed inguinal hernias. It was also proposed that increases in adhesive obstruction and a concurrent decrease in the prevalence of obstructed hernias suggest a changing tendency toward early surgery before the condition becomes problematic. Tuberculosis of the abdomen was becoming a more common cause of an AIO.

Abdominal adhesions were fibrous bands that form after abdominal surgery and span two or more intraabdominal organs and/or the inner abdominal wall. In the absence of past abdominal surgery or as a result of abdominopelvic radiation, adhesions might occur due to inflammatory

conditions in the abdomen. Although most individuals with intraabdominal adhesions were asymptomatic, a clinically important fraction will develop adhesive disease an asymptomatic state that can range from mild and ambiguous to extremely uncomfortable and even life-threatening.[18]

Although the frequency of strangulated hernia was higher in developing nations, it was the second most prevalent cause of obstruction in this research group, similar to the previous study.[5] Hernias may be treated early due to public awareness and the availability of surgical facilities in the periphery for hernia repair. Soressa et al also designated the most important causes of IO to be hernias, adhesions, volvulus besides intussusceptions.[12] Heis et al also put forward the fact that role of hernia in IO might be based on culture, diet, age of the patients and major demographic factors.[19]

As of management of IO was concerned, adhesion release was the most prevalent method, followed by hemicolectomy and hernioplasty (HP). Among 13 patients with an obstructed hernia, 11 were performed with HP. In the previous study, the most prevalent procedure for IO was laparotomy with removal of adhesions, followed by laparotomy with resection and anastomosis.[1] Hemicolectomy was used to treat patients with colon cancer. HP was also performed. Resection and anastomosis, followed by herniorrhaphy, treated the other two cases with a strangulated hernia. A likely study performed earlier by Kishorekumar stated that hernia reduction and repair, which comprised inguinal, femoral, incisional and paraumbilical hernia procedures was the most prevalent surgical operation.[20] Adhesiolysis was the next most common procedure, followed by resection and anastomosis/colostomy.

A morbidity rate as low as 28.3% was recorded in our study. The more frequent cause for IO morbidity was surgical site infection preceded by septicemia from previous studies. Respiratory infection, anastomotic leak besides wound dehiscence was also noted among causes of morbidities of IO. Among the morbidities mentioned above, both septicaemia and anastomotic leak record for the most prevalent causes.[1] It was also reported that presentation time influenced morbidity rates. Later the presentation times of IO patients, higher the rates of morbidities. In a study performed by Sharma et al it was also observed that it was discovered that patients who arrived late to the hospital had a higher likelihood of having a poor prognosis.[15] Compared to patients who presented after 5 days or longer, those who presented within 2 days had the lowest rate of problems.

The mortality rate was also recorded in lower numbers (6.7%). The mortality rate was comparable with that reported in previous studies.[21,22] Previous studies recorded the anastomotic leak and sepsis as a major cause of mortality.[1] Postoperative septicaemia and hypovolemic shock were also accounted for IO related mortalities. Factors such as late presentation, age, septicemia and associated comorbid conditions also contributed to mortality in IO patients.[3] Patients who developed strangling and gangrene of the intestine and those who arrived at the hospital late have a higher risk of dying from intestinal blockage. With all of this, the patient's age, general health, duration of symptoms and surgical treatments all significantly impact the progress and mortality.[13]

Hospital stay duration also influenced IO associated mortality as well as morbidity rates.[16] The difference in IO results could be linked to patients' staying in the hospital for longer periods due to a lack of understanding about the problem's severity and consequences. The decreased fatality rate in our study could be attributable to early intervention of the obstruction before complications arise and sufficient preoperative resuscitation, both of which should reduce mortality.

CONCLUSION

Adhesions and obstructed hernia is the most common cause for acute intestinal obstruction. The surgical treatment result of intestinal blockage was strongly linked with determinant variables such as length of illness before to surgery, length of hospital stay after surgery and comorbidities. In patients with intestinal blockage, early diagnosis, good preoperative hydration, rapid tests and early operating intervention were proven to improve survival.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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