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Original Research Article

Etiology and outcome of intestinal obstruction: an institutional prospective study

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ABSTRACT

Background: Intestinal obstruction is a major part of the emergency caseload in a general surgical department. It can pose diagnostic and treatment challenges with its varied presentation and multiple management options. The surgeon needs to use astute judgment to spot the diagnosis and plan the line of management. The aim of the study is to show the various etiologies most commonly presenting with intestinal obstruction in our institute in north Chennai. It also aims to evaluate markers of postoperative morbidity.
Methods: This is a prospective study of about 50 patients with acute intestinal obstruction coming to the emergency department of the Government Stanley Medical College and Hospital from the time the patients were admitted they were followed up till their time of discharge/ death. X-ray abdomen erect and supine and CECT abdomen and pelvis were routinely taken for all the patients.
Results: X-ray abdomen supine showed multiple air fluid levels as the commonest finding which was seen in 42 cases, 27 cases had dilated bowel loops and 2 cases showed coffee bean appearance. 6 cases had fluid levels less than 3 and were deemed in 49 cases and was inconclusive in 1 case to be inconclusive. CECT showed features of obstruction or pathological obstruction point.
Conclusions: Corrections of dehydration and rapid resuscitation with correction of electrolyte disturbances would go a long way in reducing morbidity and mortality. Surgical intervention in a timely manner is the treatment of choice and prognosis is good when it is not delayed.

Keywords: Intestinal obstruction, Computerized tomography, Post-operative care, X-ray abdomen erect

INTRODUCTION

Intestinal obstruction is a major part of the emergency caseload in a general surgical department. It can pose diagnostic and treatment challenges with its varied presentation and multiple management options. The surgeon needs to use astute judgment to spot the diagnosis and plan the line of management. The management needs to be individualized for each patient considering his clinical state and progress of the disease pathology.[1] In intestinal obstruction, time is at a premium. Inordinate delays often lead to worsening outcomes for the patient. With a wide gamut of conditions presenting with intestinal obstruction, Bowel obstruction, also known as intestinal obstruction, is a mechanical or functional obstruction of the intestines which prevents the normal movement of the products of digestion. Either the small bowel or large bowel may be affected. Signs and symptoms include abdominal pain, vomiting, bloating, and not passing flatus. Mechanical small intestinal obstruction is the cause of the majority of cases which require urgent surgical intervention.[2] The causes of intestinal obstruction can be divided into extrinsic, intrinsic and intraluminal lesions for the sake of

convenience. Most commonly small intestinal obstruction is caused by hernias, adhesions, and carcinoma. Inguinal, Femoral and abdominal wall hernias and less commonly internal hernias cause intestinal obstruction commonly in our country.[3] The commonest cause of small intestinal obstruction is inter bowel and intra-abdominal adhesions following abdominal surgeries which account for about 60 to 70% of patients. Neoplasms are not common in contrast to colonic obstruction accounting for about 10% of all the patients. Commonly, the small bowel is obstructed by malignancies arising from nearby GI structures such as stomach, pancreas, colon or by ovarian malignancies in the female.[4] This accounted for about 92% of malignant small intestinal obstruction in a case series by the Mayo clinic. Primary CA of the small intestine causing obstruction is rare occurring in about 3% of patients. Adenocarcinoma and carcinoid are the 2 most common small bowel malignancies. Duodenum and jejunum are the preferred sites of adenocarcinoma.[5]

METHODS

This is a prospective study of about 50 patients with acute intestinal obstruction coming to the emergency department of the Government Stanley Medical College and Hospital from November 2016 to August 2017. From the time the patients were admitted they were followed up till their time of discharge/death. X-ray abdomen erect and supine and CECT abdomen and pelvis were routinely taken for all the patients. The history and symptoms at presentation were documented as well as the diagnosis, blood investigations, management, and outcome were all recorded in a master chart for comparison and reference. The outcomes were sub-grouped based on the morbidity level and mortality.

RESULTS

About 50 cases of intestinal obstruction were in the study from November 2016 to August 2017. After presentation and admission, the cases were followed, and details documented. This was added to the master chart. Based on these observations the following statistical inferences were analysed.

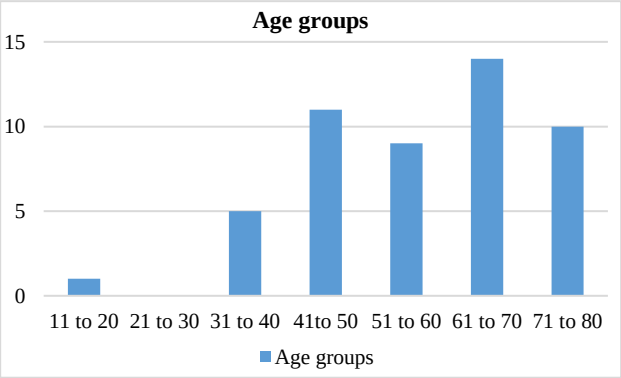

Figure 1: The age group among the patients with intestinal obstruction.

The most common age group of people affected in this study was 61 to 70 years. There is no age limit for intestinal obstruction to occur.

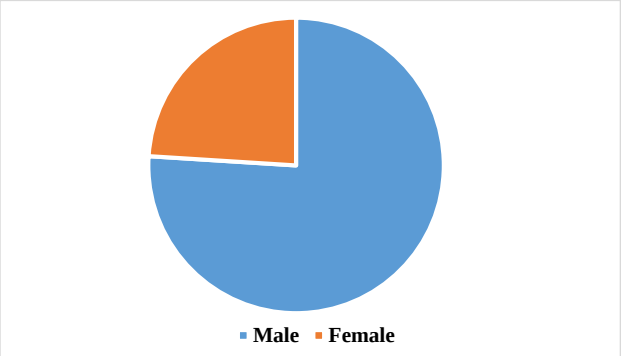

Figure 2: The gender distribution among the patients with intestinal obstruction.

Male preponderance is found to be more when compared with females.

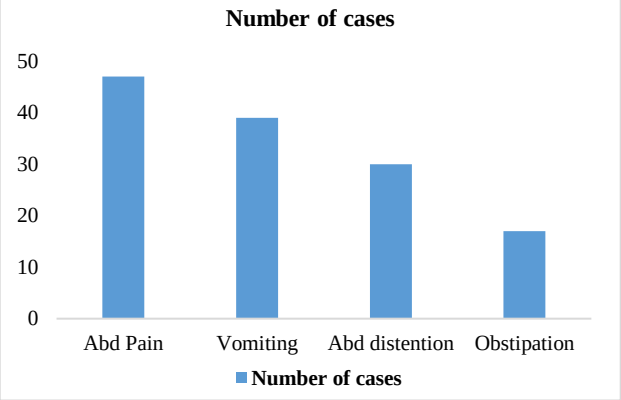

Figure 3: The presentation of clinical symptoms among the patients with intestinal obstruction.

Abdominal pain was present in the majority of the cases. Abdominal distention was present in 30 cases. The absence of distention could be due to early presentation. 17 patients presented with obstipation.

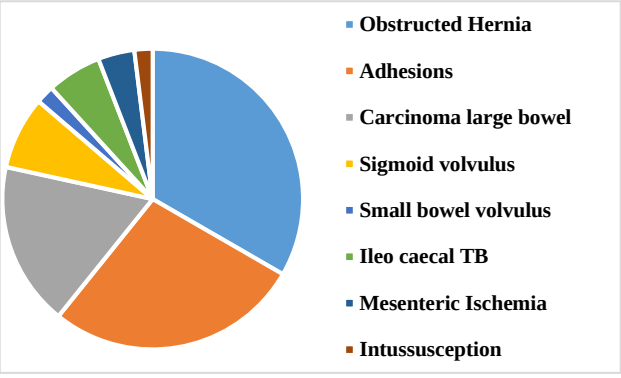

Figure 4: The etiology causes among the patients with intestinal obstruction.

Hernia obstructed seen in 17 patients (34%), adhesions seen in 14 patients (28%), carcinoma large bowel seen in 9 patients (18%), sigmoid volvulus seen in 4 patients (8%), small bowel volvulus seen in 1 patients (2%), ileo caecal TB seen in 3 patients (6%), mesenteric ischemia seen in 2 patients (4%), intussusception seen in 1 patients (2%).

Table 1: The abdominal x rays findings among patients.

Findings	Number of cases	Percentage (%)
Multiple fluid levels	42	84
Dilated bowel loops	27	54
Coffee bean appearance	2	4
Inconclusive	6	12

X-ray abdomen supine showed multiple air fluid levels as the commonest finding which was seen in 42 cases, 27 cases had dilated bowel loops and 2 cases showed coffee bean appearance. 6 cases had fluid levels less than 3 and were deemed to be inconclusive. CECT showed features of obstruction or pathological obstruction point in 49 cases and was inconclusive in 1 case.

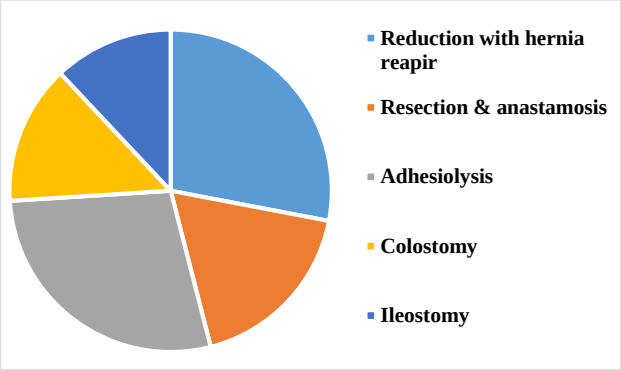

Figure 5: The surgical management done among the intestinal obstruction cases.

Reduction with a hernia repair done in 14 patients (28%), resection and anastomosis did in 9 patients (18%), adhesiolysis did in 14 patients (28%), colostomy was done in 7 patients 14%, ileostomy was done in 6 patients 12%.

The outcome was graded into 4 levels. 1.) Grade 1 was uneventful recovery (26) patients. 2.) Grade 2 was with minor morbidity (7) patients. 3.) Grade 3 was with major morbidity (16) patients. 4.) Grade 4 was death in the postoperative period (1) patient. Minor morbidity - It was defined in the study as infected wound, mild cardiopulmonary deficit, post-operative ileus and mild anastomotic leak (self-limiting). Major morbidity - It was defined as postoperative wound dehiscence, moderate to the severe cardiopulmonary deficit, EC fistula (Enterocutaneous). The death occurred in 1 case postoperatively.

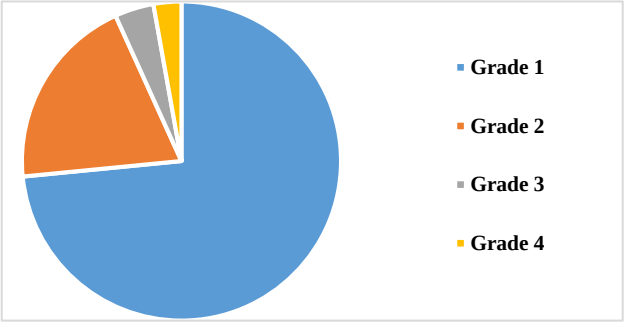

Figure 6: The surgical outcomes among the intestinal obstruction cases.

DISCUSSION

The commonest age group affected was 61-70 years (14 patients). The next common age group was 41 to 50 years (11 patients). Extremes of ages were not encountered in our study. The average age of presentation was 57.26 years.76% of the patients encountered were male. The male: female ratio was 3.1:1 which is comparable to findings present in current literature. Abdominal pain is the most common presenting symptom followed by vomiting and abdominal distention.[6]

The most common sign present was tenderness which was present in 92% of the patients followed by guarding and rigidity which was seen in of patients.[7] Of the 50 cases, the commonest cause of intestinal obstruction was obstructed inguinal hernia (34%) followed by adhesions (28%) which is comparable to findings in the literature. among the various hernias, the most common one was an inguinal hernia (70.5%) followed by an incisional hernia (23.5%). Other variants accounted for the rest. An inguinal hernia was the most common etiology among hernias for strangulation which occurred in 2 cases followed by an incisional hernia in 1 case.[8] Majority of cases had a good outcome (66%) with poor outcome in 34% of cases including 1 mortality. In the assessment of markers of postoperative morbidity and mortality albumin and creatinine were included. In patients with preoperative albumin less than 3.5g% only 15% of cases had a good outcome while in those patients with preoperative albumin greater than 3.5g% 100% of cases had a favorable outcome.[9] In patients with preoperative creatinine, less than 1.2mg% about 78.4% had a good outcome while in those with preoperative creatinine more than 1.2mg% only about 30.1% had a favorable outcome. More extensive study with a larger sample size is needed to prove the association of preoperative albumin and creatinine with postoperative outcomes.[10]

This was a prospective study, between 1998-2003 of around 652 cases of intestinal obstruction of which around 412 (63.2%) were due to strangulated external

hernias and around 176 (27.2%) were due to postoperative adhesions which compare favorably with our study.[11] In a study by Ören et al postoperative outcome was examined in 83 patients and correlated with albumin. It showed poor outcome in patients with low albumin in 70% of cases and mortality of 42%. This is keeping in line with our study.[12] In a study by Stewart et al association between preoperative serum albumin and postoperative outcomes were calculated. Lower albumin was found to correlate with higher morbidity (65%) and mortality (29%) similar to our study.[13-15]

CONCLUSION

Acute intestinal obstruction is a common emergency in the ER. It requires rapid diagnosis and surgical management. A thorough knowledge of all the presentations of intestinal obstruction and its clinical features is needed. CECT has revolutionized the diagnosis of various surgical pathologies including intestinal obstruction. It has made rapid accurate diagnosis possible in even the most unusually presenting cases. Corrections of dehydration and rapid resuscitation with correction of electrolyte disturbances would go a long way in reducing morbidity and mortality. Surgical intervention in a timely manner is the treatment of choice and prognosis is good when it is not delayed.

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

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