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Original Research Article

A prospective study of cases of intestinal obstruction and role of conservative expectant management

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ABSTRACT

Background: Intestinal obstruction continues to be a common surgical emergency throughout the world and its management protocol has evolved over years. In our study we aimed to provide a complete epidemiological description of intestinal obstruction in adult age group patients in a tertiary care hospital in Northern India.
Methods: This is a prospective study of patients belonging to age group more than 12 years admitted in our unit with clinical features suggestive of intestinal obstruction from September 2011 to December 2013 at R. N. T. Medical College, Udaipur. The study comprised of 134 patients.
Results: Intestinal obstruction contributed to 6.5% of all surgical admissions. It was nearly twice more common in males. 43% patients presented with features of acute intestinal obstruction in comparison to 57% who presented with features of sub-acute intestinal obstruction. Most common cause observed was obstruction due to intra-abdominal adhesions followed by abdominal tuberculosis 48 and 29 percent respectively. Features of intestinal obstruction resolved in 60% patients with conservative management. Adhesions, abdominal tuberculosis and malignancy counted for majority of patients with sub-acute obstruction. Emergency surgery was done in 32% of patients and 36.5 % of patients were discharged non-operatively. Planned Surgery after successful expectant management was done in 24 % patients. Most frequently seen complication was wound site collection (72.5%) followed by respiratory tract infections (49%). Total mortality in our study was 12.6% of which 41% was post-operative mortality and 59% mortality seen in patients who expired during conservative management.
Conclusions: This study demonstrates that intra-abdominal adhesions and abdominal tuberculosis account for most cases of intestinal obstruction in countries like India. A watchful expectant management can be tried in patients with prior operative history and those with history of tuberculosis.

Keywords: Acute obstruction, sub-acute obstruction, Conservative management of obstruction, Non-conservative management of intestinal obstruction

INTRODUCTION

Intestinal obstruction occurs when there is an interruption in the forward flow of intestinal contents. This interruption can occur at any point along the length of the gastrointestinal tract, and clinical symptoms often vary based on the level of obstruction. The incidence of small bowel obstruction (SBO) varies between 0.1% and 5% in patients who have not undergone previous surgery, yet may rise to over 60% in patients who have undergone previous surgery.[1-3] Intestinal obstruction is most commonly caused by intra-abdominal adhesions, followed by intestinal herniation and malignancy.[4] The clinical presentation generally includes nausea and

emesis, colicky abdominal pain, and a failure to pass flatus or bowel movements.[5] The classic physical examination findings of abdominal distension, tympany to percussion, and high-pitched bowel sounds suggest the diagnosis. Radiologic imaging can confirm the diagnosis and can also serve as useful adjunctive investigation when the diagnosis is less certain. Although radiography is often the initial study, non-contrast computed tomography is recommended if the index of suspicion is high or if suspicion persists despite negative radiography.[6] Management of uncomplicated obstructions includes fluid resuscitation with correction of metabolic derangements, intestinal decompression, and bowel rest. Evidence of vascular compromise or perforation, or failure to resolve with adequate bowel decompression is an indication for surgical intervention.[7]

METHODS

We did a prospective study on 134 patients presenting with clinical features of intestinal obstruction in our unit at R. N. T. Medical College, Udaipur during the period of September 2011 to December 2013. Criteria for admission were pain abdomen (134 patients: 100%), constipation (132 patients: 98.5%), vomiting (112 patients: 83.6%), abdominal distension (104 patients: 77.6%) and obstipation (65 patients: 48.5%).

All patients including those subjected to non-operative intervention were closely reviewed in a place of close observation, proper monitoring was done including recording of vitals at regular intervals, serial laboratory investigations and imaging studies as required and/or indicated. Precise history was recorded with a thorough clinical examination particularly abdominal examination to look for abdominal tenderness, signs reflecting peritonism, serial abdominal girth measurement, per rectal examination and auscultation which was supplemented with plain abdominal radiograph to look for multiple air fluid levels and distended bowel loops. All patients had routine blood investigations and further imaging studies were done in selected patients. Patients who absconded or left against medical advice before completion of treatment were excluded from study. Operative findings and procedure notes were recorded in detail. Every note on post-operative complications and mortality were made.

RESULTS

Incidence

Of 2060 patients admitted in single surgical unit from September 2011 to December 2013, intestinal obstruction was diagnosed in 134 patients (6.5%).

Age and gender distribution

Intestinal obstruction was seen in 89 (66.4%) males in comparison to 45 (33.6%) female patients. Most common age group involved was 31 to 50 years (42%) with mean age of 44±17 years was observed. Age wise distribution is shown in Table 1.

Table 1: Age wise distribution of patients with intestinal obstruction.

Age range in years	Age wise distribution	Percentage
12 to 20	12	9.0
21 to 30	24	17.9
31 to 40	28	20.9
41 to 50	28	20.9
51 to 60	18	13.4
61 to 70	16	11.9
71 to 80	5	3.7
81 to 90	3	2.2

Aetiology

The causes of intestinal obstruction observed in our study are depicted in table 2. Adhesions were seen as the most common cause (48 patients: 35.8%) followed by abdominal tuberculosis (29 patients: 21.6%). Aetiology observed is shown in Table 2.

Table 2: Aetiology of intestinal obstruction observed.

Aetiology	Number of patients	Percentage
Adhesions	48	35.8
Tuberculosis	29	21.6
Hernia	10	7.5
Malignancy	13	9.7
Volvulus	5	3.7
Meckel's Diverticulum	5	3.7
Appendicitis	5	3.7
Jejunal Stricture	3	2.2
Adynamic Obstruction	3	2.2
Pancreatitis	1	0.7
Intussusceptions	1	0.7
Mesenteric Ischemia	1	0.7
Undiagnosed	10	7.5

Management

Patients were either subjected directly to emergency surgery (24 patients; 17.9%) or a trial of expectant management was given criteria for subjecting patients to emergency surgery included pain and distension with obvious cause of intestinal obstruction, features of peritonism, tachycardia and other features of toxicity like fever and leukocytosis and failure of non-operative treatment. Patients in whom expectant management succeeded (81 patients; 60%) were either discharged after non-operative management (49 patients; 36.5%) or operated in elective setting (32 patients; 24%). Among

those in whom expectant management failed delayed emergency surgery was done (19 patients; 14%). The selection criteria of the surgical procedure were based on the intraoperative findings. Most often procedure performed was resection anastomosis with or without diversion enterostomy (27.8%) followed by exploratory laparotomy with adhesiolysis (17.8%). Other procedures included resection with enterostomy (14.4%), intestinal bypass procedures (11.1%), herniotomy with darning hernioraphy (6.7%), right hemicolectomy (4.4%), laparoscopic adhesiolysis (4.4%), derotation of volvulus with pexy (3.3%), hernioplasty with mesh repair (3.3%) low anterior resection (2.1%) and appendicectomy (1.1%).

Complications

Complications of expectant management were seen in patients in whom expectant management failed and delayed emergency surgery was advocated. Expectant management failed in 29 cases out of which 10 patients died without operative intervention. Delayed emergency surgery was done in 19 cases. In such patients intestinal gangrene was present in 7 (37%). Bowel perforation was present in 5 cases (26%) and 3 patients expired (16%).

Morbidity

Major post-surgical complications included wound site collection (72.5%), respiratory tract infections (49%), prolonged ileus (31.4%), post-operative hypotension (39.2%), Wound dehiscence (7.8%) and multiple organ dysfunction syndrome (MODS) (11.8%). Post-operative complications were found more in patients who presented with acute obstruction (52%) than sub-acute obstruction (28%). This can be attributed to the fact that more patients with acute obstruction underwent emergency surgeries. Respiratory tract infections were more in the elderly. Post-operative shock and MODS were present in patients with overt sepsis and poor general condition at the time of presentation.

Mortality

There were 17 mortalities during this study. There were 7 deaths after surgery and 10 patients expired during expectant management. Nine Patients were of acute obstruction i.e., (53%) and 8 (47%) were of sub-acute obstruction. 16 out of these 17 patients were haemodynamically unstable at the time of presentation (99%). Six patients had history of pulmonary tuberculosis and 2 had chest x-ray features suggestive of active tuberculosis. Age wise incidence depicts two peaks one in age group of 31 to 40 years and another in 51 to 60 years. All operative mortalities occurred after emergency surgeries and no mortality was in patients with planned surgery. Intestinal gangrene was present in 4 out of 7 operated patients (57%). Increasing trend in mortality was seen with increasing duration of illness and delay in presentation. Minimum mortality, i.e., 5.8% was seen in patient with less than 2 days of onset of disease, whereas 47% of total mortality corresponded to patients with history of more than 7 days.

DISCUSSION

Intestinal obstruction is one of the most common causes for surgical admission since centuries however the aetiology has changed over period of time. Obstructed hernia used to be the commonest cause in 90's which has now decreased owing elective hernia repair surgeries.[8,9] In the present study intra-abdominal adhesions were attributed to the commonest cause which is comparable to studies done in recent years. Gender wise distribution has also changed over years.[10,11] Present study shows ratio of male: female as 2:1 which is not comparable to previous studies.[12,13] This can be attributed to changing trends and more female attending hospital services. A critical factor in managing these patients is to determine whether patients can be subjected to expectant treatment or to emergency surgery.[14]

Expectant conservative approach was successful in 81 patients (60%), which is nearly comparable to previous studies. [15,16] Expectant management was more successful in patients with sub-acute obstruction (58 versus 23 patients; 52% versus 28%). Moreover, patients with suspected adhesions and abdominal tuberculosis responded successfully to expectant management (76% and 65% respectively). All patients with diagnosed acute appendicitis as cause of intestinal obstruction responded positively to expectant management. Upon analysis of expectant management out of 110 patients, 49 patients (44.5%) were discharged non-operatively, 19 required emergency surgery (17.3%) from which 3 patients expired post operatively (2.7%), 32 patients were taken up for planned surgery (29%) and 10 patients (9%) expired without surgery.

CONCLUSION

Our study states that adhesions are now major cause for intestinal obstruction than obstructed hernia. Intestinal tuberculosis still presents as a big problem to the community. Lastly, conservative expectant management can be tried in patients with previous history abdominal operation, previous history of tuberculosis and in those in whom no signs of high grade intestinal obstruction is present.

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