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A Clinical Study of Acute Intestinal Obstruction in a Tertiary Care Hospital of Telangana

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Abstract: Acute intestinal obstruction is a common surgical emergency that a general surgeon comes across and one has to accomplish the skills of diagnosing art of Surgery and knowledge of postoperative management, which carries gratifying results. With this in mind, we in this study the tried to evaluate the symptomatology of Intestinal Obstruction to study the various causes of intestinal obstruction modalities of surgical procedures and its outcome. Methods: The cross-sectional study was conducted at the Department of General Surgery, Prathima Institute of Medical Sciences, Karimnagar. A total of hundred patients belonging to both sex groups were included in the study. All patients were evaluated thoroughly from their history and clinical examination. Patients with signs and symptoms of acute obstruction were managed by appropriate surgical procedure after resuscitation and the diagnosis was established. The postoperative period was monitored carefully and all parameters were recorded hourly or fourth hourly basis depending upon the resuscitation and the diagnosis was established. Results: The most common involved age group was 31 - 40 having 40% of the patients followed by 14 – 50 has 38%. Adhesions are the most common cause of intestinal obstruction accounting for 36% of the cases. Malignancy of the large bowel was found to cause obstructive features with a single case being due to ascending colon growth, one case of small bowel tumor and the 7 is due to recto-sigmoid growth, 2 descending colon, thus a total of 11 cases of malignant obstruction. 39 patients who underwent surgical procedure had no complications. 25 patients had wound infection with wound gaping and had to be treated with secondary suturing. 8 patients who underwent surgery expired with an overall mortality rate of 8 %. Conclusion: Clinical radiological and operative findings put together can bring about the best and accurate diagnosis of intestinal obstruction. Intestinal obstruction with tuberculosis of the intestine is more likely to develop postoperative complications, proper anti-tubercular management is necessary to prevent mortality and morbidity.

Keywords: Acute Intestinal Obstruction, Tertiary care hospital.

INTRODUCTION

Intestinal obstruction is a common surgical emergency all over the world. It is defined as an obstruction in forwarding propulsion of the contents due to the mechanical or neurological cause. It is predisposed by varied underlying anomalies and diseases, which are difficult to define preoperatively. The knowledge of acute intestinal obstruction dates back to antiquity [1]. Sushruta 6th century B.C. wrote oldest known descriptions of bowel surgery. He described using a cautery over the swelling of strangulated hernias used the mandibles of black ants to clamp the edges of bowel wounds together. Galen (131-201) in performing several abdominal procedures as surgeon to the Roman gladiators, he observed and described the anatomy of the small intestine [2]. Although intestinal obstruction can be diagnosed easily, the underlying cause except for postoperative adhesions and external hernias are difficult to be diagnosed preoperatively as the spectrum of intestinal obstruction is changing. the mortality due to acute intestinal obstruction is decreasing with a better understanding of pathophysiology, improvement in diagnostic techniques, fluid and electrolyte correction, more potent antimicrobials and knowledge of intensive care, but still, the mortality ranges from 10-15% and more so in developing countries. Various studies in India report about 6-12% in recent time mortality is usually seen in elderly individuals who seek late treatment and who are having associated pre-existing diseases like, diabetes mellitus, COPD and cardiac diseases. The most critical factor affecting the outcome is whether obstruction has progressed to the point of strangulation. The accurate and early recognition of intestinal ischemia and emergency surgical intervention is essential in patients with mechanical small bowel obstruction to prevent strangulation and further complications. Early diagnosis of obstruction, skillful operative management,

proper technique during surgery and intensive postoperative treatment carries a graceful result. This study was done to determine the etiology, clinical features, and management of acute intestinal obstruction.

MATERIALS AND METHODS

The cross-sectional study was conducted at the Department of General Surgery, Prathima Institute of Medical Sciences, Karimnagar. Institutional Ethical committee permission was obtained for the study. Inclusion criteria: all patients presenting to the emergency wing of the surgical department with features of intestinal obstruction were taken up for study. Exclusion criteria: Patients with sub-acute intestinal obstruction treated conservatively are excluded from the study. A total of hundred patients belonging to both sex groups were included in the study. All patients were evaluated thoroughly from their history and clinical examination. The routine examination includes hemoglobin percentage, blood grouping and typing, WBC count and differential count, ESR and blood urea, serum creatinine, serum electrolytes. Plain x-ray erect abdomen to detect fluid gas levels, ultrasound abdomen was done in all cases. CT scan abdomen was done in selected cases of the mass abdomen with investigations being carried out on one side; these patients were put on Nil by Mouth [NBM] Status since admission. Abdominal decompression was carried out with the nasogastric tube on continuous drainage. Resuscitative measures were carried out on all patients vigorously with I.V. fluids for the correction of the dehydration status and electrolyte imbalance. All patients were assessed on half hourly basis for their general condition and signs of progression. Patients were monitored on with the following- Pulse rate- for tachycardia, Abdomen for signs of tenderness and guarding. Progression of abdominal distension with hourly abdominal girth chart Hydration status using urine output. Presenting with post-operative adhesive intestinal obstruction was initially put on nonoperative management with close monitoring. The expectant line of management was carried out for not more than 36 hours. Patients presenting with obstructed hernia were not subjected to manual reduction of hernial sac, neither were these patients put on the expectant line of management to avoid the risk of strangulation. Patients on the expectant line of management are found to develop the following signs, Rebound tenderness, Guarding, Persistent tachycardia, Faeculent Ryles tube aspirate Either singly or in a combination of these, patients are taken up for emergency exploratory laparotomy. History of hernial swellings was elicited and the duration of the irreducibility of the hernial swelling noted down. The clinical suspicion of strangulation was then compared with operative findings and analyzed for the reliability of the diagnosis. The classic signs of strangulation namely rebound tenderness, guarding, tachycardia; leucocytosis and the presence of continuous persistent pain were analyzed. Patients with signs and symptoms of acute obstruction were managed by appropriate surgical procedure after resuscitation and the diagnosis was established. The postoperative period was monitored carefully and all parameters were recorded hourly or fourth hourly basis depending upon the patients' general condition and toxemia. Routine intermittent oxygen inhalation was instituted in patients having strangulation of the bowel to reduce the damage induced by ischemia. Postoperative follow up was done in the majority of the patients until their discharge from hospital and subsequently called for follow up after 15 days up to 6 months. Most of the patients did not come for follow up after one or two visits.

RESULTS

A total of 100 Cases who got admitted in Prathima Institute of Medical Sciences with clinical features of intestinal obstruction are included in the study. The most common involved age group was 31 - 40 has 40% of the patients followed by 14 – 50 has 38% of the patients the results are as shown in Table-1.

Table-1: Age and sex wise distribution of the patients involved in the study

Age group (yrs)	Male	Female	Total (%)
12 – 20	1	0	1
21 – 30	3	2	5
31 – 40	32	8	40
41 – 50	28	10	38
51 – 60	9	4	13
> 60	3	0	3
Total	76	24	100

All patients in the study group were evaluated for the presence of the cardinal symptoms of intestinal obstruction namely colicky abdominal pain, vomiting, abdomen distension and constipation all patients had an abdominal pain of varying duration with a patient complaints being of 7 days duration. Pain abdomen was either diffuse and crampy or dull aching in the region of the lower abdomen as in the case of patients with the obstructed hernia. Some patients had various symptoms like the passing of loose stools or altered bowel habits especially in patients with malignancy shown in Figure-1.

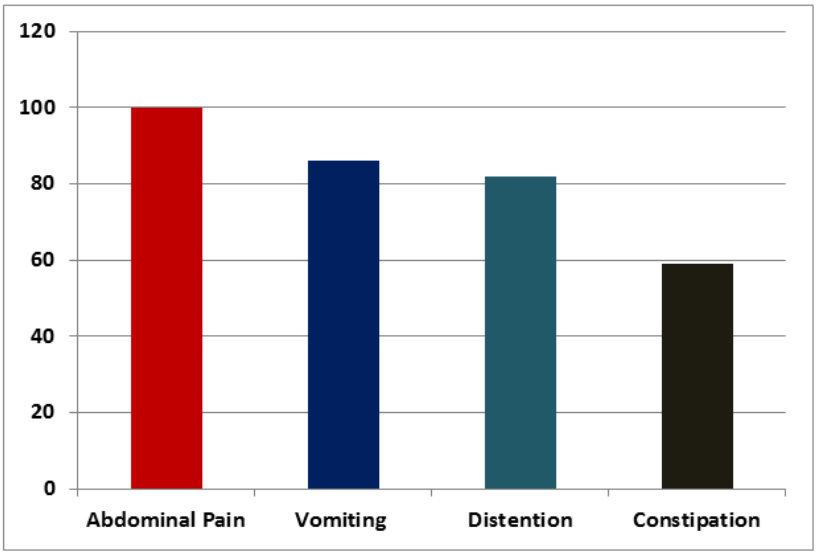

Fig-1: Showing the symptoms of patients involved in the study

Patients were evaluated for the various presenting features and results were tabulated. The patterns of clinical signs among these patients were variable with only 45% of patients presenting with rebound tenderness and 35% of patients had exaggerated bowel sounds. Visible peristalsis was noted in nine patients 37 patients had tachycardia > 100 beats/min (Table-2).

Table-2: Physical findings in the patients after clinical examination

	Male	Female	Total (%)
Tachycardia	10	17	37
Rebound Tenderness	24	21	45
Guarding	10	19	29
Bowel Sounds Absent	17	8	25
Bowel Sounds Normal	30	10	40
Bowel Sound Exaggerated	29	6	35
Visible Peristalsis	5	4	9

Adhesions are the most common cause of intestinal obstruction accounting for 36% of the cases, with the obstructed hernia being the next common cause accounting for 29% of patients. Out of 29 cases of obstructed hernia, 25 cases were due to an inguinal hernia, 1 in the femoral region, 1 an umbilical hernia and the rest due to an incisional hernia 13 patients had presented with sigmoid volvulus. Malignancy of the large bowel was found to cause obstructive features with a single case being due to ascending colon growth, one case of small bowel tumor and the 7 is due to rectosigmoid growth, 2 descending colon, thus a total of 11 cases of malignant obstruction.

Table-3: The diagnosis and operative procedures performed in the patients

Disease	Operation	Male	Female	Total (%)
Adhesions	Adhesiolysis/ Resection & Anastomosis	27	9	36
Obstructed Hernia	Herniorrhaphy	23	6	29
Sigmoid volvulus	Resection & Anastomosis	10	2	12
	Hartmann's Procedure	1	0	1
Malignancy	Resection & Anastomosis	5	3	8
	Bypass	2	1	3
Mesenteric Ischemia	Resection & Anastomosis	2	0	2
	Double barrel ileostomy	1	0	1
	Jejunostomy	0	1	1
Intestinal tuberculosis	Adhesiolysis/ Resection & Anastomosis	3	2	5
Meckel's Diverticulum	Diverticulectomy with restoration	2	0	2

39 patients who underwent surgical procedure had no complications. 25 patients had wound infection with wound gaping and had to be treated with secondary suturing. 8 patients who underwent surgery expired with an overall mortality rate of 8 %. Three patients who expired had sigmoid volvulus, one had multiple adhesions, and one patient with obstructed femoral hernia 2 patients had an anastomotic leak. A hospital stay of the patients ranged from 1 to 30days with mean hospital stay being 8 days (Figure-2).

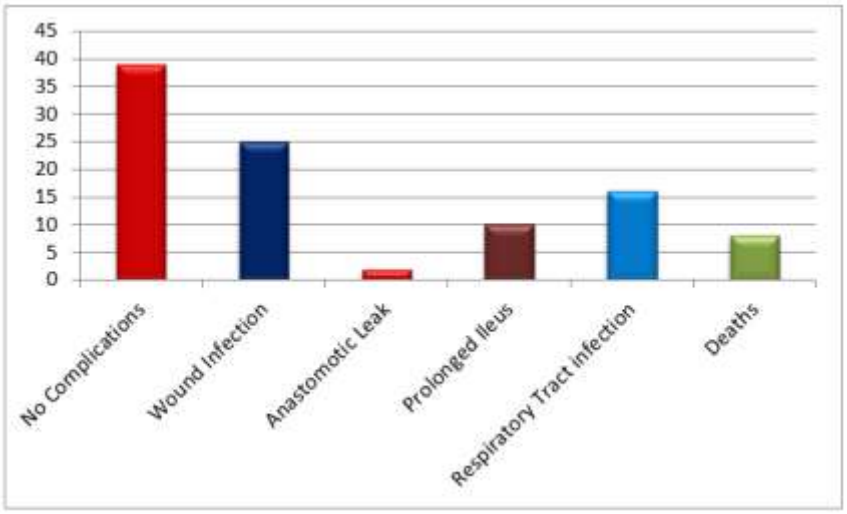

Fig-2: showing the complications following surgical procedures

DISCUSSION

Acute mechanical bowel obstruction remains a frequently encountered problem in abdominal surgery and it is a common surgical emergency, it is a common cause of admissions to hospital emergency surgical departments with varying etiology [3, 4]. The majority of the patients in the present study presented with acute mechanical small bowel obstruction which correlates with studies indicating that small bowel obstruction accounts for about 80% of all obstruction cases [5]. Manifestations of it can range from abdominal discomfort in the form of abdominal pain and distension to a state of Hypovolemic Shock/Septicemic shock as both require an emergency surgery. The delay in the treatment will lead to high mortality. With the advancement in understanding of the fluid and electrolyte physiology and management along with modern antibiotics and intensive care unit, the mortality has been decreasing consistently. The associated medical condition like Respiratory, Cardiac, and Metabolic Diseases with advanced age carries a considerable contribution in adding the mortality. Although intestinal obstruction was present in all age groups, in this study the majority of the cases in the present study belonged to the age groups between 31-40 & 41-50 years. Among these age groups, the common causes for intestinal obstruction were adhesions and obstructed a hernia. This correlates with the findings of Adhikari S *et al*., [6] Arshad M *et al*., [7]. In this study with males outnumbered the females by the ratio of 3:1. The causes may be generally groin hernias are more in males than females, this correlates with the above-mentioned studies. Another reason could be women in rural India are mostly housewives; limit their exposure to TB bacilli in contrast to males. In this regard, our study correlates with the study of Alexander *et al*., [8] (3:1) and Adhikari S *et al*., [6] 3:1. Malignancies of GI Tract are also most common in males. The frequency of symptoms in patients presenting with intestinal obstruction was almost similar to the reported values in Buecther KJ *et al*., [9] and P Mutcha *et al*., [3] studies. The most common clinical presentation in this study is an abdominal pain (100%), followed by vomiting (86%). If distension of mild degree was to be ignored, then only 82% of patients had to be graded as having distension. Patients with obstructed hernia presenting late had distension of moderate degree. Adhesive intestinal obstruction had emerged has the most common cause of intestinal obstruction in our study. In the early 20th century adhesions accounted for less than 10% of intestinal obstruction in accordance to Vick *et al*., [10] more recent reviews have found adhesions for 40 to 66% of all episodes of small bowel obstructions. Adhesions can form after any abdominal procedures; about 5% of patients undergoing laparotomy develop abdominal adhesions, and of these 10 to 30% suffer recurrent episodes of bowel obstruction. Some operative procedures such as appendectomy, hysterectomy, and small bowel resection are more common precursor operations to adhesive obstruction.

Our hospital is a tertiary hospital, which might be the cause of an increased number of sigmoid volvulus cases in comparison with other causes of obstruction. The etiology has been attributed to a high fiber diet in certain populations, although it also occurs in elderly patients on low residue diet especially those excessively using laxatives. Other contributory factors

include the presence of adhesive bands, high altitude, and megacolon. The incidence of Meckel's diverticulum, its complications are3-4 times more frequent in males. Globally the incidence of complications ranges from 4% to 16%. The risk of complications decreases with increasing age. The most frequent complications in adults are obstruction due to the intussusceptions or adhesive band, ulceration, diverticulitis and perforation. Meckel's Diverticulum is the rare cause of Intestinal obstruction. In the present study, these cases account for 2%. Intestinal Tuberculosis presenting as intestinal obstruction were present study is 5%. It is 24.1% in Arshad M *et al*., [7] 14.1% In Adhikari S *et al*., [6] which shows the high prevalence of Tuberculosis in developing countries like India.

In the present study, wound infection contributed to 25% that also influenced the postoperative hospital stay. It was 11.98% in Adhikari S *et al*., [6] and 18.5% in Alexander et al; [8] Most of the wound infections occurred in cases of sigmoid volvulus where ischemia occurred and the other causes are mesenteric ischemia, Intestinal TB, and malignancy. Postoperative mortality following definite surgery was 8%, which compares favorably with other recent series. The mortality was seen in patients with strangulated bowel obstruction & death occurred due to the intra-peritoneal sepsis. All deaths were observed in patients above 40 years. The mortality rates range from 5.8% in non- gangrenous bowel obstruction to as high as 37% in cases of strangulation [11]. Brolin RE *et al*., [12] in their series showed an increase in the postoperative complication rate in patients operated on more than 24 hours after admission with the incidence of mortality is 7.7%. Mc Entee G *et al*., [13] reported an overall mortality of 11.4%. An attempt is made to define the optimal strategy for managing intestinal obstruction; various causes reviewed which determine the pattern and outcome of the patient.

CONCLUSION

Patients with a clinical picture of obstruction of the bowel demand vigorous correction of fluid and electrolytes, which can be severe, and life-threatening. Abdominal pain, vomiting, and abdominal distension were presenting symptoms in the majority of patients. Clinical-radiological and operative findings put together can bring about the best and accurate diagnosis of intestinal obstruction. Intestinal obstruction with tuberculosis of the intestine is more likely to develop postoperative complications, proper anti-tubercular management is necessary to prevent mortality and morbidity.

Conflict of Interest: None

Source of support: Nil

Ethical Permission: Obtained

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