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Surgery

CLINICAL STUDY OF SURGICAL MANAGEMENT OF ACUTE INTESTINAL OBSTRUCTION IN THE ADULTS

Dr. Om Prakash* MBBS, M.S. (Gen. Surgery), Senior Resident, Department Surgery, All India Institute of Medical Sciences (AIIMS), New Delhi. *Corresponding Author

Dr. [Prof.] Rajinder Parshad M.S. (Gen. Surgery), Professor, Department Surgery, All India Institute of Medical Sciences (AIIMS), New Delhi.

ABSTRACT

Background: Acute Intestinal obstruction is defined as an obstruction in forwarding propulsion of the contents due to mechanical or neurological causes. Present study was aimed to evaluate the etiology, clinical presentation, surgical management and outcomes in patients with acute intestinal obstruction at our institution.

Material and Methods: Present study was retrospective study conducted in patients >18 years age, diagnosed as case of intestinal obstruction, underwent emergency laparotomy for acute intestinal obstruction.

Results: In present study, total 92 cases were studied. male predominance (72.83 %) was noted and male to female ratio was 2.68:1. Most common age group was between 41-50 years (26.09%) followed by 51-60 years (20.65%) and 61-70 years (16.3%) age group. In present study most common sign and symptoms were abdominal tenderness (89.13 %), abdominal pain (85.87 %), vomiting (83.7 %), abdominal distension (75 %) and constipation (60.87 %). In present study most common etiology noted was adhesive obstruction (41.3 %), obstructed inguinal hernia (27.17 %), incisional hernia (9.78 %) and sigmoid volvulus (6.52 %). Other less common causes were ileocecal tuberculosis (3.26 %), ascending and descending colon growth (3.26 %), rectum/anal canal growth (3.26 %), sigmoid colon growth (2.17 %), internal hernia (2.17 %) and intussusception (1.09 %). Adhesiolysis + Resection Anastomosis (44.57 %) was most common surgical procedure followed by herniorrhaphy (36.96 %) and resection anastomosis (15.22 %). Sepsis (15.22 %), urinary tract infection (13.04 %), wound infection (11.96 %), basal atelectasis (6.52 %) and burst abdomen (6.52 %) were common complications noted in post-operative period. In present study 9.72% mortality was noted.

Conclusion: Success in the treatment of acute bowel obstruction depends mainly on the early diagnosis and efficient management and treating the pathological effects of the obstruction as much as the treatment of the cause itself.

KEYWORDS : acute bowel obstruction, intra-abdominal adhesions, obstructed hernia, resection anastomosis

INTRODUCTION

Acute Intestinal obstruction is defined as an obstruction in forwarding propulsion of the contents due to mechanical or neurological causes, is a common surgical emergency all over the world.[1] Obstruction may occur in the small bowel or large bowel. Small bowel obstruction is mainly of two types, mechanical (physical block or obstruction) and functional obstruction (disturbances in gut motility also known as ileus). Large bowel obstruction can result from either mechanical interruption or due to dilation of the colon in the absence of an anatomic lesion.

Intussusception is a unique type of obstruction that results from invagination of a segment of bowel into another.[2]

Bowel obstruction in young age, in unscarred abdomen and large bowel obstruction needs early surgery. Early recognition and aggressive treatment can prevent irreversible ischemia and trans mural necrosis, thereby decreasing mortality and long-term morbidity. Although the mortality due to acute intestinal obstruction is decreasing due to better understanding of pathophysiology, improved diagnostic techniques, fluid and electrolyte correction, more potent anti-microbials and knowledge of intensive care, still the mortality ranges from 10-15% and more so in developing countries.[3]

Despite the advancements in the field of medicine, introduction of a safe surgery checklist, improved monitoring and related safety practices during anesthesia, surgical technique, and conservative management, the surgical management outcome of intestinal obstruction remains a challenge to the healthcare system.[4] Present study was aimed to evaluate the etiology, clinical presentation, surgical management and outcomes in patients with acute intestinal obstruction at our institution.

MATERIAL AND METHODS

Present study was retrospective study conducted in patients who underwent emergency laparotomy for acute intestinal obstruction in Department of Surgery, All India Institute of Medical Sciences (AIIMS), New Delhi. Study period was of 2 years (from March 2018 to February 2019).

INCLUSION CRITERIA

Patients >18 years age, diagnosed as case of intestinal obstruction, underwent emergency laparotomy for acute intestinal obstruction

EXCLUSION CRITERIA

- Adynamic intestinal obstruction cases due to peritonitis or paralytic ileus
- Patients undergoing conservative management.

Various details such as demographic, clinical, laboratory, radiological, intra-operative, postoperative course and histopathological findings were collected from case papers. Patients underwent various operative procedures depending on the intraoperative findings. Post-operative follow up till six months was collected. Statistical analysis was done using descriptive statistics.

RESULTS

In present study, total 92 cases were studied. Male predominance (72.83 %) was noted and male to female ratio was 2.68:1. Most common age group was between 41- 50 years (26.09%) followed by 51-60 years (20.65%) and 61-70 years (16.3%) age group.

Table 1 : Age and Gender Incidence

Age (years)	Male (%)	Female (%)	Total (%)
19-30	6(6.52%)	2(2.17%)	8(8.7%)
31-40	9(9.78%)	3(3.26%)	12(13.04%)
41-50	17(18.48%)	7(7.61%)	24(26.0%)
51-60	13(14.13%)	6(6.52%)	19(20.65%)
61-70	11(11.96%)	4(4.35%)	15(16.3%)
71-80	8(8.7%)	3(3.26%)	11(11.96%)
≥81	3(3.26%)	0	3(3.26%)
Total	67(72.83%)	25(27.17%)	92

In present study most common sign and symptoms were abdominal tenderness (89.13 %), abdominal pain (85.87 %), vomiting (83.7 %), abdominal distension (75 %) and constipation (60.87 %).

Table 2 : Sign and Symptoms

Sign and symptoms	No. of cases	Percentage
Abdominal tenderness	82	89.13%
Abdominal pain	79	85.87%
Vomiting	77	83.7%
Abdominal distension	69	75.0%
Constipation	56	60.87%
Increases bowel sounds	49	53.26%
Decreased or absent bowel sounds	35	38.04%

Abdominal rigidity	25	27.17%
Groin swelling	11	11.96%

In present study most common etiology noted was adhesive obstruction (41.3 %), obstructed inguinal hernia (27.17 %), incisional hernia (9.78 %) and sigmoid volvulus (6.52 %). Other less common causes were ileocecal tuberculosis (3.26 %), ascending and descending colon growth (3.26 %), rectum/anal canal growth (3.26 %), sigmoid colon growth (2.17 %), internal hernia (2.17 %) and intussusception (1.09 %).

Table 3 : Etiology of intestinal obstruction

Etiology	No. of cases	Percentage
Adhesive obstruction	38	41.3%
Obstructed inguinal hernia	25	27.17%
Incisional hernia	9	9.78%
Sigmoid volvulus	6	6.52%
Ileocecal tuberculosis	3	3.26%
Ascending and descending colon growth	3	3.26%
Rectum/anal canal growth	3	3.26%
Sigmoid colon growth	2	2.17%
Internal hernia	2	2.17%
Intussusception	1	1.09%

Adhesiolysis + Resection Anastomosis (44.57 %) was most common surgical procedure followed by herniorrhaphy (36.96 %) and resection anastomosis (15.22 %).

Table 4 : Type of surgery operations

Procedures	No. of cases	Percentage
Adhesiolysis + Resection Anastomosis	41	44.57%
Herniorrhaphy	34	36.96%
Resection and Anastomosis	14	15.22%
Hartman's Procedure	6	6.52%
Double barrel ileostomy	3	3.26%
Jejunostomy	2	2.17%
Colostomy	11	11.96%
Hemicolectomy	6	6.52%

Sepsis (15.22 %), urinary tract infection (13.04 %), wound infection (11.96 %), basal atelectasis (6.52 %) and burst abdomen (6.52 %) were common complications noted in post-operative period. In present study 9.72% mortality was noted.

Table 5 : Post-operative complications

Type of postoperative complication	No. of cases	Percentage
Sepsis	14	15.22%
Urinary tract infection	12	13.04%
Wound infection	11	11.96%
Basal atelectasis	6	6.52%
Burst abdomen	6	6.52%

DISCUSSION

Clinical presentation of pain, vomiting, distension and constipation, laboratory and radiographic factors should all be considered when making a decision about treatment of bowel obstruction. Late presentation, inadequate preoperative resuscitation and delayed operation have been found to have a significant effect on prognosis.[5] In present study, most common age group was Most common age group was between 41- 50 years (26.09%) followed by 51- 60 years (20.65%) and male predominance (72.83%) was noted. It is consistent with the study conducted by Souvik et al.[6] and Deshmukh et al.[7.] The aetiological pattern of dynamic bowel obstruction has been reported to vary from one geographical area to another and different parts of the same country. In present study most common etiology noted was adhesive obstruction (41.3 %), obstructed inguinal hernia (27.17 %), incisional hernia (9.78 %) and sigmoid volvulus (6.52 %). Findings of etiology of present study was comparable with other study groups like Thampi et al.[8] and Gayathri V et al.[9] A study conducted by Adhikari S et al.,[10] in eastern India showed that hernias were the most common cause of intestinal obstruction. In study by Priscilla SB et al.,[11] large intestine obstruction was found in 17% cases and small intestine obstruction was found in 83 % cases. Obstructed inguinal hernia was the most common cause of acute intestinal obstruction.

Arun Katari[12] studied 50 patients, 44% of patients had rebound tenderness and 36% had exaggerated bowel sounds. Postoperative adhesions (36%) was most common cause of intestinal obstruction followed by obstructed hernia (30%) and sigmoid volvulus (14%). Among cases of obstructed hernia (n=14), inguinal hernia (n=8), femoral hernia (n=1), umbilical hernia (n=1) and incisional hernia (n=4) were causes. Junaid Alam et al., studied acute intestinal obstruction in 263 patients, noted males preponderance (66.15%) and commonest age group affected was 41-50 years. Abdominal pain was the most common presenting symptom followed by abdominal distension. Most common radiological finding was multiple air fluid levels seen on Xray abdomen. Main cause of obstruction was ileocecal tuberculosis followed by Adhesions and Bands. Small bowel obstruction was present in 81.36% cases and large bowel obstruction in 18.63% cases. The most common surgical procedure was segmental bowel resection with end to end anastomosis.

Most of the cases recovered without any complications (78.32%). Wound dehiscence, burst abdomen was the major cause of morbidity. 5.32% mortality rate was reported. commonly seen in patients with strangulated hernia and increased age. Similar findings were noted in present study. In study by Janga J et al.,[14] incidence of acute intestinal obstruction was 3%, with a M: F ratio of 1.38:1. The commonest age group affected was 31-40 years. Major cause of obstruction was obstructed hernia (36%) followed by adhesions and bands (26%), sigmoid volvulus (12%), TB abdomen (8%) and malignant obstruction (6%). Surgery was the mainstay of treatment, with herniorrhaphy, adhesiolysis and resection - anastomosis being the most commonly performed procedures. Post-operative complications noted were – wound infection (12%), respiratory infection (6%) and prolonged ileus (6%). In the present study of 50 cases, 5 patients (10%) died due to septicemia and MODS. Similar findings were noted in present study. In study by Gadhavi JM.,15 management of small bowl obstruction was adhesiolysis (n=14), resection and anastomosis (n=8), hernia repair (n=8) followed by resection, volvulus derotation (n=2) and Mekels diverticulectomy (n=2). For the management of large bowl obstruction colostomy (n=8), resection and anastomosis (n=4), intussusceptions milking (n=2), volvulus derotation (n=2) and right hemicolectomy (n=4). Emergency surgical intervention is considered to be the standard treatment of choice for patients with dynamic (mechanical) bowel obstruction.

Majority of patients in this study underwent emergency surgical treatment. One of the many factors affecting the surgical outcome in patients with dynamic bowel obstruction is time interval between duration of onset of bowel obstruction and surgical intervention.[10] Early diagnosis of obstruction, skillful operative management, proper technique during surgery, and intensive postoperative treatment carries a grateful result.

CONCLUSION

Success in the treatment of acute bowel obstruction depends mainly on the early diagnosis and efficient management and treating the pathological effects of the obstruction as much as the treatment of the cause itself.

Males are commonly affected mostly during their fifth decade. Intra-abdominal adhesions remains to be the most common cause followed by obstructed/strangulated inguinal hernia.

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