

**Evaluation of the Etiology, Clinical Presentation, Surgical Management and Outcomes in Patients with Acute Intestinal Obstruction**Kumar Gaurav<sup>1</sup>, G. C. Karan<sup>2</sup><sup>1</sup>Senior Resident, Department of Surgery, IMS, BHU, Varanasi, UP<sup>2</sup>Professor, Upgraded Department of Surgery, Darbhanga Medical College and Hospital, Laheriasarai, Bihar

Received: 25-05-2024 / Revised: 23-06-2024 / Accepted: 26-07-2024

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Conflict of interest: Nil

**Abstract:**

**Background:** An obstruction in the forward propulsion of the contents resulting from neurological or mechanical reasons is known as an acute intestinal obstruction. The purpose of the current study was to assess the causes, clinical manifestations, surgical techniques, and results in our institution's acute intestinal obstruction patients.

**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.

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**Introduction**

Acute intestinal blockage, which is a common surgical emergency worldwide, is described as a restriction in the forward passage of the contents resulting from mechanical or neurological causes. [1] Either the large or small bowel may become obstructed. There are two basic types of small intestinal obstruction: functional obstruction (disturbances in gut motility, often known as ileus) and mechanical obstruction (physical barrier or obstruction).

Either a mechanical obstruction or colon dilatation in the absence of an anatomic lesion can cause large bowel obstruction. 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 transmural 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 retrospective study was conducted in patients who underwent emergency laparotomy for acute intestinal obstruction in Upgraded Department of Surgery, Darbhanga Medical College and Hospital, Laheriasarai, Bihar from October 2016 to September 2027.

### 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%) were 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 bowel obstruction was adhesiolysis (n=14), resection and anastomosis (n=8), hernia repair (n=8) followed by resection, volvulus derotation (n=2) and Meckel's diverticulectomy (n=2).

For the management of large bowel 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

The key to successfully treating acute intestinal obstruction is early identification, effective management, and treating the obstruction's pathological effects in addition to the obstruction's underlying cause. The majority of affected males are typically in their fifth decade. The most frequent cause is still intra-abdominal adhesions, which are followed by obstructed or strangulated intestinal hernias.

### References

1. Camilleri M, Parkman HP, Shafi MA, et al. American College of Gastroenterology. Clinical guideline: management of gastroparesis. *Am J Gastroenterol.* 2013; 108(1):18-37.
2. Schwenter F, Poletti P, Platon A, Perneger T, Morel P, Gervaz P. Clinicoradiological score for predicting the risk of strangulated small bowel obstruction. *British Journal of Surgery.* 2010; 97(7):1119-1125.
3. Arshad M Malik, Madiha Shah, Rafiquepa-than, Krishansufi. the pattern of acute intestinal obstruction: is there a change in underlying etiology? *The Saudi Journal of Gastroenterology* 2010, 16(4):272-74.
4. B. Trilling, E. Girard, P. Waroquet, and C. Arvieux, "Intestinal obstruction, an overview," *Revue de L'infirmière*, vol. 217, pp. 16-18, 2016.
5. Zielinski MD, Eiken PW, Bannon MP, Heller SF, Lohse CM, Huebner M, Sarr MG. Small bowel obstruction-who needs an operation? A multivariate prediction model. *World J Surg.* 2010; 34:910-19.
6. Souvik A, Zahid Hossein M, Amitabha D, Nilanjan M, Udipta R. Etiology and Outcome of Acute Intestinal Obstruction: A Review of 367 Patients in Eastern India. *Saudi J Gastroenterol off J Saudi Gastroenterol Assoc.* 2010 Oct; 16(4):285-7.
7. Deshmukh SN, Maske AN. Pattern of dynamic intestinal obstruction in adults at tertiary care centre. *Int Surg J.* 2016 Dec 8; 3(2):492-6.
8. Thampi D, Tukka VN, Bhalki N, Sreekantha, Remya SSA. A clinical study of surgical management of acute intestinal obstruction. *Int J Res Health Sci.* 2014; 2(1):299-308.
9. Gayathri V, Mali P, Harindranath HR. A clinical study of surgical management of acute intestinal obstruction. *Int Surg J* 2018; 5:3342-5.
10. Adhikari S, Hossein MZ, Das A, Mitra N. Etiology and outcome of acute intestinal obstruction: A review of 367 patients in Eastern India. *Saudi J Gastroenterol.* 2010;16(4):285-7.
11. Priscilla SB, Edwin IA, Kumar K, Gobinath M, Arvindraj VM, Anandan H. A Clinical Study on Acute Intestinal Obstruction. *Int J Sci Stud* 2017; 5(2):107-110.
12. Arun Katari, M Ramu, A clinical study on surgical management of acute intestinal obstruction, *J Cont Med A Dent Sept-Dec 2020 Volume 8 Issue 3*
13. Junaid Alam et al. 'A Clinical Study of Acute Intestinal Obstruction in Adults at A Tertiary Care Centre in North India', *International Journal of Current Advanced Research*, 2017, 06(12), pp. 8616-8621.
14. Janga Jayaram, Sreeram Seshadri, Sai Praneeth Reddy, Clinical study and management of

- acute intestinal obstruction, International Journal of Surgery Science 2019; 3(3): 423-426.
15. Gadhavi JM, Charpot R. Clinical study and surgical management of acute intestinal obstruction in the adults. Int Surg J 2020; 7:3703-6.