ISSN: 0975-3583,0976-2833 VOL14, ISSUE 01, 2023

Study of clinical profile & surgical management of acute intestinal obstruction in adults at a tertiary hospital

Milind Ramdas Patil[1], Suhas Sopan Borle[2], Hemant Sharad Kelkar[3], Sanjiv M Huzurbazar[4]

[1]Associate Professor, Department of General Surgery, Dr Ulhas Patil Medical College & Hospital, Jalgaon, Maharashtra, India.
[2]Associate Professor, Department of General Surgery, Dr Ulhas Patil Medical College & Hospital, Jalgaon, Maharashtra, India.
[3]Assistant Professor, Department of General Surgery, Dr Ulhas Patil Medical College & Hospital, Jalgaon, Maharashtra, India.
[4]Associate Professor, Department of General Surgery, Dr Ulhas Patil Medical College & Hospital, Jalgaon, Maharashtra, India.

Received Date: 17/10/2022 Acceptance Date: 06/01/2023

Abstract

Background: Acute intestinal obstruction due to interruption in the forward flow of the intestinal contents is one of the commonest life-threatening emergencies all around the world requiring emergency management. Present study was aimed study clinical profile & surgical management of acute intestinal obstruction in adults at a tertiary hospital. **Material and Methods:** Present study was single-center, prospective, observational study, conducted in patients of age 19-80 years, of either gender, diagnosed as acute intestinal obstruction, underwent surgery. **Results:** In present study 98 patients underwent surgery for acute intestinal obstruction. Majority were from age group was 40-60 years (57.14 %), were male (60.2 %). Previous abdominal surgery (43.88 %), diabetes (25.51 %), smoking (21.43 %), hypertension (17.35 %), bronchial asthma/COPD (11.22 %) & previous malignancy (7.14 %) were common comorbidities noted. In present study, common causes of intestinal obstruction were postoperative adhesions (39.8 %), malignancy (15.31 %), obstructed hernia (9.18 %), Koch's abdomen (8.16 %), mesenteric ischaemia/thrombosis (7.14 %), volvulus (5.1 %), diverticula (5.1 %), stricture (5.1 %), intussusception (4.08 %) & GIST (1.02 %). In present study, most common surgical procedures were adhesiolysis (39.8 %) followed by resection and anastomosis (23.47 %), diversion colostomy (14.29%) & hernioplasty (9.18 %) Fever (11.02 %) & wound infection (9.18 %) were most common post-operative complications noted. Post-operative mortality was 9.18 % (9 patients). **Conclusion:** Acute intestinal obstruction can be a major cause of morbidity and mortality. Intravenous fluids, nasogastric aspiration, broad spectrum antibiotics and correction of electrolyte imbalances before surgery followed by surgery remain the mainstay of initial treatment.

Keywords: Acute intestinal obstruction, adhesions, morbidity and mortality, surgery

Corresponding Author: Dr. Suhas Sopan Borle, Associate Professor, Department of General Surgery, Dr Ulhas Patil Medical College & Hospital, Jalgaon, Maharashtra, India.

Introduction

Acute intestinal obstruction due to interruption in the forward flow of the intestinal contents is one of the commonest life-threatening emergencies all around the world requiring emergency management.[1] Clinical radiological and operative findings put together can diagnose the intestinal obstruction.

Adhesions (postoperative or post-inflammatory), gallstone ileus (mechanical bowel obstruction), hernias, worm obstruction due to Ascaris lumbricoides, volvulus (an axial twist

ISSN: 0975-3583,0976-2833 VOL14, ISSUE 01, 2023

of the gastrointestinal tract around its mesentery) are frequent causes of intestinal obstruction.[2] Manifestations of acute intestinal obstruction can range from a fairly good appearance with only slight abdominal discomfort and distension to a state of hypovolemic or septic shock (or both) requiring an emergency operation

Although the mortality due to acute intestinal obstruction is decreasing with better understanding of pathophysiology, improvement in diagnostic techniques, fluid and electrolyte, correction, much potent anti-microbials and the knowledge of intensive care. Various studies in India report about 8-12% in recent times. Most of the mortalities occurs in elderly individuals who seek late treatment and who are having associated pre- existing comorbid conditions.[4] Present study was aimed study clinical profile & surgical management of acute intestinal obstruction in adults at a tertiary hospital.

Material And Methods

Present study was single-center, prospective, observational study, conducted in Department of General Surgery, Dr Ulhas Patil Medical College & Hospital, Jalgaon,, India. Study duration was of 2 years (January 2020 to December 2021). Study approval was obtained from institutional ethical committee.

Inclusion criteria

- Patients of age 19-80 years, of either gender, diagnosed as acute intestinal obstruction, underwent surgery, willing to participate in present study

Exclusion criteria

- Patients managed conservatively,
- Patients who were not fit for surgery
- Dynamic intestinal obstruction due to peritonitis, electrolyte imbalance and diabetes.
- Patients not willing to be a part of this study

Study was explained to patients in local language & written consent was taken for participation & study. A complete detailed history was obtained from the patient and documented in detailed enquiry. In physical examination evidence of dehydration and its severity were looked into and vital parameters were recorded. Systemic examination, abdominal examination & per rectal examination was done and findings were noted. Laboratory investigations such as CBC, BT, CT, Urine for albumin estimation and microscopy, LFT, RFT were done in all patients. Radiological examination such as erect abdomen X-ray is done in all cases, barium enema/ ultrasound examination/CT scan was done in selected cases.

Immediately after the admission resuscitation with IV fluids, Nasogastric decompression with Ryle's tube insertion is carried out and antibiotic prophylaxis is started. A close observation of all bedside parameters (like pulse rate, BP, RR, urine output, urine output, abdominal girth, bowel sounds and tenderness and guarding) was done. Patients with clear-cut signs and symptoms of acute obstruction had been managed by appropriate surgical procedure after initial resuscitation. Histopathological examination of the specimen of resection/biopsy was undertaken whenever necessary.

The postoperative period had been monitored carefully and all the parameters were recorded hourly or fourth hourly basis depending on the patient's general condition and toxemia. Postoperatively Nasogastric tube aspiration, intravenous fluids and antibiotics were administered. Any complications were noted and treated accordingly. Postoperative follow-up after the discharge of patients was done till 3 months. Data was collected and compiled using Microsoft Excel, analysed using SPSS 23.0 version. Statistical analysis was done using descriptive statistics.

ISSN: 0975-3583,0976-2833 VOL14, ISSUE 01, 2023

Results

In present study 98 patients underwent surgery for acute intestinal obstruction. Majority were from age group was 40-60 years (57.14 %), were male (60.2 %). Previous abdominal surgery (43.88 %), diabetes (25.51 %), smoking (21.43 %), hypertension (17.35 %), bronchial asthma/COPD (11.22 %) & previous malignancy (7.14 %) were common comorbidities noted.

Table 1: General characteristics

	No. of patients	**Percentage**
Age groups (in years)	6	6.12
19-29	14	14.29
30-39	15	15.31
40-49	31	31.63
50-59	25	25.51
60-69	7	7.14
70-80		
Gender		
Male	59	60.2
Female	39	39.8
Comorbidities		
Previous abdominal surgery	43	43.88
Diabetes	25	25.51
Smoking	21	21.43
Hypertension	17	17.35
Bronchial asthma/COPD	11	11.22
Previous malignancy	7	7.14
Coronary artery disease	6	6.12
Pulmonary tuberculosis	4	4.08
HIV	2	2.04
Chronic kidney disease	2	2.04

In present study, common causes of intestinal obstruction were postoperative adhesions (39.8 %), malignancy (15.31 %), obstructed hernia (9.18 %), Koch's abdomen (8.16 %), mesenteric ischaemia/thrombosis (7.14 %), volvulus (5.1 %), diverticula (5.1 %), stricture (5.1 %), intussusception (4.08 %) & GIST (1.02 %).

Table 3: Causes of obstruction.

Cause	**No. of patients**	**Percentage**
Adhesions/Band	39	39.8
Malignancy	15	15.31
obstructed hernia	9	9.18
Koch's Abdomen	8	8.16
Mesenteric Ischemia/Thrombosis	7	7.14
Volvulus	5	5.1
Diverticula	5	5.1
Stricture	5	5.1
Intussusception	4	4.08
GIST	1	1.02

ISSN: 0975-3583,0976-2833 VOL14, ISSUE 01, 2023

In present study, most common surgical procedures were adhesiolysis (39.8 %) followed by resection and anastomosis (23.47 %), diversion colostomy (14.29%) & hernioplasty (9.18 %)

Table 4: Surgical procedure

Surgical procedure	No. of cases	Percentage
Adhesiolysis	39	39.8
Resection and anastomosis	23	23.47
Diversion colostomy	14	14.29
hernioplasty	9	9.18
Sigmoidopexy	6	6.12
Sticturoplasty	5	5.1
Hartmann's procedure	2	2.04

Fever (11.22 %) & wound infection (9.18 %) were most common post-operative complications noted. Post-operative mortality was 9.18 % (9 patients). Majority of deaths were due to complications like septicemia, peritonitis, respiratory infection.

Table 4: Postoperative complications

Post-operative complications	No of patients	Percentage
Fever	11	11.22
Wound infection	9	9.18
Prolonged Ileus	8	8.16
Septicemia	7	7.14
Faecal Fistula	3	3.06
Burst Abdomen	3	3.06
Short Bowel Syndrome	1	1.02

Discussion

Symptoms of intestinal obstruction includes abdominal pain (colicky), vomiting, abdominal distension and obstipation (failure to pass flatus and faeces).[5] The classic physical examination findings in cases of intestinal obstruction include abdominal distension, tympany to percussion, and high-pitched bowel sounds suggest the diagnosis.[6]

Radiologic imaging can confirm the diagnosis, or may serve as a valuable adjunct when the diagnosis is uncertain. Although plain abdominal radiography is often the initial study, computed tomography (CT) is recommended if the index of suspicion is high or if suspicion persists despite negative radiography.[7] Complete obstruction typically is treated with immediate surgery, while partial obstruction seldom requires surgery. Patients with partial bowel obstruction may be treated conservatively with resuscitation and tube decompression alone.

In study by Gogineni JC et al.,[8] pain in abdomen and abdominal distension was the most common presenting complaints in 90% and 92% of the patients respectively. On palpation, 96% of the patients had abdominal tenderness, 72% of the patients had guarding and 12% of the patients had rigidity. On auscultation, all patients had some abnormality with regard to bowel sounds. It has been noted that intestinal strictures and abdominal adhesions were amongst the most common causes of intestinal obstruction.

Gayathri V et al.,[9] noted that adhesions (26%) were the most common cause followed by obstructed hernia (22%) for intestinal obstruction. The common age group was 51-60 years. The commonest symptom was abdominal pain followed by vomiting and constipation. The average duration of presentation was 2 days. Strangulation was found in 20% of cases. Mortality rate in the study was 16%.

ISSN: 0975-3583,0976-2833 VOL14, ISSUE 01, 2023

In study by Kirubagaran B et al.,[10] most common age group (22%) was more than 60 years of age with female preponderance (55.6%). Most common etiological factor was adhesion (26.67%), followed by hernia (23.3%). Among 120 suspected patients, those who had undergone CT abdomen (n = 59) showed 95.6% of sensitivity, 100% of specificity, and 96.6% of accuracy in comparison with abdomen X‐ray and ultrasonography abdomen. Forty‐two (46.7%) patients diagnosed with AIO were operated, while 32 (35.6%) patients were managed conservatively and the remaining 16 (17.8%) patients were discharged against medical advice. The mortality rate among the operated patients was 2.7% (n = 2).

Mohamed A et al.,[11] noted that maximum incidence was seen in 41-60 years age group with male predominance. Pain abdomen, constipation, abdominal distension and vomiting were present in majority of cases. Common aetiologias were external hernias, bands, adhesions, volvulus and colon cancer. Small bowel was involved in 64.7% cases and large bowel in 33.8%. Resection-anastomosis, adhesiolysis and hernioplasty were the common procedures done. Postoperative complications were seen in 20.47% of cases. The mortality rate was 8.09%.

Soressa et al.,[12] evaluated 262 patients, of which 94% of the patients underwent surgical management; 24.6% of the patients developed complications in the post-operative period. Of all the complications, 39.3% had wound infections post operatively which matches with our study. 17.8% had facial dehiscence, 12.5% had anastomotic leak, 10.7% developed pelvic complication or pneumonia and 8.9% developed septic shock.[17] Wound infection is greatly affected by size and depth of incision, site of surgery, antibiotic prophylaxis, instruments and type of suture material and wound closure technique. Smoking, hypertension, diabetes mellitus, obesity, immunosuppression and steroid use also play an important role in causing wound infection.[13]

Emergency surgical intervention is considered to be the standard treatment of choice for patients with dynamic (mechanical) bowel obstruction. 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.[14]

The overall mortality and morbidity of bowel obstruction is substantial. Therefore, better understanding of pathophysiology, improvement in diagnostic techniques, fluid and electrolyte correction, much potent antibiotics and knowledge of intensive care is required. Early recognition and timely intervention is important to prevent the bowel going for gangrenous changes. Early diagnosis of obstruction, skillful operative management, proper technique during surgery and intensive postoperative treatment carries a grateful result.

Conclusion

Acute intestinal obstruction can be a major cause of morbidity and mortality. Intravenous fluids, nasogastric aspiration, broad spectrum antibiotics and correction of electrolyte imbalances before surgery followed by surgery remain the mainstay of initial treatment. CECT abdomen proves to be a powerful tool and not just an adjunct in timely and accurate diagnosis and operative decision making.

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. Abhijeet Patil and Dhirendra Wagh . A Study on Clinical Profile & Management of Acute Intestinal Obstruction. Walawalkar International Medical Journal 2017; 4(1):10-27.
3. Arshad M Malik, Madiha Shah, Rafiquepathan, Krishansufi. the pattern of acute intestinal obstruction: is there a change in underlying etiology? The Saudi Journal of Gastroenterology 2010,16(4):272-74.

ISSN: 0975-3583,0976-2833 VOL14, ISSUE 01, 2023

4. Naveen N, Mukherjee A, Nataraj Y, LingeGowda S. A clinical study of intestinal obstruction and its surgical management in rural population. J Evol Med Dent Sci. 2013;2:3636-50.
5. Winslet MC: Intestinal obstruction. Bailey and Love's Short Practice of Surgery. Russell , Williams , Bulstrode (Editors) . Arnold International students edition 2004, 24th ed;1186-1202.
6. Jackson PG, Raiji MT. Evaluation and management of intestinal obstruction. Am Fam Physician. 2011;83(2):159-65.
7. Levsky JM, Den EI, DuBrow RA, Wolf EL, Rozenblit AM. CT findings of sigmoid volvulus. AJR Am J Roentgenol. 2010;194:136–143.
8. Gogineni JC, Tonape T, Athavale VS, Kumar S, Kutty SA, Sri Likhita K. A clinical study on the surgical management of intestinal obstruction. Int Surg J 2020;7:150-6.
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. Kirubagaran B, Abhilash KP, Sharma SL. A prospective study to determine the clinical profile of patients suspected to have acute intestinal obstruction in the emergency department. Curr Med Issues 2019;17:49-54.
11. Mohamed A, Sahoo N, Das SK, et al. Profile of operated acute intestinal obstruction patients at a tertiary health care institution. J. Evolution Med. Dent. Sci. 2017;6(15):1215-1219
12. Soressa U, Mamo A, Hiko D, Fentahun N. Prevalence, causes and management outcome of intestinal obstruction in Adama Hospital, Ethiopia. BMC Surg. 2016;16(1):38.
13. Satyanarayan V, Prashanth HV, Basavaraj B, Kavyashree AN. Study Of Surgical Site Infections In Abdominal Sugeries. Journal Of Clinical And Diagnostic Research. 2011;5:935-39.
14. 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.