



TO STUDY THE OUTCOME OF CLINICAL PROFILE AND MANAGEMENT IN ACUTE MECHANICAL INTESTINAL OBSTRUCTION

General Surgery

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ABSTRACT

Introduction : The most common and worrisome condition that surgeons often deal with is an acute mechanical intestinal obstruction. It is a major cause of illness and the ensuing financial strain on hospitals around the world, as well as a worrying factor for ED admissions. In order to properly identify intestinal blockage, provide timely care, and give appropriate and efficient medication, a clinical practitioner must move quickly. **Objectives:** With this context the present study tried to pinpoint & survey over the clinical aspects, etiopathology, management and end result of patients with Acute mechanical intestinal obstruction. **Methods:** This prospective observational study been conducted with convenience sampling method and after following strict inclusion and exclusion criteria took a sample size of 150 patients. **Result:** Statistical data analyzed with SPSS and STATA show that acute intestinal obstruction is a common surgical emergency across all ages, influenced by its origin. Modern techniques have replaced staged procedures, utilizing advancements in diagnostics, fluid management, antibiotics, gastrointestinal decompression, and new surgical methods like on-table lavage and primary anastomosis, enhancing complication prediction through technology. **Conclusion:** Clinical assessment skills, advanced investigative technologies, and timely treatments—such as correcting fluid deficits and electrolyte imbalances—combined with strong surgical skills, enable us to predict obstructions effectively, leading to higher cure rates and reduced morbidity and mortality.

KEYWORDS

Intestinal blockage; Acute mechanical bowel obstruction; Surgical principles.

INTRODUCTION :

Intestinal obstruction is a condition marked by inability of propulsion of content like gas, liquid or semisolid content in the small or large bowel, which can be complete or partial. Its causes can be categorized into mechanical and functional/paralytic obstruction, and it can occur in different bowel locations: distal small intestine, large intestine, or proximal small intestine. Additionally, obstruction may result from compromised vascular supply, leading to strangulation, which must be differentiated from simple obstruction.

Patients typically present with abdominal pain, vomiting, constipation, and distension, necessitating prompt assessment, resuscitation, and skilled evaluation for surgical intervention. Surgeons must be prepared to address unexpected aetiologies during emergency procedures.

Aim And Objectives

Aim:

To pinpoint & survey over the clinical aspects, etiopathology, management and end result of pts. with acute mechanical bowel obstruction

Objectives:

1. To study the various aspects of presentation, various causes of acute mechanical intestinal obstruction.
2. To study the importance of early recognition, diagnosis & management of acute mechanical intestinal obstruction.
3. To study the influence of demographic profile in origin & development of acute intestinal obstruction.
4. To study the co-associated disease and death rates in acute mechanical intestinal obstruction.

MATERIALS & METHODS

Study design: The present study is a prospective observational study.

Study cases: All the patients with the diagnosis of acute mechanical intestinal obstruction (ambo) admitted in the department of General Surgery at Rajshree Medical Research Institute.

Sampling: Convenience sampling method been used over sample size of 150 patients.

Study duration: Eighteen months from period 11 September 2022 to 10 March 2024.

Inclusion Criteria:

The present study been conducted in the department of general surgery

with the basic criteria:

- Patients belonging to the age groups of 16 years and above.
- The criteria for selection of cases were on clinical history, physical findings, radiological and haematological investigations.

Exclusion Criteria:

- Patients who are not willing to be part of study.
- Age group patient below 16 year old.

Methodology

- a. Clinical study b. Investigations c. Treatment
- Patients with acute mechanical intestinal obstruction admitted to the surgery department was enrolled in this study, provided they meet the inclusion criteria. Data was collected using a defined proforma, and written informed consent was taken.
- Eligible patients were diagnosed based on history, clinical examinations, and laboratory investigations. Detailed histories and essential investigation were performed and accordingly treatment was planned i.e supportive or operative.
- Surgical management was indicated in cases of hemodynamic instability despite fluid resuscitation, recurrence of instability after initial stabilization, peritoneal signs, imaging evidence of bowel ischemia, necrosis, or perforation, and failure of conservative management after four days.
- Intraoperative findings was documented, including the etiology, incidence, and causes of bowel ischemia, necrosis, and perforation.

Statistical Methods:

Statistical Data Will be analyzed to calculate percentages and proportions by using Software SPSS Statistics on Microsoft Windows 10 version 23 .

1 Demographic Profiles :

1a - Age Indices

S.no	Age group(years)	Frequency (150 patients)	Percentage (%)
1	16-30	29	19.3
2	31-40	29	19.3
3	41-50	40	26.6
4	51-60	26	17.3
5	61-70	14	9.3
6	More than 71	12	8

The table shows the maximum incidence in the present study group is between age 41-50 years.

1B - Gender predominance

SEX	FREQUENCY	PERCENT
FEMALE	46	30.7
MALE	104	69.3
TOTAL	150	100.0

The above table show the sex distribution where the largest proportion of cases 69.3% been observed as male

1C - Diet History

DIET	FREQUENCY	PERCENT
MIXED	92	61.3
VEG	58	38.7
TOTAL	150	100.0

The table shows the distribution of diet where the highest proportion of observed instances consuming the mixed diet in 61.3% in 92 cases out of 150 patients.

1D- Socio Economic Status

SOCIO-ECONOMIC CONDITION	FREQUENCY	PERCENT
LOW	123	82.0
MIDDLE	27	18.0
TOTAL	150	100.0

The table show the distribution of socio-economic condition where the highest percentage i.e. 82% of cases been observed in low socioeconomic status.

2 Symptoms :A

SYMPTOMS	PRESENT (n=150)		ABSENT (n=150)	
PAIN ABDOMEN	143	95.3%	7	4.7%
ABDOMINAL DISTENSION	122	81.3%	28	18.7%
VOMITING	134	89.3%	16	10.7%
FEVER	12	8.0%	138	92.0%

The above table show the distribution of SYMPTOM where the highest percentage of cases 95.3%(143 patients) been observed to present with pain in abdomen , 81.3% abdominal distension,89.3% vomiting,8.0% fever.

2b Constipation/obstipation

CONSTIPATION/OBSTIPATION	FREQUENCY	PERCENT
CONSTIPATION	42	28.0
OBSTIPATION	108	72.0
	150	100

The above table the distribution of constipation/obstipation where the highest percentage of cases i.e. 72%(108 patients) been observed in obstipation category.

3 - Surgical History

SURGICAL HISTORY	n	%
NO SURGICAL HISTORY	128	85.33
SURGICAL HISTORY PRESENT	22	14.67
TOTAL	150	100

The table show the distribution of surgical history where the highest percentage of cases 85.33 been observed to have no surgical history.

4 - Vitals With Hospital Stay Status

MEAN	N	MEAN	STD. DEVIATION
PULSE	150	103.44	4.935
TEMPERATURE	150	98.701	1.229
SPO ₂	150	98.92	.608
HOSPITAL STAY	150	6.49	1.191

The table show the mean distribution of pulse as 103-104 per minutes, temperature as 98.7, SPO₂ as 98-99% and hospital stay period as 6-7 days. This mainly emphasis on the presentation status of patients with majority having tachycardia as presentation.

5- 5a Perabdomen Findings:

RIGIDITY/TENDERNESS/REBOUND TENDERNESS	FREQUENCY	PERCENT
REBOUND TENDERNESS	6	4.0
RIGIDITY	59	39.3
TENDERNESS	85	56.7
TOTAL	150	100.0

The above table show the distribution of rigidity/tenderness/rebound tenderness where the highest percentage of cases 56.7% (85 patients)been observed in tenderness category followed with rigidity in 39.3% cases(59 patients).

5b- Per Abdomen Findings:

	PRESENT		ABSENT	
PREVIOUS SURGICAL SCAR	21	14%	129	86.0%
VISIBLE PERISTALSIS	19	12.7%	131	87.3%
MASS PER ABDOMEN	38	25.3%	112	74.7%

The above table show the distribution of per abdomen findings where the highest percentage of cases 86.0% been observed to have no previous surgical scar,87.3% been observed to have no visible peristalsis ,& 74.7% cases with no mass per abdomen.

6- Local Examination-digital Rectal Examination

LOACL EXAMINATION-PER RECTAL EXAMINATION	FREQUENCY	PERCENT
ANAL TONE RAISED	19	12.7
MASS PR	12	8.0
MUCOID BLOODY STOOL	7	4.7
NORMAL	103	68.7
ROOMY RECTUM	9	6.0
TOTAL	150	100.0

The table show the distribution of local examination-per rectal examination where the highest 68.7 percentage of cases been observed in normal category followed by anal tone raised category as 12.7%. All over 31.7% showed abnormal findings on digital rectal examination.

7 Laboratory Findings

Laboratory findings	Normal values (Frequency)	%	Abnormal Values (frequency)	%
Complete blood count	93	62.0	57	38.0%
Liver function test	131	87.3%	19	12.7%
Renal function test	129	86%	21	14%
Serum electrolyte	52	34.7%	98	65.3%

The above table show the maximum patient with normal cbc,lft, rft but majority having dearranged serum electrolyte.

8 Radiological Examination

8a- X Ray Abdomen Errect Ap View/lateral Decubitus

X RAY	FREQUENCY	PERCENT
COFFEE BEAN SIGN	3	2.0
DILAIED BOWEL LOOP	31	20.7
MULTIPLE AIR FLUID LEVEL	68	45.3
WITHIN NORMAL LIMIT	48	32.0
TOTAL	150	100.0

The table show the distribution of X-Ray where the highest percentage of cases i.e. 45.3% been observed in multiple air fluid level category followed by within normal limit category as 32.0%. All over 67% showed positive radiological findings for AMBO.

8b - Ultrasound Whole Abdomen

Ultrasound whole abdomen	FREQUENCY	PERCENT
Bowel in inguinal canal	5	3.3
Dilated bowel	6	4.0
Sluggish peristaltic movement	73	48.7
Target sign	6	4.0
Telescopic bowel in left iliac with lead point lipoma	1	0.7
Thickened bowel with mesenteric fluid	59	39.3
Total	150	100.0

The table show the distribution of ultrasound findings for the whole

abdomen. The highest percentage of cases (48.7%) was noted in the sluggish peristaltic movement category, followed by thickened bowel with mesenteric fluid at 39.3%.

8C - C.T. Scan Whole Abdomen

C.t.scan whole abdomen	Frequency	Percent
Bowel wall thickened with mesenteric congestion	1	0.7
Circumferential colon wall thickened	23	15.3
Dense adhesive band with thickened bowel	15	10.0
Fibrous adhesion	22	14.7
Granulomatous mesentery with caseating ln	13	8.7
Hypoechoic mass with irregular border	11	7.3
Ischemic bowel loop	6	4.0
Omentum with bowel in inguinal canal	9	6.0
Omentum with ischemic bowel in inguinal canal	2	1.3
Pneumatosis intestinalis	33	22.0
Reduced mural enhancement	2	1.3
Telescoping bowel with lead point	8	5.3
Whirl sign	5	3.3
Total	150	100.0

The table shows the distribution of C.T. Scan whole abdomen where the highest percentage of cases 22.0% been observed in Pneumatosis Intestinalis category.

9- Incidence Of Different Aetiology

DIAGNOSIS	FREQUEN CY	PERCEN T
INTUSSUSCEPTION	8	5.3
AIO DUE TO ADHESIONS	40	26.7
AIO DUE TO ABDOMINAL TB	13	8.7
AIO WITH MESENTRIC ISCHEMIA	6	4.0
CA COLON	22	14.7
CA RECTUM	12	8.0
(Obstructed/strangulated)HERNIA	12	8.0
SAIO	32	21.3
VOLVULUS	5	3.3
TOTAL	150	100.0

The table shows the distribution of different aetiology where the highest percentage of cases been diagnosed in AIO Due To Adhesions category i.e. 26.7% as the most common cause for intestinal obstruction followed by malignancy as the second cause for acute mechanical intestinal obstruction i.e 22.7%.

10 Management (conservative/surgical Treatment)

MANAGEMENT/SURGICAL TT	FREQUEN CY	PERCE NT
CONSERVATIVE	32	21.33
DEROTATION WITH SIGMOIDOPEXY	5	3.33
HARTMANN'S PROCEDURE	12	8
HEMICOLECTOMY	22	14.67
HERNIORRAPHY	12	8
LAPAROTOMY WITH ADHESIOLYSIS	30	20
LAPAROSCOPIC ADHESIOLYSIS	10	6.67
LAPAROTOMY WITH ILEOSTOMY	13	8.6
RESECTION ANASTOMOSIS	14	9.33
TOTAL	150	100

The table show the distribution of management where the major percentage of cases diagnosed with AIO due to adhesion underwent procedure adhesiolysis (either laparotomy or laparoscopic) category as 26.67% (40 patients)

11- Postoperative Complications

COMPLICATION	FREQUENCY	PERCENT
NIL COMPLICATION	129	86.0
RTI	7	4.7
SEPTICEMIA	5	3.3
WI	9	6.0
TOTAL	150	100.0

The table show the distribution of complication where the highest 86.0 percentage of cases been observed in no complication category with wound infection in 6% cases (9 patients), followed by respiratory tract infection and septicemia in 4.7% and 3.3% cases.

12- Outcome

CURED	FREQUENCY	PERCENT
DEATH	5	3.3
CURED	145	96.3
TOTAL	150	100.0

The table show the distribution of cure rate where the highest percentage of cases 96.3% been observed to have cured.

DISCUSSION :

This study aimed to analyse the clinical features, causes, management, and outcomes of 150 patients with acute mechanical bowel obstruction, following proper inclusion and exclusion criteria.

Key Findings:

The mean age of patients was 45.65 years, with a pulse rate of 103.44 bpm, temperature of 98.7°F, SPO2 of 98.92%, and an average hospital stay of 6.49 days. The study observed a male predominance in cases, aligning with findings from Bankole et al.

In terms of dietary patterns, most patients consumed mixed diets, consistent with findings from Shukla et al. that highlighted irregular eating habits among elderly patients. The socioeconomic distribution revealed that the majority of cases were from low-income groups, supporting studies by Ogundoyin et al. that linked intestinal obstruction to low socioeconomic status and poor hygiene.

The most common symptom among patients was abdominal pain, followed by vomiting, distension, constipation, and obstipation. These findings align with similar studies conducted by Simkhada et al. and Sharma et al. Furthermore, imaging results indicated that X-rays often revealed multiple air-fluid levels, which is consistent with findings from Simkhada et al. In addition, CT scans showed Pneumatosis Intestinalis as the predominant finding in this cohort.

Regarding the causes of obstruction, adhesions were identified as the most common cause, followed by Subacute Intestinal Obstruction (SAIO). The management approach in this study indicated that 70% of patients were effectively treated using conservative methods. The majority of patients experienced no complications and were fully cured. Advances in diagnostics, fluid management, antibiotics, and surgical techniques contributed to a reduction in mortality to 3.3%, which is comparable to Rajpal et al.'s report of 8%.

CONCLUSION:

Acute intestinal obstruction remains a significant surgical emergency across all age groups. Modern advancements, including radiological techniques, antibiotic therapies, gastrointestinal decompression, and minimally invasive surgical approaches, have replaced older methods, leading to shorter hospital stays and improved patient outcomes. Enhanced understanding of pathophysiology and predictive technologies have significantly improved patient management, reducing morbidity and mortality associated with this condition.

Conflict Of Interest : The authors declare no conflict of interest.

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Ethical Approval : The study was approved by the Institutional Ethics Committee

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