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A Clinical Study on Dynamic Intestinal Obstruction in Adults with Special Reference to Clinico Radiological Score and Surgical Outcome

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I. INTRODUCTION

Intestinal obstruction is a common surgical emergency all over the world and one of the most common causes of intra-abdominal problems faced by general surgeons in practice. 12-16% of acute abdominal emergencies may be contributed to intestinal obstruction. It is defined as obstruction to forward propulsion of intestinal contents either due to mechanical or functional cause. Mechanical bowel obstruction is defined as a physical blockage of intestinal lumen, which could be intrinsic or extrinsic to the wall of intestine or secondary luminal obstruction arising from intraluminal contents. Obstruction can be partial or complete. The risk of strangulation, that is, the vascular compromise of the intestine, is increased markedly in presence of complete obstruction.

The etiologies and prevalence of bowel obstruction varies widely depending on ethnicity, age group, dietary habits, geographic location. About 80-90% of bowel obstruction occur in small intestine, the other 10-20%occur in colon. Colorectal cancer responsible for 60-70% of all large bowel obstructions, while volvulus accounts for the majority of the remaining 30%. In contrast, small bowel obstruction caused most commonly by adhesions, abdominal wall hernias, or neoplasms. Independent of etiology, bowel obstruction remains a major cause of morbidity and mortality.

Early recognition and aggressive treatment crucial in preventing irreversible ischemia and transmural necrosis and thereby decreasing mortality and morbidity. Conservative treatment with bowel rest, nasogastricdecompression and fluid resuscitation is successful in large proportion of patients with partial obstruction.

However, this mode of management is inadequate if strangulation develop, where intestinal ischemia represents life threatening problem. Here if laparotomy delayed more than 36 hours, mortality rates are high. The decision regarding conservative versus operative management is often based more on individual judgement rather than evidence bases medicine. There is a need for objective clinical score to quantify the severity of obstruction and risk of strangulation.

The present study prospectively asses patience presenting with obstruction by measuring various clinical, laboratory and radiological parameters. The aim was to devise and validate a score for predicting the risk of strangulated obstruction and the need for subsequent intestinal resection.

AIMS AND OBJECTIVES

• To study the various causes of dynamic intestinal obstruction.
• To study the various clinical features of dynamic intestinal obstruction
• To evaluate the clinico-radiological score
• To study different investigations, various modalities of treatment, and to study postoperative complications.

II. METHODOLOGY

This is an observational study of 30 cases of acute intestinal obstruction operated in CHRI. It is a prospective study for a period of two years from March 2022 to March 2024

INCLUSION CRITERIA

- Patients presented with acute abdominal pain, distension, vomiting, with or without constipation to department of general surgery in CHRI, Kelambakkam .

- Along with this, also the patients who presented with hernia with recent onset of irreducibility, pain, vomiting and constipation included.

EXCLUSION CRITERIA

- Patients who are not willing to and no giving consent for study

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- Paediatric cases (<12 years)
- Particulars of the patient and history were properly taken. General examination done by taking points in pro forma. A provisional diagnosis intestinal obstructionwas made. All relevant investigations are done. After collection of data based on specific clinical, biological, and radiological severity indicators, scoring was done as follows -specific severity indicators (one point each).
- Continuous abdominal pain > 4days
- Abdominal guarding
- TLC >11000 cell/cc on admission
- CRP >10mg/dl
- USG abdomen and pelvis showing free intra peritoneal fluid exceeding 500ml and/or CT abdomen showing reduced bowel wall contrast enhancement

Most of the patients with score =/> 3 underwent surgical exploration and those with <3 were conservatively managed

Immediately after admission, resuscitation with intravenous fluids, especially ringer lactate and normal saline were started till hydration and urine output become normal. Nasogastric decompression with Ryle's tube was carried out and antibiotic prophylaxis started. Patients showing improvement managed conservatively.

Patients with severe obstruction managed with appropriate surgical management after proper resuscitation. Post operative period was monitored carefully. If any noted treated accordingly. Postoperative follow up was done in majority of patients up to 6 months. Data was tabulated and results were expressed as graphs and charts. Results are compared with similar studies done in the past.

III. DISCUSSION

The patients in the present study are admitted are 30 cases of obstruction who were treated included in the study as and when they presented to the hospital. Intestinal obstruction is one of the commonly encountered surgical emergencies (14% of all emergency operations)16. Brewer et al analysed 1000 consecutive abdominal surgeries in 1976 and reported an incidence of 2.5%17. Jain et al in 1973 reported an incidence of 3.2%18. There is probably not a day that goes by, in which a surgeon does not at least once, come across the possible diagnosis of intestinal obstruction19.

The delay in the treatment will lead to high mortality. The mortality has reduced significantly by early diagnosis and timely intervention. Since the advancement in understanding the anatomy/physiology, fluid and electrolyte management along with modem antibiotics and intensive care unit, the mortality has been decreasing consistently. Associated medical problems and advanced age carries a considerable contribution in adding the mortality.

Figure 1: Erect x-ray abdomen showing multiple air fluid levels

Figure 2: Erect x-ray abdomen showing dilated bowel loops

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Figure 3: Intraoperative picture showing adhesion bands between small bowel loops

Figure 4: Intraoperative picture showing laparoscopic adhesiolysis

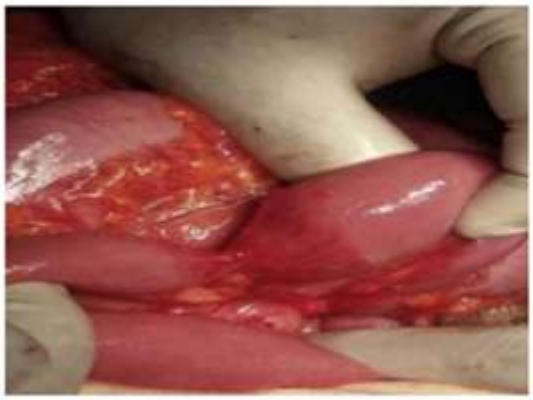

Figure 5: Intraoperative picture showing tubercular stricture

Figure 6: Intraoperative picture showing sigmoid volvulus

Figure 7: Intraoperative picture showing SMA thrombosis with gangrenous bowel loops

Figure 8: Intra operative picture showing gut malrotation

IV. RESULTS

In this study, intestinal obstruction more common in the age group 41-60 with mean age of 49.5. Intestinal obstruction occur nearly equal in both sexes with slight male predominance (Male : Female-1.3:1). Small bowel obstruction (83%) is more common than large bowel obstruction (16%).

Most common presenting symptoms are pain abdomen (100%), vomiting (83%), distention (80%), constipation (80%). Post operative adhesions (33%) is most common cause of intestinal obstruction followed by hernia related obstruction (26%). The most common surgical procedure for acute intestinal obstruction in present study is Adhesiolysis and hernia repair.

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TABLE 1: Age Incidence

Age	Total cases
11-20	1
21-30	3
31-40	7
41-50	6
51-60	6
61-70	5
>71	2

TABLE 2: Sex distribution

Age	Male	Female
11-20	-	1
21-30	1	2
31-40	4	3
41-50	4	2
51-60	4	2
61-70	3	2
>70	1	1

TABLE-3: Symptoms and Signs

Symptoms &signs	No.of cases	percentage
Pain abdomen	30	100
Vomiting	25	83.3
Distension	24	80
Constipation	24	80
Previous scar	14	46.6
Tenderness	30	100
Bowel sounds increased	22	73.3
Bowel sounds absent	6	20
Groin swelling	10	33.3
Visible peristalsis	3	10
Guarding	10	33.3
Rigidity	2	6.6
Palpable mass	-	-

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DISTRIBUTION OF PATIENTS BASED ON USG FINDINGS:

TABLE-8

USG finding	conservative	surgery	Total
<500 ml fluid	4	11	15
>500ml fluid	1	14	15
total	5	25	30

Table 8 shows out of 15 patients with >500ml of fluid on ultrasound abdomen and pelvis 14 (93%) underwent surgery.

DISTRIBUTION OF PATIENTS ACCORDING TO THE SEVERITY SCORE OF OBSTRUCTION

TABLE-9

SCORE	SURGERY	CONSERVATIVE	TOTAL
<3	3	4	7
=>3	22	1	23
Total	25	5	30

Most of the patients with clinic-radiological score =/> 3 underwent surgical exploration and those with < 3 were conservatively managed.22 case out of 23 with score more than three underwent surgery and 4 out of 7 cases with score less than 3 managed conservatively. The most common complication observed is wound infection (13%) followed by respiratory infection, prolonged ileus.

V. CONCLUSION

Bowel obstruction continues to be one of the most common abdominal problems faced by general surgeons. Irrespective of cause, it remains major cause of morbidity and mortality. Success in the treatment of intestinal depends largely upon early diagnosis, skilful management and treating pathological effect of obstruction just as much as the cause itself. Early recognition and aggressive treatment are crucial in preventing irreversible ischemia and transmural necrosis and thereby in decreasing mortality and longterm morbidity.

The evaluation of patients with suspected bowel obstruction endeavours not only to confirm diagnosis but also to determine the need and timing of surgery. Certain severity indicators and scoring system can help to optimize this timing of surgery and prevent mortality. This study tries to use a severity scoring system to help identify ideal time to intervene in case of intestinal obstruction. Most of the severity indicators are useful. Hence, this for severity markers is necessary for preventing delay in operative intervention and thus prevent mortality and improve outcome of patient

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