

Original article:

Study of various surgical methods in management of intestinal obstruction in adults at Pravara Rural Hospital, Loni

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ABSTRACT

Introduction: One of the most common intra-abdominal problems faced by general surgeons in their practice remains bowel obstruction. 12% to 16% of acute abdominal emergencies may be contributed to intestinal obstruction. With its multiple etiologies, intestinal obstruction of either the small or large bowel continues to be a major cause of morbidity and mortality.

Materials and Method: The materials for the study of surgical management of intestinal obstruction were collected from cases admitted to various surgical wards in Pravara Rural Hospital & Medical College. During the period from October 2017 to October 2019, 60 cases of intestinal obstruction have been studied with age groups ranging from 18 years to 70 years. Haematological test, X-ray abdomen and Ultrasonography of Abdomen and Pelvis were done.

Result: Out of 24 cases of obstruction due to adhesions and band 13 underwent adhesiolysis, 9 underwent ileo-ileal resection and anastomosis and 2 underwent jejuno-ileal resection and anastomosis, 4 cases of obstructed hernia underwent herniorrhaphy, of the 6 cases diagnosed with tubercular stricture 5 patients underwent Ileostomy and 1 patient underwent Ileo-ileal resection and anastomosis, 5 patients with with sigmoid Volvulus underwent Untwisting and Sigmoidopexy, Out of the 21 cases of malignancy, 13 patients underwent emergency divergent colostomy, 1 underwent Right Hemicolectomy and end to side ileo transverse anastomosis, 1 underwent Left Hemicolectomy with transverse colostomy and remaining 5 underwent divergent colostomy, 1 case of ovarian malignancy with peritoneal metastasis with adhesion underwent Total Abdominal Hysterectomy with Bilateral Salphinoophorectomy with adhesions release.

Conclusion: The most common procedure performed was divergent colostomy followed by adhesiolysis. Postoperative adhesions is the most common cause to produce intestinal obstruction as abdominal and pelvic surgeries are on rise. The second most common cause for intestinal obstruction was malignancy.

Key Words: Small Bowel Obstruction, Adhesiolysis, Sigmoidopexy

INTRODUCTION

Intestinal obstruction is a common surgical emergency all over the world. It is any impedance to normal flow of bowel contents. It is defined as obstruction in forward propulsion of the contents of the intestine either due to dynamic, adynamic or pseudo-obstruction. Bowel obstruction occurs when the normal propulsion and passage of intestinal content cannot occur for whatever reason.

This obstruction can involve only the small intestine (small bowel obstruction), the large intestine (large bowel obstruction), or via systemic alterations in metabolism, electrolyte imbalance, or neuroregulatory mechanism involving both small and large intestine (generalized ileus).

Dynamic obstruction is a mechanical problem caused by a physical blockage which can either be extraluminal (extrinsic), mural (intrinsic) or intraluminal. It is due to a mechanical obstruction or physical blockage against which peristalsis is working. Adynamic obstruction (functional) is due to paralysed bowel without any mechanical cause. Adynamic or Pseudo-obstruction is present when factors causing either paralysis or dysmotility of intestinal peristalsis prevent the coordinated transport of the luminal content. The term “paralytic ileus” is used for this condition when peristalsis is absent.

METHODOLOGY

The materials for the study of surgical management of intestinal obstruction were collected from cases admitted to various surgical wards in Pravara Rural Hospital & Medical College. During the period from October 2017 to October 2019, 60 cases of intestinal obstruction have been studied with age groups ranging from 18 years to 70 years, Patients belonged to the pediatric age group or patients who were having sub-acute intestinal obstruction treated conservatively are excluded from the study, seriously ill patients & patients not fit for surgery are excluded & pregnant females are excluded from study. Cases selection was done in the criteria of history, clinical examination and radiological examination.

Soon after the admission, clinical data were recorded according to the proforma. The diagnosis mainly based on clinical examination and often supported by radiological examinations. The results are tabulated mostly stressing on following points - Age, sex, etiology and operative procedure.

RESULTS

The study of 60 cases of intestinal obstruction during October 2017 to October 2019 at Pravara Rural Hospital & Medical College, Loni studied as follows:

TABLE 1: SHOWING THE AGE AND SEX DISTRIBUTION OF THE CASES

Age group	Male	Female	Total	Percentage
18-20	3	2	5	8%
21-30	4	2	6	10%
31-40	4	3	7	12%
41-50	3	7	10	17%
51-60	8	4	12	20%
61-70	10	10	20	33%
	32	28	60	100

TABLE 2:ETIOLOGY OF INTESTINAL OBSTRUCTION

Etiology of Intestinal Obstruction		Number of patients (n=60)	Percentage
1. Adhesion and band		24	40%
2. Hernia		04	06%
3. T.B stricture		06	10%
4.Volvulus		05	09%
5. Malignancy	Adenocarcinoma of rectosigmoid	13	21
	Adenocarcinoma of colon	7	
	Ovarian tumor with peritoneal metastasis with adhesions between ileal Loops	1	
			35%

TABLE 3: TYPES OF OPERATION

	Types of operation	No. of Patients (n=60)	Percentage
A	Resection and end-to-end ileo-ileal Anastomosis	09	15%
B	Release of adhesions and bands	13	22%
C	Herniorrhaphy	04	07%
D	Hemicolectomy with end colostomy	02	03%
E	Untwisting of volvulus, Sigmoidopexy	05	08%
F	Resection and end-to-end jejunoileal anastomosis	02	03%
G	Colostomy	20	34%
H	Ileostomy	05	08%

DISCUSSION

In our hospital during October 2017 to October 2019, 60 cases of intestinal obstruction were operated. The involvement of small bowel in obstruction is much more common than that of large bowel (Sufian and Mostsumoto)¹.The delay in the treatment will lead to high mortality. Since the advancement in understanding the anatomy/ physiology, fluid and electrolyte management along with modern antibiotics and intensive care unit, the mortality has been decreasing consistently. The associated medical problems (like respiratory cardiac or metabolic diseases) and advanced age carries a considerable contribution in adding the mortality.

Though intestinal obstruction occurs in all age groups, here the youngest patient was 18 years and oldest patient was 70 years. In this study, 20% belongs to 51-60 years age group & 50% belongs to 31-60 years age group. Studies by Tiwari SJ et al² has reported 25% of cases in the age group of 51-60 years and 60% of

the cases of intestinal obstruction occur in the age group of 31-60 years, which correlates with the present study.

Study reported by Tiwari SJ et al show that the number of cases in the age group of 18-20 years age group is 6% which correlates the present study showing incidence of 8% in the age group 18-20years. Study reported by Chitumalla PK et al⁴, show that the number of cases in the age group of 18-20 years age group is 6% which also correlates the present study showing incidence of 8% in the age group 18-20years. Study reported by Hennes H et al³ show that the number of cases in the age group of 18-20 years age group is 10% which too correlates the present study showing incidence of 8% in the age group 18-20years. However Huebner M et al⁵ has incidence of 14% in this age group due to inclusion of pediatric age group children. Also the present study shows incidence of 10% in the age group of 21-30years which coincides with the studies by Tiwari SJ et al with 12%, Hennes H et al and Chitumalla PK et al with incidence of 14% each. Tiwari SJ et al, Huebner et al, Hennes H et al shows that the number of cases in the age group of 31-40 years age group is 11%, 10%, 12%, respectively which correlates the present study showing incidence of 12% in the age group 31-40years. 17% incidence is found in the age group of 41-50 years in present study which correlates with study by Chitumalla PK et al, Hennes H et al and Huebner M et al with incidence of 18%, 15% and 13% respectively. Studies reported by Tiwari SJ et al, Hennes H et al, Huebner M et al shows that the number of cases in the age group of 51-60 years age group is 25%, 22%, 18%, respectively which correlates the present study showing incidence of 20% in the age group 51-60 years. The present study shows incidence of 33% in the age group of 61-70years, and correlates with study by Chitumalla et al, Tiwari et al, Hennes et al showing 26%, 22%, 27% incidence respectively. However Huebner et al has little higher incidence due to inclusion of higher age group upto 90years.

The explanation for the present etiological shift is towards adhesions and then hernia, which are decreasing from the earlier twentieth century commonest cause of intestinal obstruction due to awareness as people are seeking treatment early for hernia. The rise in the incidence of adhesions related obstructions are attributed to increased number of abdomino-pelvic surgeries.

Table 4 Age wise incidence of intestinal obstruction in different studies

Age group	Chitumalla PK et al	Tiwari SJ et al	Hennet H et al	Huebner M et al	Present Study
18-20	6	6	10	14	08%
21-30	14	12	14	5	10%
31-40	28	11	12	10	12%
41-50	18	24	15	13	17%
51-60	8	25	22	18	20%
>60	26	22	27	40	33%

In present study, there are 32 male and 28 females. Male and female are nearly in equal ratio (1.14:1). Huebner M et al and Shakeed⁷, reported 1:1 sex ratio as in present study showing equal ratio. Among previous studies Chitumalla et al found incidence of 1.6:1 which nearly correlates with present study.

Table 5 .Comparison of sex incidence in different studies

Studies	Male : Female ratio
Huebner M et al	1:1
Shakeed	1:1
Chitumalla et al	1.6:1
Present study	1.14:1

The etiology of intestinal obstruction varies from one country to other and from one part of the country to another part. The comparative study of previous report is as follows:

Table 6 Comparison of causes of intestinal obstruction in different studies

Cause	Tiwari SJ et al	Chitumalla PK et al	Huebner M et al	Hennet H et al	Biarj et al ⁶	Present Study
Adhesion	40%	38%	25%	27%	53%	40%
Hernia	1.67%	08%	15%	10%	26%	6.33%
Intussusception	1.67%	04%	12%	08%	-	-
Tuberculosis	8.33%	04%	8%	13%	-	10%
Malignancy	8.33%	18%	29%	30%	-	35%
Volvulus	8.33%	14%	11%	12%	3%	8.67%
Mesenteric vascular thrombosis	11.67%	-	-	-	26%	-
Peritonitis	5%	-	-	-	-	-

The most common etiological factor in the present study is adhesion which included postoperative, inflammatory and congenital bands. Postoperative adhesion occurs in 93% of cases of previous abdominal surgery³⁸, of these every third patient will behaving one of the other clinical signs and symptoms related to adhesion⁸². Among 93% of the postoperative adhesions, 5% of the cases can develop acute intestinal obstructions, most of them will be within first year (39-60%).

In the present series 40% of the cases of obstruction are due to adhesion and bands. Among adhesion and bands 61.9% are due to post operative adhesion, 23.8% are due to inflammatory adhesions and 15.3% are due to congenital bands.

Tiwari SJ et al found 40% cause for obstruction been Adhesions and Chitumalla PK et al found adhesions to be 38 % cause for adhesion, which corelates with our present study showing 40% incidence of adhesions. Huebner M et al shows incidence of 25% adhesions since it has included 10-20years age group which has pediatric population showing more of hernia, and hence Huebner et al has 25% adhesion incidence and 15% hernia incidence, higher than others.

The rise in the incidence of adhesions related obstructions are attributed to increased number of abdomino-pelvic surgeries. In the Western studies, the adhesion related obstruction range from 40-60%.

In the present study 21 cases (35%) presented with acute intestinal obstruction. 7 cases are due to large bowel malignancy, 13 cases were due to rectal malignancy. The other 1 case is due to ovarian malignancy with intraperitoneal metastasis causing ileal obstruction.

The incidence of large bowel obstruction is higher in western countries due to various factors, which includes increased aged population, consumption of high animal fat and lack of fibre diet.

Table 7 . Comparison of malignancy causing intestinal obstruction in different studies

Studies	No. of cases	Malignancy
Huebner M et al	200	29%
Hennet H et al	100	30%
Present study	50	35%

This present study correlates with Huebner M et al with incidence of 29% and Hennet H et al with incidence of 30%.The shift from previous studies from 20th century in which cause for obstruction was less due to malignancy and now in present study 2nd commonest cause for obstruction can be justified with increased life expectancy, more sedentary life style, lack of fiber rich diet and interventions leading to increased survivability and early diagnosis and hence more incidence of malignancies in the age group above 50years and further.

CONCLUSION

- The most common procedure performed was divergent colostomy followed by adhesiolysis.
- Mechanical obstruction is not associated with any specific bio-chemical marker, which can help the surgeon for differentiate simple obstructions from ischemia or a closed loop obstruction with impending bowel infarction. Diagnosis of strangulation is still a challenge.
- Early operation is mandatory to avoid the development of peritonitis and systemic sepsis associated with multi-system organ failure.
- Plain x-ray abdomen taken in erect posture is the most important investigation required for the patients.
- Among the factors influencing the mortality and morbidity are age, state of hydration, nutritional status, viability of the bowel, etiology of obstruction, site of obstruction, delay in diagnosis and surgical intervention and associated medical illness.

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