

A CLINICO-PATHOLOGICAL STUDY OF 50 CASES OF INTESTINAL OBSTRUCTION

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HOW TO CITE THIS ARTICLE:

Venugopal K, Satish Kumar R, Narayana Swamy T. "A clinico-pathological study of 50 cases of intestinal obstruction". Journal of Evolution of Medical and Dental Sciences 2013; Vol2, Issue 49, December 09; Page: 9581-9590.

ABSTRACT: BACKGROUND: The diagnosis and management of patients with mechanical small bowel obstruction in adults is one of the more challenging emergency that a general surgeon can come across. Although the mortality due to acute mechanical small bowel obstruction is decreasing with better understanding of pathophysiology, early diagnosis due to improvement in diagnostic techniques and skillful operative management carries grateful results. Hence, the present study was conducted at KIMS Hospital & Research centre, Bangalore, Karnataka. **AIMS & OBJECTIVES:** To study the incidence, etiology, presentation, investigation modalities, surgical procedure done and outcome following surgery with complications. **MATERIAL & METHODS:** The study period was two years including follow-up, comprising of 50 cases in a prospective manner. **OBSERVATION& RESULTS:** The study revealed that, incidence was more in male sex, most common etiology being adhesions in 30 to 50 years of age, followed by hernias in 4th decade, manifesting in the form of pain abdomen, vomiting, abdominal distension and constipation. All cases were treated surgically depending upon the cause after evaluation. The patients were followed up regularly during which hardly few complications like wound infections and post operative adhesions was found and treated laparoscopically. **CONCLUSION:** It can be concluded that early operations for dynamic small bowel obstruction is mandatory to avoid the development of peritonitis and systemic sepsis associated with multiorgan failure.

INTRODUCTION: Acute Intestinal Obstruction is one of the common surgical emergencies encountered in KIMS Hospital and Research Centre, Bangalore, Karnataka. Intestinal obstruction is reported in ancient literature and is defined as,

"Interference in the passage of food, liquids and contents of the intestine either due to mechanical or neurological cause". It is predisposed by various underlying conditions which are difficult to define preoperatively. There are various etiologies for acute intestinal obstruction from more common causes like adhesions, hernia, malignancy to uncommon conditions like intussusception. Though the classical presentation is pain abdomen, vomiting, constipation and distension of abdomen, it needs a complete understanding of surgical anatomy, pathophysiology, symptoms and signs of obstruction and necessary investigations for diagnosis. In this study analysis of various causes, anatomical and pathological nature, mode of presentation, age factors, investigation modalities, and surgical management, various complications, mortality and outcomes have been discussed.

MATERIALS AND METHODS: 50 patients were included in this study done at KIMS Hospital and Research Centre, Bangalore who presented to the OPD and Emergency Department from June 2010 to July 2012. Cases were thoroughly assessed through detailed history to identify risk factors,

ORIGINAL ARTICLE

complete clinical examination was done. Immediately after the admission along with above procedure resuscitation with IV fluids especially ringer lactate and normal saline infusion started till the hydration and urine output become normal. Nasogastric decompression with Ryles tube, Catheterization carried out and antibiotic prophylaxis started. And close observation of all bedside parameters (like pulse rate, BP, RR, abdominal girth, bowel sounds and tenderness and guarding) was done. Patients who showed reduction in abdominal distension and improvement in general condition especially in individuals with postoperative adhesions a chance of conservative management was taken (by extending the supportive treatment) for further 12 to 24 hours, those who showed improvement by moving bowels, reduction in pain/tenderness following conservative treatment, such individuals are excluded in this study. Patients with clear-cut signs and symptoms of acute obstruction were managed by appropriate surgical procedure after resuscitation. The postoperative period was monitored carefully and all parameters were recorded hourly or fourth hourly basis depending upon the patients general condition and toxemia. Routine intermittent oxygen inhalation was instituted in patients having strangulation of the bowel to reduce the damage induced by ischemia.

Follow up: Postoperative follow up after the discharge of patients was done in majority of the patients upto 6 months. The results are tabulated mostly stressing on following points age, sex, symptoms, examination findings, investigations, abnormalities, probable causative factors, operative findings and operative procedure adopted with Complications noted.

RESULTS: In our hospital, 1400 cases of total abdominal surgeries were done from October 2010 to September 2012, of which 50 cases were intestinal obstruction comprising about 3.5%.

Age in years	Number of patients	%
17-20	3	6.0
21-30	6	12.0
31-40	14	28.0
41-50	14	28.0
51-60	8	16.0
61-70	4	8.0
71-80	1	2.0
Total	50	100.0

Table 1: Age distribution of patients studied

Mean $\pm$ SD: 43.20 $\pm$ 13.16

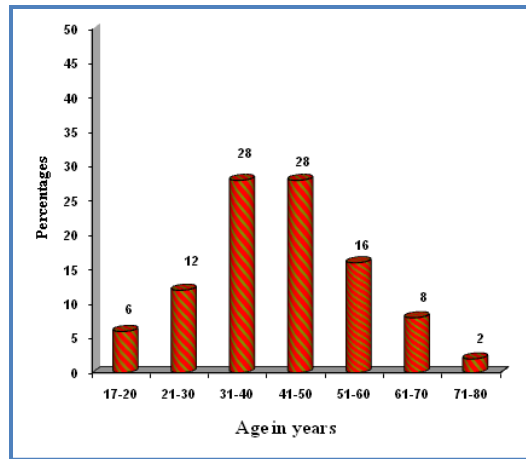


Fig. 1: Bar graph showing age distribution

Gender	Number of patients	%
Male	25	50.0
Female	25	50.0
Total	50	100.0

Table 2: Gender distribution of patients studied

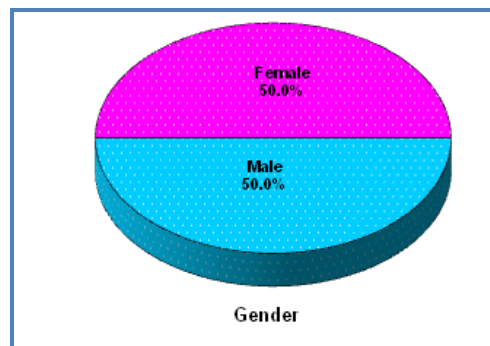


Fig. 2: Pie graph showing gender distribution

Equal sex incidence was in the present study with male: female ratio of 1:1.

Clinical features	Number of patients(n=50)	%
Pain	50	100.0
Vomiting	30	60.0
Distension	21	42.0
Constipation	19	38.0
Irreducible Hernia	5	10.0
Fever	9	18.0
Dehydration	12	24.0

Table 3: Clinical characteristics of patients studied

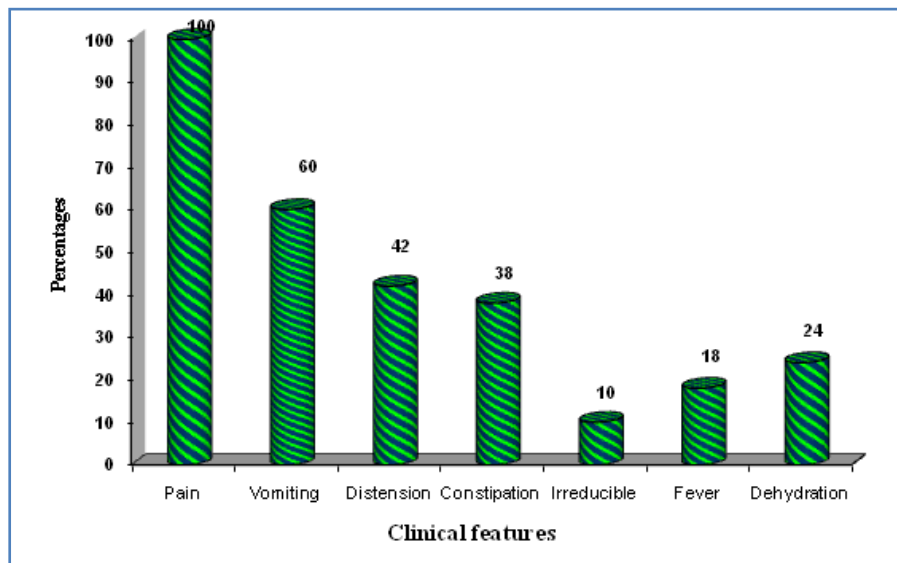


Fig. 3: Bar graph showing clinical features

Duration of symptoms	Number of patients(n=50)	%
1-2 days	11	22.0
2-5 days	35	70.0
6-14 days	1	2.0
15 & above	3	6.0

Table 4: Duration of symptoms

Mean±SD=4.88±3.71

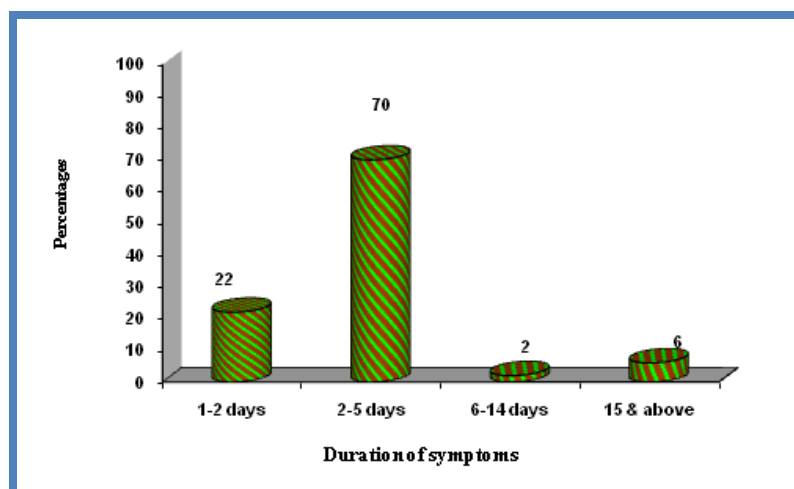


Fig. 4: Bar graph showing duration of symptoms

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H/O previous surgery	Number of patients(n=50)	%
Yes	22	44.0
No	28	56.0

Table 5: History of previous surgery

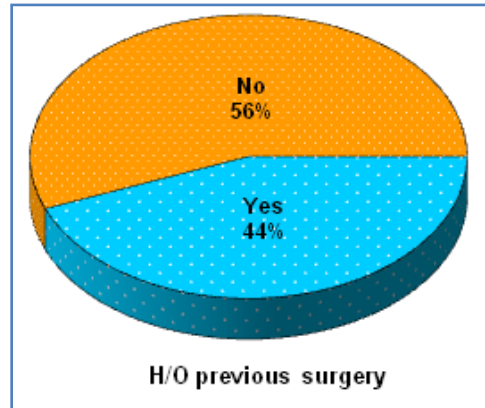


Fig. 5: Pie graph showing history of previous surgeries

In the present study, out of 50 cases of small bowel obstruction, 44% of patients had previous history of abdominal surgeries resulting in postoperative adhesions/bands.

	Number of patients (n=50)	%
Tender	50	100.0
Guarding/Muscle hold	37	74.0
Rigidity	7	14.0
Mass	9	18.0

Table 6: Tender/Guarding/Rigidity/mass

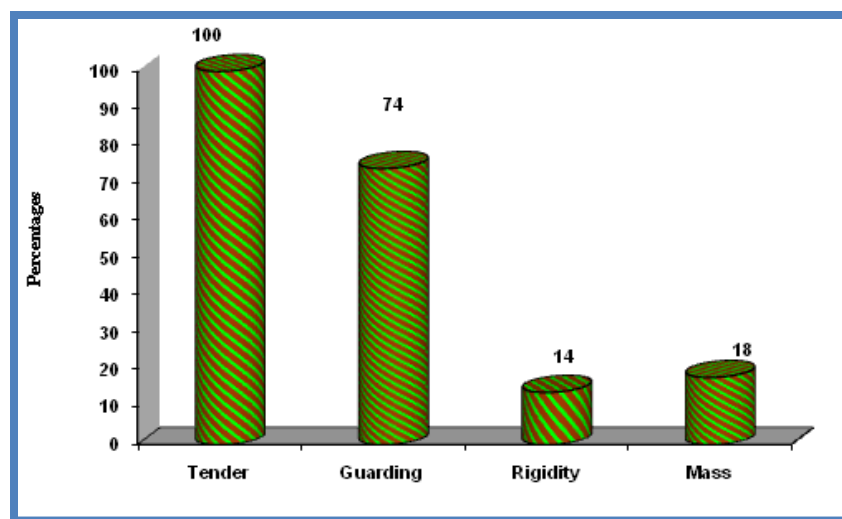


Fig. 6: Bar graph showing Tender/Guarding/Rigidity/mass

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On examination of the abdomen, diffuse tenderness was present in all 50 cases, followed by (muscle hold) guarding in 37. Rigidity in 7 cases with mass abdomen includes 6 cases of hernia and 2 cases of malignancy and 1 case of ileocaecal tuberculosis.

Percussion	Number of patients(n=50)	%
Tymp	33	66.0
Dull	17	34.0

Table 7: Percussion

Auscultation	Number of patients (n=50)	%
Presence	41	82.0
Absence	9	18.0

Table 8: Auscultation

Erect X-ray	Number of patients (n=50)	%
Normal	3	6.0
MAF	28	56.0
DIST SB	19	38.0

Table 9: Erect X-ray

CT findings	Number of patients (n=50)	%
Positive	12	24.0
Not done	38	76.0

Table 10: CT findings

Etiology	Number of patients (n=50)	%
Adhesions & Bands	35	70.0
Hernia	6	12.0
Tuberculosis	4	8.0
Malignancy	2	4.0
Intussusception	2	4.0
Volvulus	1	2.0
Total	50	100

Table 11: Etiology

CT findings	Number of cases
Stricture/adhesions	5
Malignancy	2
Intussusception	2
Tuberculosis	1
Hernia	1
Volvulus	1

MAF: Multiple air fluid level

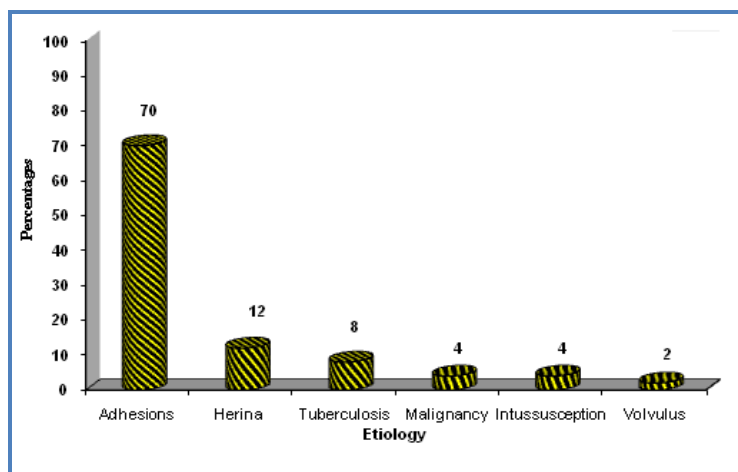


Fig. 7: Bar graph showing etiology

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OPERATION	Number of patients(n=50)	%
Laparotomy & Resection anastomosis	18	36.0
Laparotomy & Release of adhesions	14	28.0
Laparoscopic adhesiolysis	9	18.0
Laparotomy & ileostomy	2	4.0
Laparotomy &Hernioplasty/Reduction	6	12.0
Laparotomy & Untwisting of volvulus	1	2.0

Table 12: Type of Operation

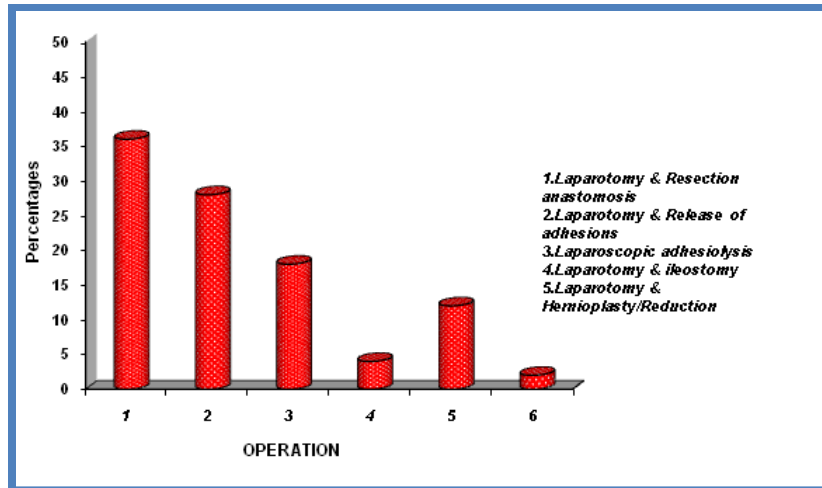


Fig. 8: Bar graph showing type of operation

ETIOLOGY	Number of patients (n=50)	OPERATION
Jejunal stricture/bands (8)	19	Laparotomy & Resection anastomosis
J-J Intussusception (1)		
Ileal stricture (6)		
Ileocaecal Koch's (3)		
Malignancy (1)		
Dense Inter-loop adhesions / Bands (12)	12	Laparotomy & Release of adhesions
Flimsy postoperative / inflammatory adhesions 9	9	Laparoscopic adhesiolysis
Ileocaecal Koch's (1)	2	Laparotomy & ileostomy
Malignancy (1)		
Obstructed Hernia (6)	6	Laparotomy &Hernioplasty
Volvulus with adhesion (1)	1	Laparotomy & Untwisting of volvulus
Ileocaecal intussusceptions (1)	1	Laparotomy & Reduction

Table 13: Type of operation for specific etiology

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Post -op complications	Number of patients(n=50)	%
Nil	44	88.0
Yes	6	12.0
• Wound Infection	3	6.0
• Rec.ADH	2	4.0
• Death	1	2.0

Table 14: Post-op Complications

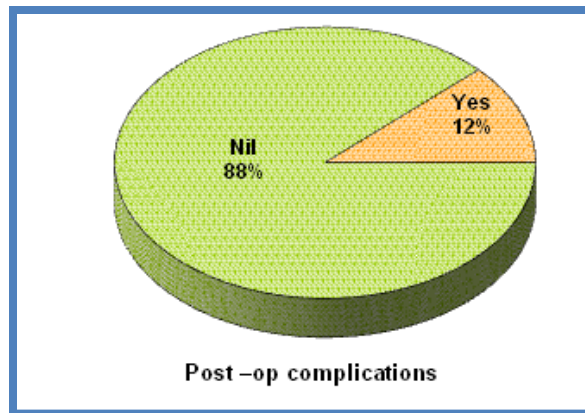


Fig. 9: Pie graph showing post-op complications

Clinical variables	Total number of patients	Post-op complications		P value
		Absent	Present	
Age in years				
• <30	9 (18%)	7 (15.9%)	2 (33.3%)	0.604
• 31-50	28 (56%)	25 (56.8%)	3 (50%)	
• >50	13 (26%)	12 (27.3%)	1 (16.7%)	
Gender				
• Male	25 (50%)	21 (47.7%)	4 (66.7%)	0.667
• Female	25 (50%)	23 (52.3%)	2 (33.3%)	
Duration of symptoms				
• 1-2 days	11 (22%)	9 (20.5%)	2 (33.3%)	0.738
• 2-5 days	24 (48%)	21 (47.7%)	3 (50%)	
• >5 days	14 (28%)	13 (29.5%)	1 (16.7%)	
Past History Surgery				
• Yes	22 (44%)	19 (43.2%)	3 (50%)	1.000
• No	28 (56%)	25 (56.8%)	3 (50%)	
Etiology				
• Adhesions & Bands	35 (70%)	30 (68.2%)	5 (83.3%)	0.616
• Hernia	6 (12%)	6 (13.6%)	0 (0%)	

ORIGINAL ARTICLE

• Malignancy	2 (4%)	2 (4.55%)	0 (0%)
• Tuberculosis	4 (8%)	4 (9.1%)	0 (0%)
• Intussusception	2 (4%)	2 (4.55%)	0 (0%)
• Volvulus	1 (2%)	-	1 (16.7%)
Total	50 (100%)	44 (100%)	6 (100%)

Table 15: Correlation of Clinical variables with Post-op complications

DISCUSSION: The comparative analysis of incidence of various studies reported the incidence from 13-35%. But hernia related obstruction were higher in earlier period (60-70's) due to early surgical treatment for hernia the incidence is decreasing from 40-20%.

Tuberculosis is one of the common health problems in developing countries. In the present series, tuberculosis found to be a causative factor in 8% of cases in the form of ileo-caecal tuberculosis with stricture and adhesions.

Disparity with western literature is due to the increase in number of tuberculosis patients in developing countries like India. In the present study 4% cases presented with acute small bowel obstruction from malignancy. The incidence is higher in western countries due to various factors, which includes increased aged population, consumption of high animal fat and lack of fibre diet.

In the present series 70% of the cases of obstruction are due to adhesions and bands, 44% are due to postoperative adhesions. Almost 12% cases of obstruction are related to hernia. Four cases of obstructed incisional hernia (female) and one case of obstructed inguinal hernia and obstructed incisional hernia(male) respectively.

CONCLUSION: Intestinal obstruction remains still an important surgical emergency. Patients with intestinal obstruction due to adhesions and band are more likely to develop postoperative complications. Intussusception although rare in the adult population should be considered in cases of small bowel obstruction. Early operation is mandatory to avoid the development of peritonitis and systemic sepsis associated with multi-system organ failure.

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Date of Submission: 25/11/2013.
Date of Peer Review: 26/11/2013.
Date of Acceptance: 30/11/2013.
Date of Publishing: 04/12/2013