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## A Retrospective and Prospective Study of Large Bowel Obstruction in our Institution.

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### ABSTRACT

Cancer is the single most common cause of mechanical large bowel obstruction and accounts for as many cases as the others combined. Between 2 and 16% of patients with colorectal cancer present with complete obstruction. Although fecal impaction is common it is usually diagnosed and relieved before it leads to a full-blown picture of obstruction, and consequently its true incidence is not fully documented. Plain abdominal radiology Straight abdominal radiography is of particular use in making the diagnosis. Ideally abdominal CT should be able to confirm the diagnosis of large bowel obstruction along with the site and cause of the obstruction. Colonic wall thickening due to oedema can be a feature detected on CT proximal to an obstructing colonic cancer. In addition CT in malignant colonic obstruction provides information on local fixity and distant spread. Management planning in a situation with acute cancer complications not only should include strategies to alleviate symptoms and minimize the morbidity from the complication but also should provide an oncologically adequate treatment for the tumor. In case of emergencies just palliation is done to revive the patient conditions. This study is a prospective and a retrospective study of large bowel obstruction for a period of three years and the treatment given.

**Keywords:** colonic cancer, obstruction.

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## INTRODUCTION

Large bowel obstruction can be classified as dynamic (mechanical) or a dynamic (pseudo-obstruction). Mechanical obstruction is characterized by blockage of the large bowel (luminal, mural, or extramural), resulting in increased intestinal contractility as a physiologic response to relieve the obstruction. Pseudo-obstruction is characterized by the absence of intestinal contractility, often associated with decreased or absent motility of the small bowel and stomach.

Colorectal cancer is the single most common cause of large intestinal obstruction in the western population, whereas colonic volvulus is the more common cause in Russia, Eastern Europe, and Africa. About 2% to 16% of patients with colorectal cancer present with complete obstruction.

Intraluminal causes of colorectal obstruction include fecal impaction, inspissated barium, and foreign bodies.

Intramural causes, in addition to carcinoma, include inflammation (diverticulitis, Crohn's disease, lymphogranuloma venereum, tuberculosis, and schistosomiasis), Hirschsprung's disease (aganglionosis), ischemia, radiation, intussusception, and anastomotic stricture.

Extraluminal causes include adhesions (the most common cause of small bowel obstruction, but rarely a cause of colonic obstruction), hernias, tumors in adjacent organs, abscesses, and volvulus.

## AIM

1. To study the causes and methods of presentation of lbo in our population
2. To assess the various ways in which management of acute lbo is done in our institution
3. To compare our management practices with the current trends in managing in acute lbo
4. To determine the prognostic factors for predicting the outcome in acute lbo
5. To assess the patient outcome in acute lbo

## MATERIAL AND METHODS

The study was conducted by retrospective and prospective analysis of Intestinal Obstruction cases operated between April 2013 to April 2015 in Sree Balaji Medical College & Hospital in Dept. of General Surgery

### Inclusion criteria

- All cases of LBO operated within 2 days(48 hrs) of admission were included in the study

### Exclusion criteria

- The cases which were operated with provisional diagnosis of mechanical LBO but found to have some other pathology intra operatively were omitted
- The cases which are operated after 48 hrs of admission were omitted
- The cause, management and patient outcome in acute LBO were studied.

## METHODOLOGY

1. Thorough History taking
2. Clinical Examination
3. Laboratory tests such as Complete Hemogram, RFT, Urine examination, electrolytes.
4. Radiological investigations like X-ray chest, X-ray abdomen, Barium studies, CECT abdomen and pelvis
5. Colonoscopy for patients presenting with mass abdomen.
6. Emergency laparotomy
7. Regular follow up of patients

This is a retrospective and prospective study of large bowel obstruction cases for a period of three years in our hospital sree balaji medical college and hospital. Patients were admitted with abdominal distension and abdominal pain routine investigations were done.

Few of the patients presented with features of peritonitis and in shock

Emergency laparotomy being performed for all the patients within 48 hours of admission

**Staging of the disease** - Although many factors have been identified that impact recurrence and survival, none exceeds stage in terms of prognostic significance. Staging of colorectal cancer should be done using the current TNM classification of the American Joint Committee on Cancer (AJCC) and International Union Against Cancer (UICC). Duke’s staging is also adopted in our study.

**OBSERVATION**

**LARGE BOWEL OBSTRUCTION IN THE STUDY PERIOD**

- APRIL 2013 – APRIL 2008 - 27
- MAY 2014– APRIL 2009 - 29
- MAY 2015 – APRIL 2010 -35

**ACUTE LARGE BOWEL OBSTRUCTION IN THE STUDY PERIOD**

Of the 91 cases of LBO operated during the study period

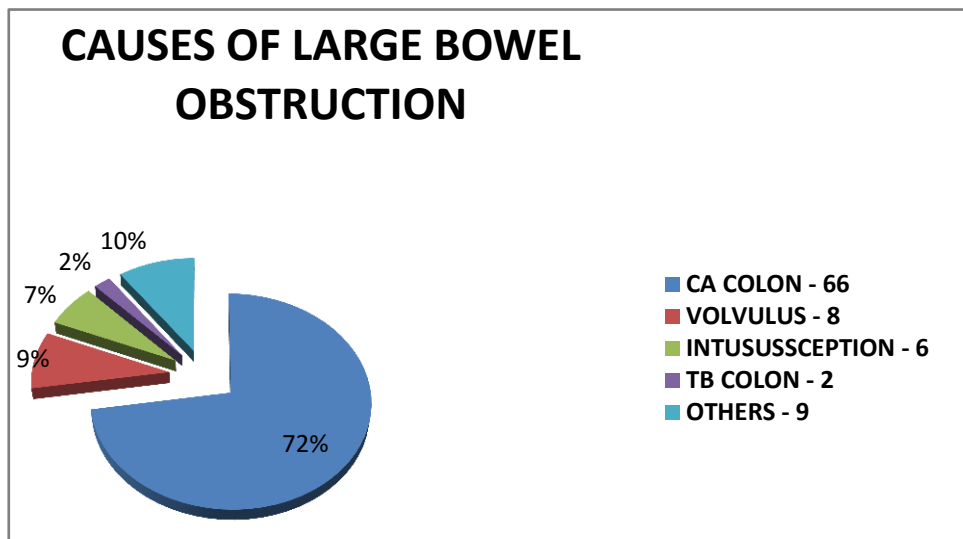
**COLONIC MALIGNANCY**

**SEX DISTRIBUTION**

- Male - 41 (62.1%)
- Female - 25 ( 37.9%)

**AGE DISTRIBUTION**

- 30 – 40 – 2(3.03%)
- 40 – 50 – 6(9.1%)
- 50 – 60 – 16(24.2%)
- 60 – 70 - 31 (47%)
- 70 – 80 - 9(13.6%)
- 80 – 90 – 2(3.03%)



**CLINICAL FEATURES**

S.NO	PRESENTING COMPLAINTS	NO OF CASES	PERCENTAGE
1	H/O Abdominal distension	66	100%
2	H/O Abdominal pain	62	93.9%

3	Constipation	66	100%
4	Vomiting	54	81.8%
5	H/O Bleeding PR/Melena	19	28.9%
6	Rectal mass	11	16.7%
7	Features of LBO without peritonitis	56	84.9%
8	Features of LBO with peritonitis	10	15.1%
9	Features of LBO with sepsis	6	9.3%
10	Features of LBO with faeculent vomiting/aspirate	13	19.6%

**ASA GRADING**

ASA	No. OF PATIENTS
ASA IE	2
ASA IIE	20
ASA IIIIE	31
ASA IVE	13

**OPERATIVE URGENCY**

- Cases operated on the day of admission – 23 (34.8%)
- Cases operated on the 2<sup>nd</sup> day – 43 ( 65.2%)

**ANATOMIC DISTRIBUTION OF COLONIC MALIGNANCY**

- Rectum – 11 (16.7%)
- Sigmoid – 29 (43.9%)
- Descending colon – 13 (19.7%)
- Splenic flexure – 3(4.5%)
- Transverse colon – 3(4.5%)
- Right colon (**caecum, ascending colon, Hepatic flexure**)– 7(**10.6%**)

**RIGHT COLONIC GROWTH – 7**

- Caecal growth – 1
- Ascending colon – 3
- Hepatic flexure – 3
- 2 hepatic flexure growth – were inoperative because of extensive infiltration into retroperitoneum and a ileo transverse bypass was done
- Other 5 cases were operated with Rt. Hemicolectomy with ileo transverse anastomosis

**LEFT SIDED COLONIC GROWTH – 45**

- Sigmoid colon – 29
- Descending colon – 13
- Splenic flexure – 3
- 4 cases of Lt. colonic growth were inoperable because of infiltration/extensive peritoneal mets/with multiple liver metastases
- In 8 cases only a decompression colostomy could be done because of poor general condition of patients
- 3 splenic flexure growths were operated with extended hemicolectomy with colocolic anastomosis in 1 case and with end colostomy in remaining 2 cases
- Remaining 30 cases were operated with Lt. Hemicolectomy with colocolic anastomosis in 3 cases and colostomy in remaining 27 cases

**TRANSVERSE COLONIC GROWTH – 3**

- Of the 3 cases in our study all were in the right half of transverse colon
- All were operated with Rt. Extended hemicolectomy with ileo colic anastomosis in 2 patients and ileostomy with mucous fistula in one pt. with peritonitis

**RECTUM AND RECTOSIGMOID GROWTH – 11**

- In all cases of carcinoma rectum and rectosigmoid with acute obstruction a transverse loop colostomy was done in emergency , to provide adequate staging before a definitive procedure

**DUKE'S STAGING (EXCLUDING RECTUM AND RECTOSIGMOID – 55 CASES)**

DUKE'S STAGE (excluding 11 cases of Ca Rectum)	NO. of Cases (out of 55)
A Growth confined to bowel wall	3
B Full thickness serosal/fat involved	18
C Lymph node involvement	28
D Unresectable lesion/distant mets	6

**PROCEDURE DONE**

- Primary resection and anastomosis – 11(16.7%)
- Primary resection with end colostomy – 30 (45.4%)
- Simple colostomy(transverse loop colostomy) – 11 cases of ca rectum + 4 cases of inoperble Lt. colon tumors + 8 cases of high peri – operative risk - 23 ( 34.8%)
- Ileotransverse bypass – 2 (3.03%)
- Colonic stenting – nil

**PRIMARY RESECTION – 41**

- Rt. Hemicolectomy – 5 cases(7.6%)
- Rt. Extended Hemicolectomy – 3 cases(4.5%)

- Lt. hemicolectomy – 30 cases(45.5%)
- Lt. extended hemicolectomy – 3(4.5%)

**SIMPLE COLOSTOMY – 23**

- 2 inoperable cases of descending colonic growth
- 2 inoperable cases of sigmoid colonic growth
- 8 cases operated under high risk – ASA 4 ( 5 sigmoid and 3 descending colon)
- All cases of ca rectum AND rectosigmoid ( 11 cases) presenting with acute colonic obstruction were managed with colostomy
- In all cases a transverse loop colostomy was done

**ILEO TRANSVERSE BYPASS – 2 CASES****PRIMARY RESECTION WITH ANASTOMOSIS**

- 5 out of 7 cases (71.4%) of – Rt. Colonic growth
- 2 out of 3 cases of – transverse colonic growth
- 3 out of 30 cases (10%) of – Lt. colonic growth
- 1 out of 3 cases of - splenic flexure growth

**PRIMARY RESECTION WITH COLOSTOMY**

- One case of transverse colonic growth with perforation and LBO – ileostomy with mucus fistula was done
- Splenic flexure growth – 2 out of 3 cases
- Lt. colonic growth – 27 out of 30 cases
  1. 2 cases were associated with perforation
  2. 10 cases were operated under high peri operative risk



Hepatic Flexure Growth with Dilated Proximal Bowel



**Palliative resection of sigmoid with Hartmann's procedure**

**PATHOLOGY REPORT**

- All cases of colonic malignancies were histologically confirmed either from resected specimen / from node or peritoneal mets biopsy in inoperable cases

S.NO		COMPLICATIONS	PERCENTAGE	NO OF CASES
1	<b>POST OPERATIVE COMPLICATIONS</b>	Surgical site infection	22	33.3%
		Anastomotic leak	2 of 11	18.2%
		Wound dehiscence	6	9.1%
		DVT	2	3.1%
2	<b>MORTALITY AND CAUSE OF DEATH</b>	No. of deaths	15	22.7%)
		Sepsis secondary to Peritonitis- Primary	7	
		Anastamotic leak	1	
		Cardiac failure/Myocardial infarction	6	
		Embolism	1	

**MORTALITY IN DIFFERENT PROCEDURES**

- Primary resection and anastomosis - 3
- Primary resection with end colostomy - 7
- Simple colostomy - 5
- Ileotransverse bypass - nil

**PREDICTORS OF OUTCOME**

Based on ACPGBI study which looked into

- AGE
- ASA Grade
- OPERATIVE URGENCY
- DUKE'S STAGE



**AGE WISE MORTALITY**

Age	No. of Deaths
40-50	2
50-60	5
60-75	6
>75	2

**ASA GRADE MORTALITY**

ASA	No.
ASA IIE	2
ASA IIIIE	4
ASA IVE	9

**DUKE'S STAGE MORTALITY**

DUKE'S STAGE	Deaths
A	1
B	3
C	5
D	6

**VOLVULUS**

- Sigmoid - 8
- Caecal - nil
- Transverse colon - nil
- Splenic flexure - nil
- Volvulus with features of peritonitis - 4
- Volvulus with no peritonitis - 4

**PROCEDURE DONE**

- Early non – operative decompression done in- nil
- Emergency Laparotomy done in – all 8 cases

**OPERATIVE PROCEDURE DONE**

- Sigmoid resection with primary anastomosis – one patient
- Sigmoid resection with end colostomy – in all 4 cases with peritonitis and 2 cases without peritonitis because of poor general condition of the patient



- Subtotal colectomy with ileostomy and Hartmann's – done in one pt as the mucosal ischemia extended till caecum
- Detorsion with colopexy- nil
- Mesosigmoplasty - nil

#### **OUTCOME IN SIGMOID VOLVULUS**

- Two cases( 25%) expired because of sepsis – secondary to peritonitis
- All other pts recovered well with minimal complications

#### **INTUSUSCEPTION**

- 6 cases of intussusception were operated in the study period
- 4 were due to malignant lesion – 3 caecal growth and one ascending colon growth
- 2 were due to benign lesions – submucous lipoma
- All 6 were operated with Rt. hemicolectomy and primary anastomosis

#### **TB ABDOMEN**

- Colonic stricture involving transverse colon – 1. No H/O treatment taken for TB
- Colonic stricture involving rectosigmoid – 1. Known case of TB who has completed ATT 6 yrs back
- The colonic stricture in transverse colon was treated with extended Rt. Hemicolectomy with primary ileo colic anastomosis
- In the second case a transverse loop colostomy was done

#### **OTHER CAUSES**

- 5 cases of LBO – were due to obstructed hernia where sigmoid loop was involved in 3 cases of inguinal hernia and 2 cases of strangulated incisional hernia involving transverse colon
- 3 cases – one due to pancreatic malignancy obstructing the splenic flexure , two cases due to gastric carcinoma obstructing the transverse colon
- 2 cases were due to adhesions

Post operative adhesions in sigmoid loop causing kinking

#### **CONCLUSION**

- The majority of acute LBO in our study were caused by Lt. colonic growth.
- The probable cause for the high volume of LBO seen in this study can be attributed to the fact that our institution is a tertiary care centre for Gastro Intestinal emergencies.
- Sigmoid colon is the most common site followed by descending colon in our study. Similar findings were reported by Buechter et al/
- Most pts with acute LBO had abdominal pain(93%) with constipation (100%)
- 15.2% ( 10 cases )of acute LBO in this study had associated peritonitis due to perforation
- Almost 35% of cases in our study were operated on the day of admission indicating the – higher rate of urgent operation needed in our population because of seeking delayed medical treatment
- 72.5% of colonic obstructions are caused by – colonic malignancies, implicating that malignancy is the most common cause even in the lower socio economic strata which our centre caters to.
- All operable Rt. Colonic growth without peritonitis were treated with resection and primary anastomosis

- Only 3 out of 30 (10%) resectable cases of acute Lt. colonic obstruction were treated with primary resection and anastomosis.

The cause for this may be attributed to colonic obstruction in this study ( ASA  $\geq$ 3, 10 cases )

1. Association with perforation and peritonitis ( 2 cases )
2. High peri operative risk of pts with Lt.

- Complications were more frequent in the elderly age group, as expected by their more moribund condition due to their poor pulmonary, cardiac and overall nutritional status
- Complication rate was higher in patients with higher ASA class. Wound complications , pulmonary complications and intra-abdominal complications were more frequent in patients with ASA  $> 3$  as compared to patients with ASA  $\leq 3$
- This confirms the fact that the important predictors of outcome brought out by ACPGBI study holds good and can be used to assess the outcome and prognosis
- Though the trend in managing acute Lt. colonic obstruction has changed from multi staged approach to resection and primary anastomosis, only 10% of cases of left sided colonic obstruction have been managed with primary anastomosis, which we need to work out seriously
- Many newer modalities like self expanding metallic stents (SEMS) and Colonoscopic laser ablation for acute Lt. colonic obstruction have shown promising results. We have a long way to go in implementing these newer techniques in our hospital.

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