
Assessment of Large Gut Obstruction in Rural setup

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Abstract

Introduction: Large bowel Obstruction is a widespread, emergent condition, which requires early identification, meticulous work up and prompt surgical intervention, wherever indicated.

Materials and Methods: 25 consecutive patients of all age groups (excluding pediatric age group) presenting with large bowel obstruction, who had been admitted in Dhiraj Hospital, between May 2010 to September 2013, were selected randomly.

Results and Discussion: Present study revealed highest number of cases of large bowel obstruction occurring in age-group 51-60 years (9 years- 36%). In our study, no significant difference had been noted with respect to age & sex related incidence and distribution of large bowel obstruction. In this study, colorectal malignancy was found to be the biggest contributors of large bowel obstruction with nearly half the cases attributed to it (13 cases- 52%).

Keywords: Large bowel Obstruction, Abdominal Distension, endometriosis,

1. Introduction

Large bowel Obstruction is a widespread [1], emergent condition, which requires early identification, meticulous work up and prompt surgical intervention, wherever indicated. Large bowel obstruction is a result of underlying pathologies, and is known to result most often from various infections, malignancies, mechanical reasons, incarcerated hernias, strictures, intussusception, volvulus, endometriosis and adynamic causes (pseudo obstruction)[2][3].

Intestinal obstruction is one of the commonly encountered clinical entities [4]. The mortality has reduced significantly by instituting the treatment at the earliest opportunity. 1-4% of mortality in emergency surgeries is contributed by reasons directly and indirectly related to acute intestinal obstruction. Now with better understanding of pathophysiology[1][5], improvement in radiological techniques of diagnosis and high degree of refinement in correction of fluid and electrolyte imbalance, introduction of antibiotics to effective bacteriological control, introduction of techniques in gastrointestinal decompression, improved anaesthesia techniques has replaced staged procedures and number of days in hospital stay[6].

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Large Bowel Malignancy is significantly associated with increased intake of dietary animal fat, smoking, reduced amount of fibres in diet (low residue diet) and alcohol consumption. Patients with large bowel obstruction are known to present with a wide array of symptoms, such as abdominal pain, nausea, vomiting, constipation, distension of abdomen, altered bowel habit, bleeding per rectum and malaise. Patients are managed operatively, either as palliative measure or as therapeutic measure (depending upon extent of underlying pathologies and patient's clinical state). The present study includes 25 (Twenty five) cases of large bowel obstruction who presented to our institute with varied presentation.

2. Materials and Methods

25 consecutive patients of all age groups (excluding pediatric age group) presenting with large bowel obstruction, who had been admitted in Dhiraj Hospital, between May 2010 to September 2013, were selected randomly. Out of these 25 cases, 10 were males & 15 were females. A detailed

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examination was done as per included proforma after admission.

2.1 Inclusion Criteria

Only those patients who were willing to participate in study were included. Patients who presented with features of large bowel obstruction were included in study.

2.2 Exclusion Criteria

- Patients not willing to give consent.
- Patients belonging to pediatric age group.
- Patients who were discharged against medical advice.

Graphs were prepared to evaluate the key features related with their clinical presentations, underlying pathologies and treatment modes to accomplish an enhanced understanding over various aspects of large bowel obstruction. On admission a relevant pathological and biochemical investigations were carried in all cases.

Nearly all the patients (92%) were subjected to surgery as a majority of cases required surgery as mainstay of treatment. Prior to surgery, clinical stabilization of patients with fluid infusion, pain management, correction of electrolyte imbalance and nasogastric decompression was done. Appropriate surgical procedure was carried out thereafter in the cases that belonged to dynamic large bowel obstruction.

The results were tabulated according to age, sex, symptoms, signs, probable causative factors, operative findings, operative procedure adopted, post operative complications and duration of hospital stay.

Proforma

S. No. OP/IP No.
 Name: Ward:
 Age: Unit:
 Sex: Admission Date:
 Address: Discharge Date:
 Chief Complains:
 History of Presenting Illness:
 Pain:
 1. Type
 2. Duration
 3. Severity
 Vomiting
 Abdominal Distension
 Bowel Habits
 H/o passing blood in stools:
 H/o Fever:
 H/o jaundice:
 Past History
 Medical History:
 Surgical History:
 Pelvic Irradiation:
 Personal History
 Bowel & Bladder Habits:
 Sleep:

Weight Loss:
 Appetite:
 Smoker:
 Alcoholic:
 Physical Activity:
 Menstrual History (females)
 Obstetric History: (females)
 General Physical Examination
 Built & Nourishment: Vital signs
 Pallor: Pulse:
 Cyanosis: Blood Pressure:
 Clubbing: Respiratory Rate:
 Jaundice: Temperature:
 Edema
 Lymphadenopathy:
 Abdominal Examination
 Inspection
 Shape: Distension
 Respiratory Movements of each region:
 Umbilicus: Scars:
 Hernial sites: Dilated Veins:
 Visible Mass: External Genitalia:
 Peristalsis (lt to rt, rt to lt, ladder pattern):
 Palpation
 Soft/tense:
 Distension:
 Tenderness:
 Rebound Tenderness:
 Muscular Rigidity:
 Guarding:
 Abdominal Girth:
 Palpable coils of intestine:
 Is Caecum palpable:
 Palpation of hernia orifice:
 Any other mass palpable:
 Testis:
 Percussion: Whole Abdomen:
 resonant/ dull:
 Free fluid: shifting dullness/ fluid thrill:
 Auscultation:
 BS absent& complete occasional:
 Present- Normal/ Borgborygmi/ metallic:
 Per Rectal:
 Staining of finger (blood/ Red current jelly):
 Growth/ Stricture:
 Hard impacted stools/empty
 Per Vaginal:
 Cardiovascular system:
 Respiratory system:
 Cental nervous system:
INVESTIGATIONS
 CBC (Compte Blood count):
 ESR
 Blood Urea:
 Serum Creatinine:
 Blood Sugar:
 Liver Function Test:

Serum Amylase:
 Serum Electrolytes:
 BT:
 CT:
 Blood Group:
 HIV
 HBsAg:
 ECG:
 X-ray:
 X-ray of the chest
 X-ray of the abdomen (Erect)
 Stool: ova, cyst, occult blood:
 USG:
 Preoperative Diagnosis:
 Treatment
 Conservative Management
 NBM
 IV Fluids
 Ryle's tube Aspiration
 Antibiotics
 Analgesics
 Electrolyte Correction:
 Abdominal Girth measurement
 I/O chart
 Blood Transfusion
 Enema/flatus tube
 Operative Management:
 Anaesthesia
 Surgery performed
 Incision:
 Per operative finding/s:
 Site of obstruction:
 Cause of obstruction:
 Post operative events:
 Postoperative treatment:
 Days
 Pulse
 Blood Pressure
 Temperature
 Respiratory Rate
 Blood Transfusion
 IV fluids
 Urine Output
 Drain
 Drugs
 Postoperative Complications
 Histopathological report of the specimen
 Condition at the time discharge
 Advice on Discharge
 Remarks
 Follow up

3. Result and Analysis

An analytical study of 25 cases of large bowel obstruction, admitted in Dhiraj Hospital, Pipariya, between May 2010 to September 2012 has been carried out. Only those patients had been included in the study who suffered with features suggestive of large bowel obstruction and who had been willing to provide informed consent to be part

of this analytical study. Patients were subjected to history taking; clinical examination and the associated important parameters, such as mode of management, nature of surgical procedure, outcomes, complications, duration of hospital stay etc had been taken from their in-hospital medical record. The findings had been categorized in to various groups, inn consistency with the subject in study, such as age, sex, clinical presentation, management mode, etiology, complications, duration of hospital stay, etc. and the data had been converted to tables and graphs for summarization and easy interpretation.

Table 1: Age incidences

S.N.	Age Group	No of cases	% of Cases
1	<20 years	2	8%
2	21-30 years	1	4%
3	31-40 years	4	16%
4	41-50 years	5	20%
5	51-60 years	9	36%
6	61-70 years	2	8%
7	>70 years	2	8%
	Total	25	100%

3.1 Age Incidence of Large Bowel Obstruction

Present study revealed highest number of cases of large bowel obstruction occurring in age-group 51-60 years (9 years- 36%); this was followed by age group 41-50 years (5 cases-20%) and 31-40 years (4 cases- 16%). Below 30 years population contributed mere 3 cases (12%) of which 2 cases belonged to below 20 years population.

Table 2: Age & Sex Distribution in Large Bowel Obstruction

S.N.	Age Group	Sex	No of cases	% of Cases
1	<20 years	Male	1	4%
		Female	1	4%
2	21-30 years	Male	1	4%
		Female	0	0%
3	31-40 years	Male	1	4%
		Female	3	12%
4	41-50 years	Male	3	12%
		Female	2	8%
5	51-60 years	Male	3	12%
		Female	6	24%
6	61-70 years	Male	1	4%
		Female	1	4%
7	>70 years	Male	0	0%
		Female	2	8%
	Total	Male	10	40%
		Female	15	60%

In our study, no significant difference had been noted with respect to age & sex related incidence and distribution of large bowel obstruction. While total percentage of males affected came out to 40%, the figure for females remained at 60%.

Table 3: Clinical Features of Large Bowel Obstruction

S.N.	Presenting Symptom	No of cases	% of Cases
1	Abdominal Pain	25	100%
2	Vomiting	19	76%
3	Abdominal distension	25	100%
4	Constipation	24	96%
5	Altered Bowel habit	14	56%
6	Bleeding per rectum	3	12%
7	Malaise	20	80%
8	Abdominal tenderness	20	80%
9	Abdominal Guarding	9	36%
10	Abdominal Rigidity	7	28%
11	Palpable Mass	2	8%
12	Pallor	14	56%
13	Dehydration	19	76%

Abdominal pain and distension was found to be present in all the patients, thus making it the commonest presenting symptoms in the study.

Constipation was found to be present in 24 of the patients (96%); constipation was either short term or long term and in the study, presenting concern of constipation held paramount importance. History of altered bowel habits was present in 14 cases (56%).

Vomiting was found to be associated with 19 cases (76%); it was absent in 6 cases, which had presented rather early in the course of the underlying disease process.

3 cases (12%) were found to be having bleeding per rectum at the time of presentation. The longest duration of bleeding per rectum was found to be 6 months.

Malaise was present in 80% of the total cases and the incidence coincided closely with percentage of patients that suffered vomiting.

Varying level of abdominal guarding (9 cases- 36%) and abdominal rigidity (7 cases-28%) were found to be present. These were the cases in gangrenous bowel/ perforation of bowel/ peritonitis had appeared.

In a large population of the patients (80%), abdominal tenderness was elicited on deep palpation. Abdominal radiographs had revealed presence of gas under diaphragm in 3 cases, suggestive of perforation. In majority of cases, gas filled and dilated loops of colon were appreciated.

Table 4: Management

S.N.	Management	No of cases	% of Cases
1	Operative Management	23	92%
2	Non Operative Management	2	8%
	Total	25	100%

Out of 25 cases overall, 23 patients (92% of total subjects) had to be subjected to surgical intervention, while the rest of them (2 cases- 8%) were managed successfully by conservative, non operative modes. These were the cases of pseudo obstruction, where the primary etiologies had been (1) diabetic ketoacidosis (2) pancreatitis.

Table 5: Nature of Surgical Intervention

S.N.	Name of procedure	No. of cases	% of Cases
1	Temporary Colostomy	7	30.44%
2	End Colostomy/ Ileostomy	8	34.78%
3	End-to-End Resection Anastomosis	8	34.78%
	Total	23	100%

In 8 patients (34.78%), resection anastomosis could be carried out; the decision to perform resection anastomosis depended over extent and nature of underlying etiology, viability of bowel, co-morbid conditions and general state of the patient. In 7 patients (30.44%), temporary colostomy had to be resorted & 8 out of 25 cases (34.78%) were subjected to end colostomy or ileostomy as definitive procedures.

Table 6: Operative findings- Site of Obstruction

S.N.	Site of Obstruction	No of cases	% of Cases
1	Anorectal	3	13.04%
2	Rectosigmoid	13	56.52%
3	Splenic Flexure and Descending Colon	4	17.39%
4	Transverse Colon	0	0%
5	Hepatic Flexure and Ascending Colon	2	8.69%
6	Cecum	1	4.34%
	Total	23	100%

In the study, out of 23 cases that were operated in 56.52% of them, the site of obstruction belonged to rectosigmoid region. This was found to be the commonest site holding some pathology (malignancy, volvulus, strictures) that lead to large bowel obstruction.

Anorectal region was the responsible site for 3 cases (13.04% of the cases) & splenic flexure with descending colon contributed to 4 cases (17.39% each) in terms of site of large bowel obstruction.

Hepatic flexure with ascending colon contributed only 2 cases out of 23 cases (8.69%) and cecum was found to be involved in causing large bowel obstruction in just 1 case (4.34%). The table excludes cases which had been managed conservatively (2 cases, all belonged to pseudo obstruction).

Table 7: Etiology & No of cases

S.N.	Etiology	No of cases	% of Cases
1	Colorectal Malignancy	13	52%
2	Adhesions/ Benign Strictures	6	24%
3	Pseudo Obstruction	2	8%
4	Intussusception	1	4%
5	Volvulus	3	12%
	Total	25	100%

In this study, colorectal malignancy was found to be the biggest contributors of large bowel obstruction with nearly half the cases attributed to it (13 cases- 52%). Peritoneal adhesions/ benign strictures/ inflammatory strictures contributed roughly to a quarter of total cases (6 cases-24%), followed by pseudo obstruction (2 cases- 8%), volvulus (3 cases-12%) and intussusception (1 case-4%). Etiology of cases of pseudo obstruction was found to be secondary to pancreatitis and diabetic ketoacidosis.

Table 8: Post Operative Complications

S.N.	Causes	Wound Infection	Pulm. Coml.	Septicaemia	Skin Excoriation	Death (secondary to MOF, septicaemia)
1	Malignancy	4	2	2	2	3
2	Adhesions/ Benign Strictures	2	2	-	-	-
3	Intussusception	-	-	-	-	-
4	Volvulus	-	1	-	-	-
	Total	6	5	2	2	3

Various complications had been observed in patients who underwent various surgical procedures for large bowel obstruction in post-operative period.

Wound infection was found to be present in 6 patients (out of 23) and by far had been observed as the commonest post operative complication in our study.

Total 5 pulmonary complications were observed (4 cases of pleural effusion and 1 case of atelectasis) in this study; 3 of the patients' lives could

not be saved as they suffered with septicaemia and multiorgan failure (MOF) as well. Total 3 patients succumbed to septicaemia, and both these patients suffered with colorectal malignancy. Even pre-operative prognosis of both these patients had been bad due to extent and nature of underlying disease process along with co-existing disorders, weakened immune system and advanced age.

Incidence of skin excoriation was observed in just 2 cases.

Table 9: Duration of Hospital Stay

S.N.	Etiology	Hospital Stay (in days)
1	Colorectal Malignancy	2-21
2	Adhesions/ Benign Strictures	7-15
3	Intussusception	15
4	Volvulus	10-20
5	Pseudo Obstruction	3-8

In our study, duration of hospital stay differed widely depending on the cause of large bowel obstruction. Cases of pseudo obstruction, however, had lowest hospital stay (ranging from 3 days to 8 days); while the cases of large intestinal malignancies peaking to maximum (2 days to 21 days). All the 3 patients who expired did not make it to the long hospital stays and their hospital stays ranged from 2 to 5 days. These patients expired due to prevailing septicemia and consequent multi organ failure; these 3 cases belonged to group of intestinal malignancies.

4. Discussion

This analytical study yielded a variety of results in context with various parameters of interest; the results of this study were compared with other published scientific studies that had been carried out by doctors and academicians with the similar proclivity towards the subject. Any results can be discussed aptly only when reviewed in the light of other results and to evaluate any specific points that have not been found to have fallen in the established dogma of results.

4.1 Age Incidence

Present study revealed highest number of cases of large bowel obstruction occurring in age group 51-60 years (9 cases-36%); this was followed by age group 41-50 years (5 cases- 20%) and 31-40 years (4 cases- 16%). Below 30 years population contributed to mere 3 cases (12%) of which 2 cases belonged to below 20 years population.

Table 10: Age Incidence of Large Bowel Obstruction as reported by various authors

Author	Year	Country	Median Age
Sule Az[7]	2011	Nigeria	49 years
Our Study	2012	India	50 years

In a study conducted by Sule AZ[7], it was found that a total of 50 patients aged 20-80 years, with a mean age of 49 years, presented with features consistent with large bowel obstruction. When we compare the results with our study, overlapping trends can be seen with regards to age predisposition of large bowel obstruction.

4.2 Age & sex distribution in large bowel obstruction

In our study, no significant difference had been noted with respect to age & sex related incidence and distribution of large bowel obstruction. While total percentage of males affected came out to 40%, the figure for females remained at 60%.

Table11: Age & Sex Distribution by various authors

Author	Male	Female
Markogiannakis et al [8]	40%	60%
Murat Kapana et al [9]	70.3%	29.7%
Our Study	40%	60%

Studies done by Markogiannakis et al [8] revealed the sex distribution of large bowel obstruction patients to be 40% for males and 60% for females; studies done by Murat et al [9] concluded the percentage of female patients to be 29.7% and that of male patients to be 70.3%.In our study, 40%

males and 60% females were found to be present in the study population.

4.3 Clinical features of large bowel obstruction

Abdominal pain and distension were found to be present in all the patients, thus making it the commonest presenting symptom of the study.

Vomiting was found to be associated with 19 cases (76%); it was absent in 6 cases, which had presented rather early in the course of underlying disease process.

Constipation was found to be present in 24 of the patients (96%); constipation was either short term or long term and in the study, presenting concern of constipation held paramount importance. Altered bowel habits were present in 14 cases (56%).

3 cases (12%) were found to be having bleeding per rectum at the time of presentation. The longest duration of bleeding per rectum was found to be 6 months. Malaise was present in 80% of the total cases and the incidence coincided closely with percentage of patients that suffered vomiting.

Varying level of abdominal guarding (9cases-36%) and abdominal rigidity (7 cases-28%) were found to be present. These were the cases in which large bowel obstruction had been present for long duration and gangrenous bowel/ perforation of bowel/ peritonitis had appeared. In a large proportion of the patients (80%), abdominal tenderness was elicited on deep palpation. Abdominal radiographs had revealed presence of gas under diaphragm in 3 cases, suggestive of perforation. In majority of cases, gas filled and dilated loops of colon were appreciated.

Table 12: Clinical Features of Large Bowel Obstruction as Reported by Various Authors

Clinical Feature	Markogiannakis et al [8]	Sule et al [7]	Cheadle et al [10]	Our study
Abdominal Pain	88.6%	100%	92%	100%
Vomiting	78.6%	68%	82%	76%
Abdominal Distension	65.3%	96%	59%	100%
Guarding	37.3%	-	-	36%
Constipation	-	96%	88%	100%

In the study conducted by Markogiannakis et al [8], Vomiting was found to be present in 78.6% cases, abdominal distension in 65.3% cases, abdominal pain in 88.6% cases, abdominal guarding in 37.3% cases. The study carried out by Sule et al [7], 100% patients suffered with abdominal pain, 68% patients suffered with vomiting, 96% patients suffered with abdominal distension and 96% patients suffered with constipation. The study carried out by Cheadle et al [10], 92% patients suffered with abdominal pain, 82% patients suffered with vomiting, 59 % patients suffered with abdominal distension and 88% patients suffered with constipation.

4.4 Management

Out of 25 cases overall, 23 patients (92% of total subjects) had to be subjected to surgical intervention, while the rest of the, (2 cases- 8%) were managed successfully by conservation, non-operative modes. These were the cases of pseudo-obstruction, where the primary etiologies had been (1) diabetic ketoacidosis (2) pancreatitis. In a study carried out by Haridimos Markogiannakis et al[8], conservative treatment had been imparted to 25% of the cases, which is high from the results obtained in our study.

Table 13: Management by Various Authors

Author	Surgical Management	Conservative Management
Haridimos Markogiannakis(38)	75%	25%
Our Study	92%	08%

4.5 Operative Findings- Site of Obstruction

In the study, out of 23 cases that were operated, in 56.52% of them, the site of obstruction belonged to rectosigmoid region. This was found to be the commonest site holding some pathology (malignancy, volvulus, strictures) that lead to large bowel obstruction.

Anorectal region was responsible site for 3 cases (13.04% of the cases) & splenic flexure with descending colon contributed to 4 cases (18.18% each) in terms of site of large bowel obstruction.

Hepatic flexure with ascending colon contributed only 2 cases out of 23 cases (8.69%) and cecum was found to be involved in causing large bowel obstruction in just 1 case (4.34%). The table excludes cases which had been managed conservatively (2 cases, all belonged to pseudo obstruction).

Table14: Site of Obstruction Reported By Various Authors

Site of Obstruction	Markogiannakis et al [8]	Our study
Rectosigmoid+ Anorectal	80% (Rectum 5%, Sigmoid 75%)	69.56%
Ascending colon	10%	8.69%
Transverse Colon	5%	0%
Descending Colon	5%	17.39%

In a study, carried out by Markogiannakis et al[8], findings revealed malignancy in large bowel obstruction to be distributed as mentioned below; Sigmoid cancer 75% of the total cases, Cancer involving ascending colon 10% of the total cases, Cancer involving Transverse Colon 5 % of the cases, Cancer involving Descending Colon 5 % of the cases, Cancer involving the rectum 5% of total cases.

Results derived from our study match closely with the prevailing trends in this milieu.

4.6 Nature of Surgical Intervention

In 8 patients (34.78%), resection anastomosis could be carried out; the decision to perform resection anastomosis depended over extent and nature of underlying etiology, viability of bowel, co-morbid conditions and general state of the patient. In 7 patients (30.44%), temporary colostomy had to be resorted & 8 out of the 23 cases (34.78%) were subjected to end colostomy or ileostomy as definitive procedures.

Table 15: Nature of Surgical Intervention Reported by Various Authors

	Primary Resection and anastomosis	Temporary Colostomy	End Colostomy
Gatsoulis et al [11]	67%	33%	0%
Our Study	34.78%	30.44%	34.78%

In a study conducted by Gatsoulis et al[11], 21 patients with Large Bowel Obstruction underwent emergency surgery. Patients with Large Bowel Obstruction caused by obstructive malignant colonic lesions underwent either with one-stage primary resection and anastomosis (14 patients, 67%) or two-stage operation (7 patients, 33%). The number of End Colostomies in our study is because of most of the cases were having Rectosigmoid Malignancy.

4.7 Etiology & No of Cases

In this study, colorectal malignancy was found to be the biggest contributors of large bowel obstruction with nearly half the cases attributed to it (13 cases- 52%). Peritoneal adhesions/ benign strictures/ inflammatory strictures contributed roughly to a quarter of total cases (6 cases- 24%), followed by pseudoobstruction (2 cases- 8%), volvulus (3 cases- 12%) and intussusception (1 case- 4%). Etiology of cases of pseudoobstruction was found to be secondary to pancreatitis and diabetic ketoacidosis.

In studies conducted by Byrne JJ[13], colorectal malignancy has been found to be the single most common cause of large bowel obstruction and accounted for as many as the others combined i.e. volvulus, adhesions, strictures and congenital anomalies.

In another study, carried out by Haridimos Markogiannakis et al[8], large bowel cancer was responsible for leading to large bowel obstruction in 47.4% of cases; adhesions were noted to be the cause for large bowel obstruction in 36.3% cases; sigmoid volvulus was noted to be the etiological agent in 2.7% cases.

The trends match with the findings in our study with colorectal malignancy topping the list of causes of large bowel obstruction with a staggering 52%. Adhesions were found to be the second leading cause with 24% contribution of the etiologies, and volvulus contributed to 12% of the cases.

Table 16: Etiology Reported by Various Authors

Etiology	Markogiannakis et al [8]	Sule et al [7]	Our study
Large Bowel Malignancy	47.4%	72%	52%
Adhesions	36.3%	0%	24%
Sigmoid Volvulus	2.7%	24%	12%

4.8 Post operative Complications

Various Complications had been observed in patients who underwent various surgical procedures for large bowel obstruction in post-operative period. Wound Infection was found to be present in 6 patients (out of 23) and by far had been observed as the commonest post operative complication in our study.

Total 5 pulmonary complications were observed (4 cases of pleural effusion and 1 case of atelectasis) in this study; 3 of these patients' lives could not be saved as they suffered with septicaemia and multiorgan failure (MOF) as well. Total 3 patients succumbed to septicemia, and both these patients suffered with colorectal malignancy. Even pre-operative prognosis of both these patients had been bad due to extent and nature of underlying disease process along with co-existing disorders, weakened immune system and advanced age. Incidence of skin excoriation was observed in just 2 cases.

Table 17: Post-Operative Complications Reported by Various Authors

Authors	% of Complications
Biondo S <i>et al</i> [12]	46.5%
Sule <i>et al</i> [7]	22%
Our Study	28%

In the studies done by Biondo S *et al* [12], 46.5% complications were observed in a series of patients suffering with large bowel obstruction. In the analytical study done by AZ Sule[7], 22% incidence of complications was noted. In Ancient literature, complication rate has been found to range from 6% to 47%. In our study, complications have occurred in 7 cases (2 belonging to colorectal malignancies, 2 belonging to adhesions & strictures and 1 belonging to volvulus) thus keeping the complication rate to 28%, which is well within the broadly established range of complication rate.

4.9 Mortality

In the study done by Biondo S *et al*[12] mortality in cases of large bowel obstruction has been noted to be 18.8%. in our study, 12% mortality had been found. In the study done by Markogiannakis *et al* [8], 2.7% mortality and in the studies done by Murat *et al* [9] & Sule *et al* [7], percentage of mortality had been found to be 12.8% and 12% respectively.

Table 18: Mortality in cases of Large Bowel Obstruction Various Authors

Authors	Mortality percentage
Biondo S <i>et al</i> [12]	18.8%
Markogiannakis <i>et al</i> [8]	2.7%
Murat <i>et al</i> [9]	12.8%
Sule <i>et al</i> [7]	12%
Our Study	12%

5. Conclusion

Following conclusions are derived from this study, comprising of 25 cases of large bowel obstruction. Old age had been found to be the most common affected age group (51-60 years) , and more than half of the cases were represented by population falling between 41 to 60 years of age.

In this study, youngest patient was of 18 years, and the eldest one was of 76 years (the former one suffered with benign stricture and the latter one suffered with large bowel malignancy). Colorectal malignancy came out to be the greatest contributor of large bowel obstruction in our study.

Adhesions/ benign strictures came out as the next most common cause of large bowel obstruction, followed by volvulus in the list of surgical causes of large bowel obstruction.

Sex distribution differences were found to be there males 40 %, females 60%, though the difference is not marked and can be attributed to sample size and random patient selection.

Mode of clinical presentation differed along the lines of level and extent of large bowel obstruction; abdominal pain, abdominal distension, nausea, vomiting and constipation were found to be most frequently complained symptoms.

Clinical examination holds stellar importance in correctly diagnosing the patients suffering with large bowel obstruction; vital signs and abdominal examination hold the key to successful intervention and early stabilization. Plain X-ray abdomen had been found to be the single most vital diagnostic tool to diagnose large bowel obstruction; in cases where plain x-ray abdomen did not yield any significant findings, USG (ultrasonogram) abdomen provided important clues.

CT Scan Abdomen has been used to confirm the type and site of large bowel obstruction, along with involvement of other organs and spread of disease in case of colorectal malignancies. Hospital stay had been prolonged in majority of patients; this fact can be justified due to nature of surgical intervention and underlying causes of large bowel obstruction. The longest duration was 21 days in a case of colorectal malignancy.

Healthy regime of post-operative chest physiotherapy would contribute significantly in lessening the instances of post operative lung complications viz. pleural effusion, atelectasis.

Mortalities in this study are attributed to septicemia and multi-organ failure; such complications happen in late presentation and in cases where patient has poor nutritional state, weakened immune response and bowel perforation, secondary to large bowel obstruction. In cases of

Distal Large Bowel Obstruction, Proximal colostomy is desirable.

6. Summary

In the study, 25 cases of large bowel obstruction, admitted at our institute, have been included. In the study, no significant difference was noted in sex distribution of the patients. In the study, 51-60 years age group had been affected the most and age group of 21-30 years had been least affected. 2 cases that belonged to <20 years age group were 18 and 19 years in age. No pediatric group population was included in the study. Large bowel obstruction, in our study, had been found to be present more frequently in females (60%) than in males (40%); though the difference in occurrence is not grossly inclined in favour of females and the difference can be attributed to small sample size. In cases of malignant causes of large bowel obstruction, out of total 13 cases, 5 had been males and 8 had been females, thereby offering no gross difference in incidence of colorectal malignancy with respect to sex of the patients. Presenting complaint of abdominal pain had been present in all the patients. Abdominal distension turned out to be the cardinal feature of the study by making its presence in all the 25 cases. Presenting complaint of constipation had been found to be present in nearly all the patients (in 24 patients), either long term or short term, in all the patients. Abdominal guarding and abdominal rigidity had been present in 9 and 7 cases respectively, suggesting signs of peritonitis. Out of all the 25 cases, 23 were subjected to operative intervention and 2 were managed conservatively. Out of 25 subjects, resection anastomosis was opted for in 34.78% of the patients (8 in number), while temporary colostomy and end colostomy/ ileostomy had been opted in 12 and 13 patients respectively. Per operative findings suggested involvement of rectosigmoid junction in highest number of cases (56.52%), which was followed by splenic flexure and descending colon next (17.39%). This was followed by Anorectal region (13.04%) and Hepatic flexure/ Ascending Colon (8.69%). Transverse colon was not found to be affected in any of the patients.

Wound infection turned out to be the biggest complication and was noted in 6 patients; this was closely followed by pulmonary complications (pleural effusion & atelectasis) in 5 patients. 2 patients developed skin excoriations as post-operative complications. Septicemia was developed in 3 patients, who, in spite of meticulous intensive care treatment and monitoring, eventually died in view of multiorgan failure and septic shock. Hospital stay had been found to be least in cases of large bowel pseudo

obstruction (average length 3-8 days). Maximum duration of hospital stay was noted for colorectal malignancy patients (average length 2-21 days). Patients of sigmoid volvulus had hospital stay of 10-20 days & patients of intussusception had hospital stay of 10 days. All the patients who could not be saved contributed to hospital stay of 2-5 days. The outcome of large bowel obstruction depends greatly over the timing of presentation; it has been observed that earlier the presentation, better the outcome.

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