

Etiology of Colonic Obstruction And postoperative morbidity and mortality during hospitalization

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Abstract:

Large bowel obstruction defined as the normal propulsion and passage of colon contents does not occur. Intestinal obstruction involves the colon 20 to 40 percent of all intestinal obstruction. Colonic obstruction is associated with potentially serious complications such as perforation, the timing and selection of appropriate operative procedures are important. Symptoms can develop slowly and progressively or fulminantly. Among adults, elderly people are usually affected. The sigmoid colon is the usual site: this portion of the intestine is thick walled, not particularly distensible, and comparatively narrow. To study the causes, sex predominance, age group, morbidity and mortality of patients with large intestinal obstruction in Al- Hilla general Hospital. This is a prospective study of patients with intestinal obstruction admitted to Al – Hilla general Hospital, department of surgery. Between October 2013 and October 2020, sixty eight patients were included in this study. Data recorded on database, history of concomitant diseases, causes of obstruction, hospitalization, and post operative complications during hospitalization were noted. The study include 68 patients, male 47 (69%) female 21 (31%) patients, M:F ratio was 2 :1. Seventy five percent of the patients were in the age of (50-70) years old. Seventy eight percent of patients had history of concomitant diseases (Ischemic Heart Disease, Hypertension, Diabetes mellitus, and atrial Fibrillation). Surgical operation was undertaken for 47 (69%) patients. Tumour was commonest cause of large bowel obstruction. Complication occurred in 36% of patients following operative intervention. wound infection was the commonest cause of complications. The post-operative mortality rate was 19%. Large bowel obstruction more in old age group and has high rate of complication and mortality, And according to the causes of large bowel obstruction early detection of tumor is needed to improve the outcome. **keyword: age group ; complications; large Intestinal obstruction; mortality; sigmoid colon.**

INTRODUCTION

Large bowel obstruction defined as the normal propulsion and passage of colon contents does not occur (Beauchamp E., 2007).

Large bowel obstructions are far less common than small bowel obstructions, accounting for only 20% of all bowel obstructions (Jones J;2023), (Brant W.;2007). the most common cause is colonic cancer (50-60%), typically in the sigmoid (Jones J;2023) (Brant W.;2007), (Khurana B.;2002).

Large bowel obstruction can be classified as functional (mechanical) or nonfunctional (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 (Norman S.;2010).

Pathophysiology

Large-bowel obstruction is associated with increased fluid secretion into the lumen, and, in later stages, with decreased intestinal motility. As the colon dilates, the function of the ileocecal valve is important. When the valve is competent (thus preventing reflux back into the ileum), a closed-loop obstruction develops. Because of a correlation between tension in the colon wall and the diameter of the bowel, based on Laplace's law, the cecum dilates more rapidly than the remainder of the colon. Because it is thin walled, the cecum is prone to perforate (Gennaro P.,2021).

Aims of the study :

- 1.** To determine most common causes of large bowel obstruction .
- 2.** To determine sex and age group more likely involved with large bowel obstruction .
- 3.** To determine morbidity and mortality in patients who underwent surgery for large bowel obstruction during hospitalization.

PATIENTS AND METHODS

This is prospective study of patients with large bowel obstruction admitted to Al – Hilla General Hospital , department of surgery . Between October 2013 and October 2020. we observe the patients from date of admission till date of discharge. Sixty eight patients were included in this study. Data recorded on database, history of concomitant diseases, causes of obstruction, hospitalization, and post operative complications during hospitalization were

noted. Diagnosis of large intestinal obstruction was done clinically depending on good history and thorough physical examination, X-ray examination in supine and erect positions. Some patients can tolerate investigations and send for CT scan and barium enema.

After resuscitation with intravenous fluids, gastrointestinal decompression with nasogastric tube, Foleys catheter insertion, close follow up electrolyte status and antibiotics cover and including **urgent operation for :**

1. Internal intestinal strangulation .
2. Obstructed or strangulated external hernia.
3. Bowel perforation.

RESULTS

Sixty eight patients who were diagnosed as having large intestinal obstruction were include in this study. Forty seven (69%) males and 21 (31%) females. Male : Female ratio was 2 : 1 as shown in (fig 1).

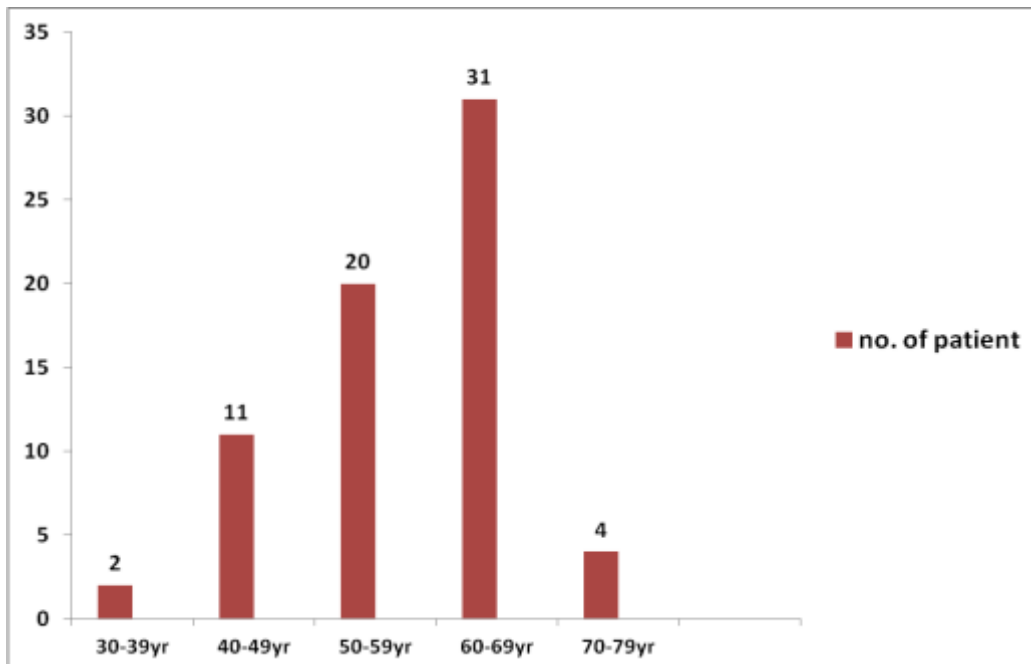
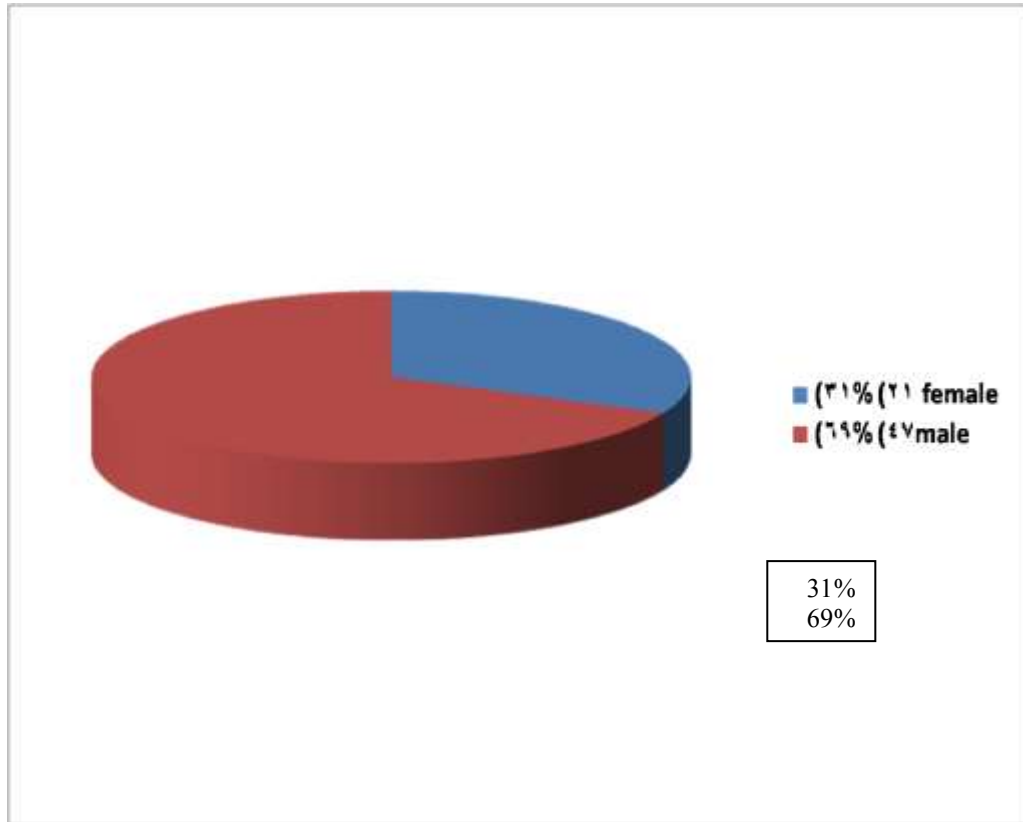


Fig (2) age incidence of large bowel obstruction

Regarding the age of patients, we had 75% of the patients were in the age of (50-70) years old.

Table (1) age incidence of large bowel obstruction .

number of patients	Age
3% (2 patient)	30-39 years
16.5% (11 patient)	40-49 years
29.5 % (20 patient)	50-59 years
45% (31 patient)	60 -69 years .
6% (4 patient)	70-79 years .

Associated Medical illnesses

Fifty three (78%) patients had history of concomitant diseases (Ischemic Heart Disease, Hypertension, Diabetes Mellitus , and atrial fibrillation) . Forty patients out of 53 had multiple concomitant diseases table (2) .

Table (2) patients with systemic diseases

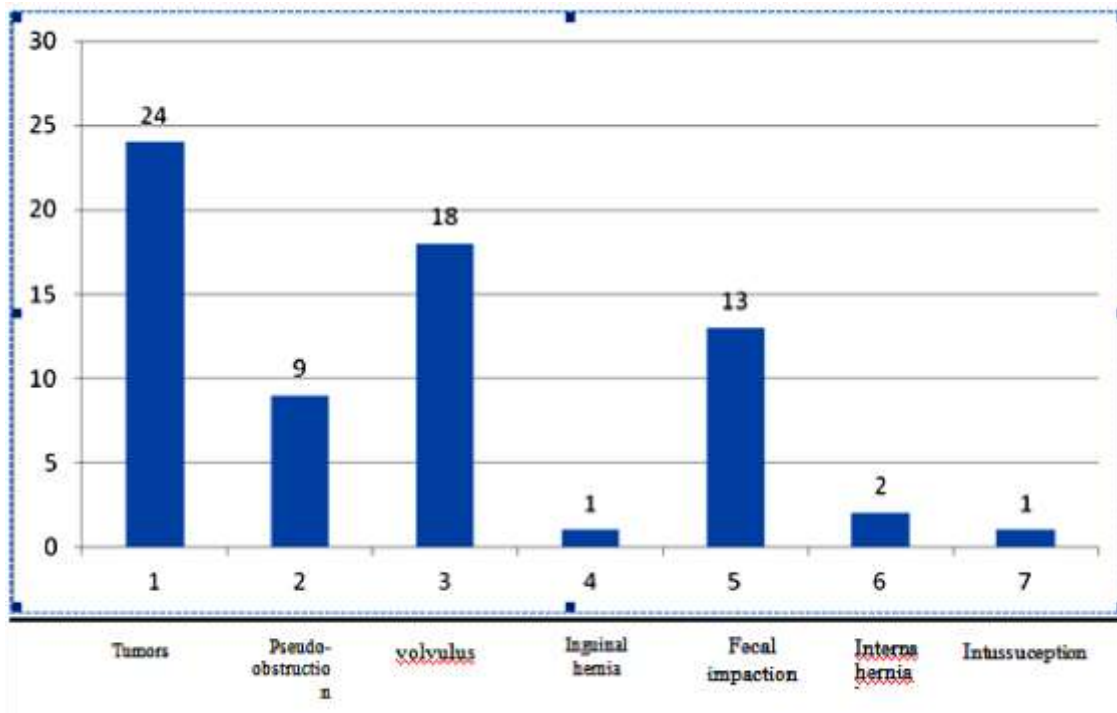
Type of systemic diseases	Numbers	Percentage
Hypertension	6	11%
Diabetes mellitus	5	9.5%
Bronchial asthma	2	4%
Chronic renal failure + Hypertension	2	4%
Hypertension + Cerebrovascular accident + Diabetes mellitus	3	6%
Diabetes mellitus + Chronic renal failure + Atrial fibrillation	2	4%
Ischemic heart disease +Hypertension + Diabetes mellitus	15	28%
Hypertension + Diabetes mellitus	13	24%
Hypertension + Ischemic heart disease+ Atrial fibrillation	5	9.5%
Total number	53	100%

Regarding causes of large intestinal obstruction

Among the 68 patients included in this study the commonest causes of large intestinal obstruction was tumor 24 (35.5%) patients , Vovulus 18 (26.5%) patients and the remainders had different pathologies . Table (3) . **Table (3) causes of intestinal obstruction**

Causes	Number	percentage
Tumors	24	35.5%
Pseudo obstruction	9	13%
Volvulus	18	26.5%
Obstructed hernias (inguinal)	1	1.5%
Fecal impaction	13	19%
Internal hernia (diaphragmatic)	2	3%
Intussusceptions (colo-colic)	1	1,5%
Total number	68	100%

19 (28.5%) patients treated conservatively . Two (3%) patients discharged on family responsibility after one day of hospitalization , and the remaining 47 (69 %) patients underwent surgery. all operations were done through a midline incision except for obstructed inguinal hernia where incision done on the site of hernia.



Regarding post-operative morbidity and mortality during hospitalization :

Out of 47 patients who underwent surgery 21 (44%) discharged home without complications .Two (4%) patients developed chest infection, one (2%) patient developed prolonged ileus for 6 days, twelve (25.5%) patients developed wound infection treated by daily wound dressing and antibiotics cover, they responded to treatment and discharged home .Two (4%) patients had developed intra-abdominal infection. One of those with chest infection developed wound dehiscence treated surgically.

While 9 (19%) patients were die post-operative. Two patients died due to shock , Three patients died from myocardial infarction, Three patient died from pulmonary embolism. One patients died from septicemia.

All dead patients were died within 5 days after operations.

Post operative hospital stay for those underwent surgery: most of our patients remain in the hospital for 7-10 days .

Table (4) hospital stay :

No. of patients	Hospital stay
29 (62%)	6-10 days
18 (38%)	more than 10 days

DISCUSSION :

Most of patients of this study were males , male to female ratio was 2 : 1 which is differ from the other studies where male and female equally affected(Gennaro P.,2021),(Byun Y;2005).

Our study showed 45% of patients between 60 -70 years and comparative to other studies(Grundy E;1999),(Kinsella K.;2000) (Kalache A.;2000).

In our study the commonest cause of colonic obstruction was malignant tumors (35.5%) while in the other studies malignant tumors account for (60%) as cause of colonic obstruction(Jones J;2023), (Brant W.;2007), (Khurana B.;2002)(Kahi CJ.;2003),(Díte P.2003).¹³⁾ . Lower incidence of malignant tumor among the patients may explained partially as our society increase roughage intake (dietary fiber) is associated with reduced transit times, and this in turn reduces the exposure of the mucosa to carcinogens(Norman S.;2010).

Second common cause was volvulus (26.5%) while in the study conducted by Christy Hopkins in U.S.A volvulus account for (5%) (Kahi C.J.;2003), (Dite P.2003),(Flasar M.;2006) the higher incidence among our patients explained by high residue diet taken by our society(Norman S.;2010).

Complication occurred in 36% of patients following operative intervention , wound complications like infection were the commonest complications (25.5%) because most patients were old age and diabetics with multiple medical comorbidities and operations were contaminated surgery, While in nother studies Wound complications occurring in up to 13% of patients (Ho V P.;2011),(Tevis S;2016). In our study (4%) of patients had developed intra-abdominal infection while in other studies occurs at a rate of 3 to 10% patients(Khurana B.;2002),(Ho V P.;2011), (Telem D.;2010),(Leichtle S.;2012),(Krarup P.;2014),(Turrentine F.;2015),(Espin E.;2015),(Bakker I.;2014),(van Bree S.;2014)

. In our study one (2%) patient developed prolonged ileus for 6 days, while in other studies occurs to range from 5.3 to 24%(Khurana B.;2002), (Gennaro P.,2021), (Kronberg U.;2011)⁽Asgeirsson T.;2010),(Chapuis P.;2013).

The present study post-operative mortality was 19% which is comparative to other study done by Sebastiano Biondolower in Spain was (18.8%) (Sebastiano B.;2012)And according to a 2022 study, The rate of survival is between 10% and 20% for large bowel obstruction(Saurabh S.;2023)

Mortality related factor are anesthetic risk , presence of malignancy, old age , delay presentation and associated medical illnesses.

CONCLUSION

From this study we found that large intestinal obstruction in old age group is a serious condition that associated with high morbidity and mortality It may necessitate surgical interference .

Every patient with intestinal obstruction should be carefully assessed to avoid false diagnosis of pseudo obstruction or fecal impaction.

RECOMMENDATION

1: Because of the lack of reliability of clinical criteria in old age for strangulation, operative intervention in aged patients should be undertaken as soon as the diagnosis of mechanical obstruction is made.

2: Fecal impaction and pseudo-obstruction can be treated conservatively. It's often significant to differentiate it from other pathologic causes of bowel obstruction.

3: Delay in diagnosis and initiating treatment often result in death of tissue (gangrenous bowel) and life. The time of management and surgical intervention is highly important.

4: In presence of large bowel obstruction, a single contrast water – soluble enema or CT should be undertaken to exclude a functional cause.

5: Most common cause of intestinal obstruction was malignant tumors which need early detection and treatment before intestinal obstruction is established.

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