

Original Research Article

A prospective observational study of etiology and management of acute intestinal obstruction in a tertiary care centre

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ABSTRACT

Background: There are major differences not only in the etiology of the condition but also the treatment and management resources between developed and developing regions. With the improvement of living standards and better access to healthcare facilities, previously reported causes and outcomes of intestinal obstruction from developing countries might be changing.

Methods: An observational study was conducted in government medical college and hospital, Akola from August 2022 to July 2024 among patients of age >12 years being admitted to the surgical wards of government medical college hospital, Akola with symptoms and signs of acute intestinal obstruction. Analysis of the various causes, presentations, management strategies of mechanical bowel obstruction and the outcome following management of the patients will be done using the collected data.

Results: Present study consisting of 120 cases requiring operative management presenting at GMC, Akola. In this study there is higher incidence of intestinal obstruction among males. As far as age distribution is concerned, most common occurrence was between 65-74 years. Most common cause of intestinal obstruction was obstructed hernias followed by adhesions. The commonest symptom in our study was pain and abdominal tenderness as the commonest sign. Most common surgical procedure performed were hernia repair and adhesiolysis. In present study commonest postoperative complication encountered-postoperative fever and wound infection.

Conclusions: In present study obstructed hernias were found to be the commonest cause for obstruction. Adhering to the basic principles of preoperative preparation like nasogastric tube suctioning, correcting dehydration and electrolyte imbalances can significantly lower the morbidity and mortality. If preoperative preparation is improved and anesthetic management is more optimum, the mortality from abdominal exploration should approach minimum. With timely management, most patients have an excellent prognosis.

Keywords: Obstruction, Intestinal, Obstructed hernias, Presentation

INTRODUCTION

Intestinal obstruction occurs due to the failure of passage of contents through intestine. It can be because of a mechanical or functional pathology. Nowadays, acute mechanical intestinal obstruction is one of the main causes of surgical admissions in most emergency departments worldwide.¹ Classification based on time since obstruction: acute-hours to 1 day, sub-acute-days to

week and chronic unrelenting obstruction lasting several weeks.²

Understanding etiology gives an indication of how well the country's emergency services are functioning and has proven to aid better planning for its emergency surgical conditions. Because of the emergency presentation and risk of bowel strangulation requiring urgent surgery, an early establishment of the cause of obstruction is of importance to reduce major morbidity and mortality. It

was opined that with the improvement of living standards and better access to healthcare facilities, previously reported causes and outcomes of intestinal obstruction from developing countries might be changing. Although there have been numerous reports on intestinal obstruction from western countries there have been very few publications from the developing world. There are major differences not only in the etiology of the condition but also the treatment and management resources between developed and developing regions.⁶⁻⁸ The objectives of present study is to estimate the relative frequency of various causes, to study the various patterns of presentation, to study the management and to study the outcome of acute intestinal obstruction in a tertiary care hospital in India which is a developing country.

METHODS

Study design

It was a prospective observational study.

Study setting

The present study carried out at government medical college, Akola, a tertiary care hospital in Western Vidharba.

Study period

Study conducted from 1 August 2022 to 31 July 2024.

Study population

All patients above 12 years of age admitted with an episode of acute intestinal obstruction in government medical college, Akola were selected.

Sample size

This study is based on universal sampling method.

Inclusion criteria

Patients presenting to the hospital both to the regular out patient department and to the emergency department with symptoms and/or signs of acute intestinal obstruction (based on time since obstruction, few hours to 24 hours) subsequently undergoing admission and willing to participate in study and age of patients >12 years were included in study.

Exclusion criteria

Age <12 years, patients who are not willing for admission to the hospital and participation in study, patients lost to follow up after discharge and patients presenting with subacute and chronic presentation, paralytic ileus were excluded.

Statistical analysis

Data will be analysed by statistical software SPSS 28.0. Microsoft word and excel have been used to generate graphs, tables etc.

Ethical considerations

The study will be carried after approval from institute ethical committee and scientific review committee of government medical college, Akola.

An observational study conducted in government medical college and hospital, Akola from 1 August 2022 to 31 July 2024 among patients of age >12 years being admitted to the surgical wards of government medical college hospital, Akola with symptoms and/or signs of acute intestinal obstruction.

Details of the treatment along with Intra-operative findings as well as post-operative complications will be recorded according to follow up time {Early complications and late complications}. Analysis of the various causes, presentations, management strategies of mechanical bowel obstruction and the outcome following management of the patients will be done using the collected data.

RESULT

In present study out of 120 patients, 68.3% were males and 31.7% were females. The study revealed that, incidence was more in male sex. Patients of intestinal obstruction where mainly from age group 65 year to 74 year (27.50%). From 55 year to 64 year comprises of 20% patients and from 45 year to 54 and 55-64 year comprises of 16.67%. Most common symptoms were found to be pain and vomiting. Most common sign was found to be tenderness.

Table 1: Clinical symptoms of patients.

Symptoms	N	Percentage (%)
Pain	120	100
Vomiting	102	85
Distension	84	70
Obstipation	70	58.3
Irreducible hernia	46	38.3
Fever	40	33.3
Tenderness	80	66.67
Guarding	52	43.33
Rigidity	28	23.33
Mass	6	5
Dehydration	62	51.66

Most common etiology of intestinal obstruction was found to be obstructed hernia followed by adhesions.

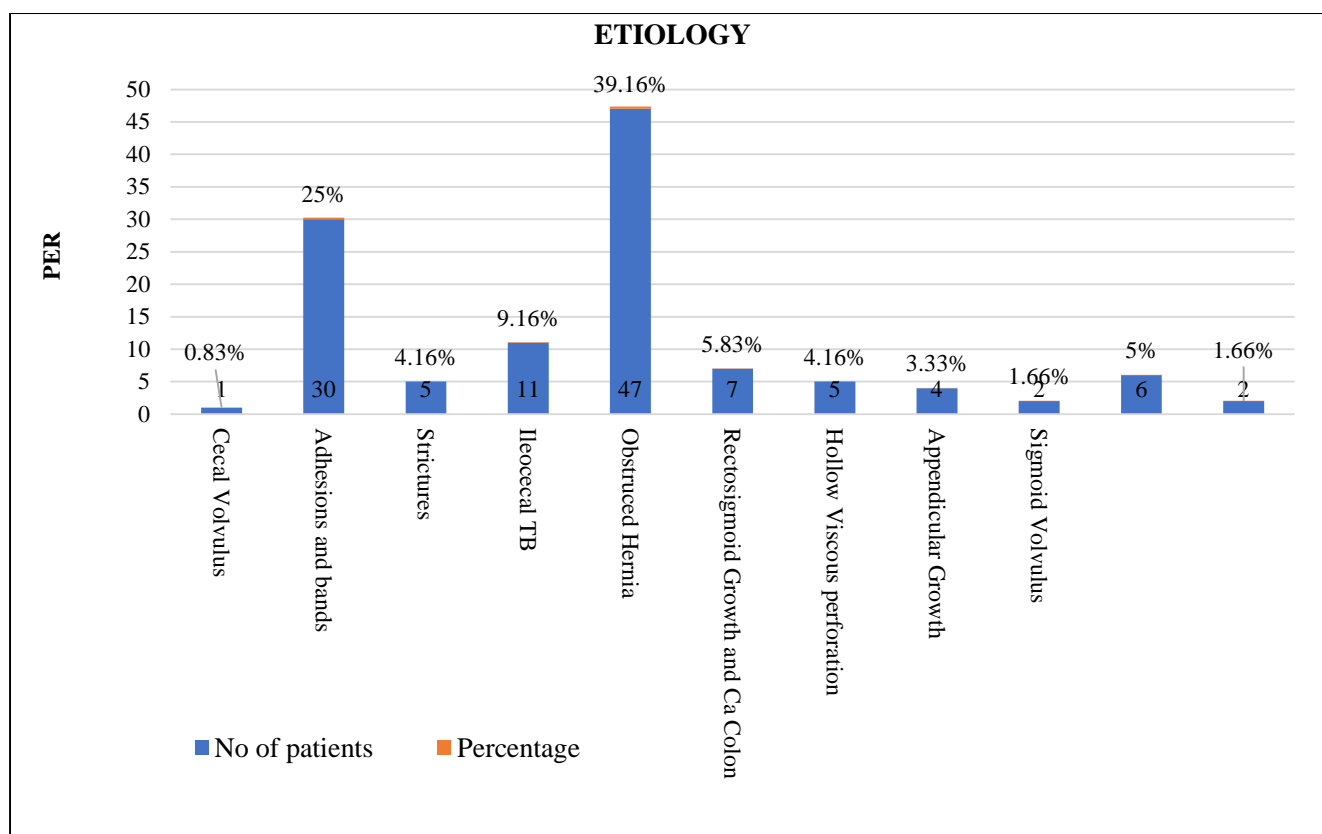


Figure 1: Etiology of acute intestinal obstruction in study.

Among all obstructed hernias, inguinal hernia was found to be the most common in this study. Most common procedure done in intestinal obstruction in our study was herniorraphy followed by adhesiolysis. Least common procedure was hemicolectomy and primary repair.

Table 2: Operative procedure performed.

Operations	N	Percentage (%)
Adhesiolysis	29	24.16
Hernia repair	42	35
Resection and anastomosis	15	12.5
Stoma creation	11	9.16
Hemicolectomy	3	2.5
Conservative	8	6.66
Primary repair	3	2.5
Others (incl. appendectomy)	9	7.5

Most common post operative complication was found to be fever and/or SSI. least common complication was found to be death.

DISCUSSION

This discussion analyzes findings from a prospective observational study conducted at a tertiary care centre, highlighting the primary causes, diagnostic approaches,

treatment modalities, and patient outcomes associated with acute intestinal obstruction.

Gender distribution

In present study out of 120 patients, 68.3% were males and 31.7 % were females. The study revealed that, incidence was found higher in males. This is consistent with a study by Jena et al.⁷ There were 429 (57.7%) males and 314 (42.3%) females. Similar observation was seen in Bargaje et al and Shankar et al study.^{8,9}

Age distribution of patients

In present study, the patients of intestinal obstruction were mainly from age group 65 year to 74 year (27.50%). From 55 year to 64 year comprises of 20% patients and from 45 year to 54 and 55-64 year comprises of 16.67%. This is consistent with a study by Long et al middle aged and elderly people over 50 years of age were at higher risk.¹⁰ Similar observation was seen in Cheema et al and Lee et al.^{11,12}

Clinical symptoms in patients

In present study, 100% patients complained of pain abdomen and altered bowel habit followed by vomiting (85%) as the second most common complaint. Other complaints were abdominal distension (70%), constipation (58.3%), irreducible hernia (38.3%) and

fever (33.3%) as the least common complaint. This is consistent with a study by Agarwal et al.¹³ The study identified abdominal pain as the predominant symptom, followed closely by vomiting and abdominal distension. Similar observation was seen in Adeolu et al, Wu et al, Ekeh et al and Matsushita et al.¹⁴⁻¹⁷

Clinical signs of patients

In present study, abdominal tenderness (66.67%) and dehydration (51.66%) were the most common signs found. Abdominal guarding (43.33%), rigidity (23.33%) and abdominal mass (5%) were the other signs found. This is consistent with a study by Bizer et al.¹⁸ The study noted that abdominal tenderness was almost universal, and abdominal distension was highly prevalent. Similar observation was seen in Smith et al, Abba et al and Zhang et al.¹⁹⁻²²

Etiology

The most dominant etiology was obstructed hernia (39.16%) followed by adhesions and bands (25%), cecal volvulus (0.83%) formed the least common cause. This is consistent with a study by Patel et al where adhesions were identified as the leading cause of acute intestinal obstruction.²³ Similar observation was seen in studies by Das et al, Yousuf et al, Mishra et al and Jain et al.²⁴⁻²⁷

Obstructed hernias

In present study, among the obstructed hernias, obstructed inguinal hernia (63.82%) was found to be the most common type, followed by umbilical hernia (25.53%) and spigelian hernia (2.12%) was found to be the least common cause. This is consistent with a study by Shittu et al where obstructed hernias were seen to be the most common cause of obstruction (45.7%), in which inguinal hernia (61%) was the most common type. Similar Observation was seen in studies by Khan et al and Udo et al.^{29,30}

Operations

Most common procedure done in intestinal obstruction in our study was hernia repair (35%) followed by adhesiolysis (24.16%). Least common procedure was hemicolectomy (2.5%) and primary repair (2.5%). This is consistent with a study by Adhikari et al where hernioplasty was the most common procedure done in this study (28.06%).³¹ Different observation was seen in studies by Shukla et al and Tiwari et al where resection anastomosis was most commonly performed.^{32,33}

Complications

Most common post op complication was found to be fever and/or SSI (17.5%) followed by cough (17.5%). Least common complication was found to be death (3.33%). This is consistent with a study by Khan et al

where Commonest postoperative complication encountered were fever and wound infection.²⁹ Similar observation was seen in studies by Daddenevar et al, Mohammed et al and Adhikari et al.^{31,34,35}

Limitations

The present study was conducted at a tertiary care centre and all patients belonged to lower socioeconomic status. Thus, this study didn't include patients going to private setups, primary and secondary care centres for treatment in whom the presentation was acute and operative intervention was required. Some patients who were referred from primary, secondary care centres after primary treatment to this tertiary care centre came with delayed presentation were not considered in present study as in present study only patients who presented with acute obstruction and requiring emergency surgical treatment were taken in study population.

CONCLUSION

The present study was aimed at identifying the etiological factors, mode of presentation, surgical procedures employed with relevant investigational procedures and post-op complications. In present study the most common cause of intestinal obstruction was found to be obstructed hernias and least common cause was intestinal volvulus. It has been found that most common operative procedure done in patient of obstruction was repair of hernia followed by release of adhesion and bands with pathology being mostly inflammatory and overall mortality being 3.3% in patients of intestinal obstruction. In present study by adhering to the basic principles of preoperative preparation like nasogastric suctioning, correcting dehydration and electrolyte imbalances could significantly lower the morbidity and mortality. If preoperative preparation is improved and anesthetic management is more skillful, the mortality from abdominal exploration approached minimum while Surgical intervention remained the cornerstone of treatment. With timely management, most patients had an excellent prognosis. Thus, present study can help in better understanding of clinical presentation and better management practices which can be implemented to decrease morbidity and mortality in developing countries, particularly in rural areas and at the level of tertiary care hospitals.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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