



Clinico-Pathological Profile and Management of Intestinal Obstruction with Special Reference to Laparoscopic

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ABSTRACT

Background: intestinal obstruction is one of the deadliest diseases that can develop in the belly, and it can be fatal if not treated quickly. According to the "never let the sun set or rise" adage, intestinal blockage requires immediate surgical intervention.

Methods: Clinico-pathological profile and management of intestinal obstruction with special reference to laparoscopic intervention. In this prospective cohort study we intend to

1. To evaluate clinic-pathological profile of intestinal obstruction
2. To evaluate different management strategy of intestinal obstruction.
3. To compare laparoscopic Vs other management strategies

Results: In this study we found that commonest presenting symptoms among patients with intestinal obstruction was abdominal pain in all patients. 61% showed positive findings in erect x ray films. Our patients showed varying patterns of intra-operative findings, Adhesions was the most common finding in our patients.

Conclusions: In conclusion, the most common reason for intestinal obstruction was adhesions. Other frequently seen causes of intestinal blockage in our investigation were tubercular etiology and acute or chronic inflammation.

Keywords: intestinal obstruction, laparoscopic surgery, intestinal blockage

the digestive tract normally, a condition known as intestinal obstruction or bowel obstruction occurs. The blockage might be localized or widespread, and it can change places across the system or just happen due to systemic alteration.¹

It is one of the deadliest diseases that can develop in the belly, and it can be fatal if not treated quickly. According to the "never let the sun set or rise" adage, intestinal blockage requires immediate surgical intervention.^{1,2}

Five percent of all emergency room visits are due to intestinal obstruction, the most common site being the small intestine (80%) and the large intestine (20%). Compression by an external mass, adhesion bands, strangulated internal or external hernia, volvulus, and intussusception all fall under the category of extrinsic causes.^{2,3} (table-1)

Complete or partial intestinal obstruction can be diagnosed based on clinical and radiographic findings. Managing the former requires surgery, but the latter can often be treated non-invasively first, especially if adhesions or TB of the abdomen are to blame. 1-4 proximal intestinal dilatations causes fluid shifts and electrolyte derangements, which can be rectified and spontaneous clearance of the obstruction can be observed clinically, provided the patient does not have peritonitis.⁵ Both high and low-income countries can benefit from these guidelines (LMICs).¹⁻⁴

I. INTRODUCTION:

When the contents of the intestine and the byproducts of digestion are unable to move through



Table-1 CLASSIFICATION OF INTESTINAL OBSTRUCTION

<p>1. Dynamic: Where peristalsis working against a mechanical obstruction.</p> <p>1. Intraluminal</p> <ul style="list-style-type: none">A. ImpactionB. Foreign bodiesC. BezoarD. Gallstones <p>2. Intramural</p> <ul style="list-style-type: none">A. StrictureB. Malignancy <p>3. Extramural</p> <ul style="list-style-type: none">A. Bands/adhesionsB. HerniaC. VolvulusD. Intussusception <p>2. Adynamic: This may occur in two forms:</p> <ul style="list-style-type: none">A. Aperistaltic e.g.: Paralytic ileusB. Peristalsis may be present in a non-propulsive form e.g. Mesenteric vascular occlusion, Pseudo-obstruction.
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Colicky stomach pain, distention, vomiting, and constipation are the four hallmark symptoms of IO. The location and cause of the obstruction determine how these symptoms manifest. Adhesions from previous procedures are the most common cause of IO in HICs, while hernias and TB are the most common reasons in LMICs and countries with underdeveloped healthcare infrastructures.⁵

Conservative therapies such as nasogastric tube insertion, intravenous antibiotics, or intravenous fluid resuscitation are usually sufficient to alleviate mechanical IO, with a few exceptions; unrelieved IO requires further investigation. Those who don't improve with non-invasive therapy options typically undergo a laparotomy. Laparoscopic procedures have not yet had their advantages and disadvantages established. High-quality randomized controlled trials assessing all clinically relevant outcomes, such as overall mortality, morbidity, hospital stay, and conversion rates, are required to confirm the findings of a systematic review comparing laparoscopic and open surgery for small-bowel obstruction, which found that laparoscopy is feasible and preferable in terms of reducing hospital stay and mortality.^{6,7}

If IO is not diagnosed and treated quickly, it can cause intestinal ischaemia, leading to a higher likelihood of resection and the associated risks.¹¹⁻¹³ India is ideally situated to study IO and to ascertain if the worldwide trends identified in the international literature are visible in our context because it is an upper middle-income country with numerous rural communities.⁸

As a result, we decided to do research on IO in our service area to better understand the epidemiology, pathology, and surgical treatment of IO in our community.

II. METHODS:

In this study of —clinico-pathological profile and management of intestinal obstruction with special reference to laparoscopic intervention, we had studied 100 cases of intestinal obstruction in adults over a period of 18 months from 1 OCT 2020 - 30 SEP 2022 under general surgery department in our institute. In this prospective cohort study we intend to

1. To evaluate clinic-pathological profile of intestinal obstruction
2. To evaluate different management strategy of intestinal obstruction.
3. To compare laparoscopic Vs other management strategies



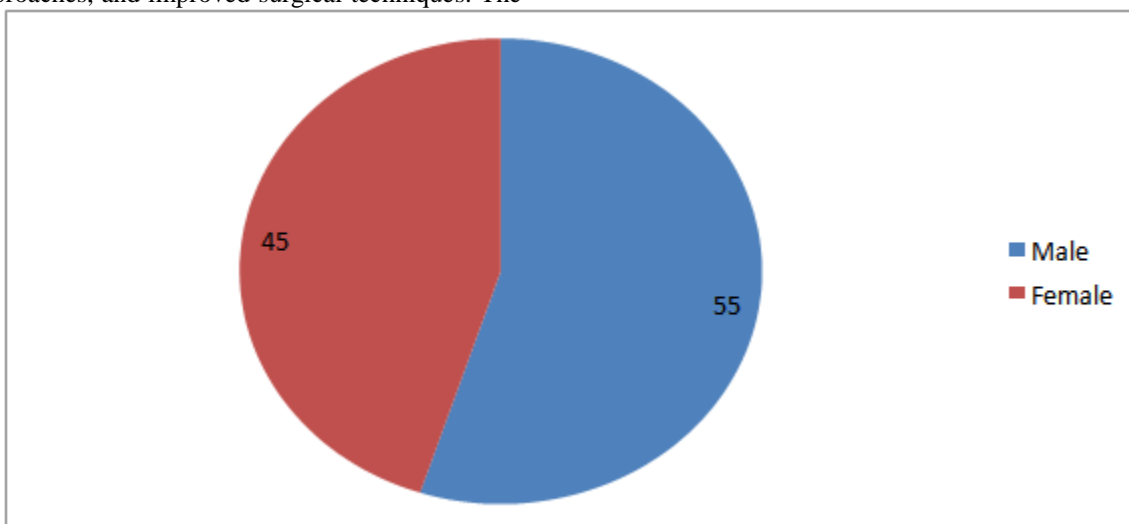
III. RESULT:

One of the most frequent surgical emergencies is intestinal obstruction, which requires an immediate diagnosis and fast treatment. A clinical surgeon almost certainly encounters the potential diagnosis of intestinal blockage at least once every day. One of the most common surgical emergencies seen in day-to-day clinical practice by both doctors and surgeons is acute intestinal obstruction in adults. Acute intestinal obstruction continues to be an issue of the utmost complexity not withstanding recent breakthrough in different medical fields, better understanding of changed physiology in disease, advances in diagnostic approaches, and improved surgical techniques. The

lack of medical facilities, patient illiteracy, low health literacy, and private general practitioners' ignorance, as well as the protracted conservative course of therapy and delayed referral, is some of the causes of this issue. In our nation, there are still significant rates of death and illness. In the current investigation, 100 surgical ward admissions with an intestinal blockage diagnosis were examined.

Age of incidence

There are no age categories that are immune to intestinal blockage. The greatest number of patients (23%) in this study of 100 individuals is in the 21–30 age range. The patients were 33.48 ± 20.28 years old on average.



According to studies by **Gill and Eggleston**⁹, incidents of intestinal obstruction affect 17% of people aged 50 to 54 and 60% of people aged 30 to 60. Our findings were close to those of **EO Ojo et al.**¹⁰, who found that the age range from 21 to 40 years represented the greatest occurrence.

Figure no. 1- showing sex distribution in intestinal obstruction patients

Sex incidence

The male to female ratio in this current series of 100 patients was 1.22:1, with 55 patients (55%) being male and the remaining patients being female (figure no-1). According to series reported from other regions of the world, men predominate. Male to female ratio was reported to be 2:1 by **Fuzan**¹¹ and **Lee**¹². In study done by **Budharaja**¹³ reported a ratio of 4:1 between men and women.

Clinical features in intestinal obstruction

In this study we found that commonest presenting symptoms among patients with intestinal obstruction was abdominal pain in all patients (100% patients) followed by tenderness (96%). Other common clinical presenting symptoms were vomiting (36%), fever (8%), distention of abdomen (80%), Non passage of stools (47%) and bowel sounds (22%) (Figure no-2). **Mariam TG et al**¹⁴ in their retrospective study showed that out of 105 cases incidence of pain (82%), vomiting (88%) were common than constipation (28%) and distention of abdomen (56%). Similar finding noted in **Ojo EO et al study**¹⁰ and **Deshmukh SN study**¹⁵ as our study.

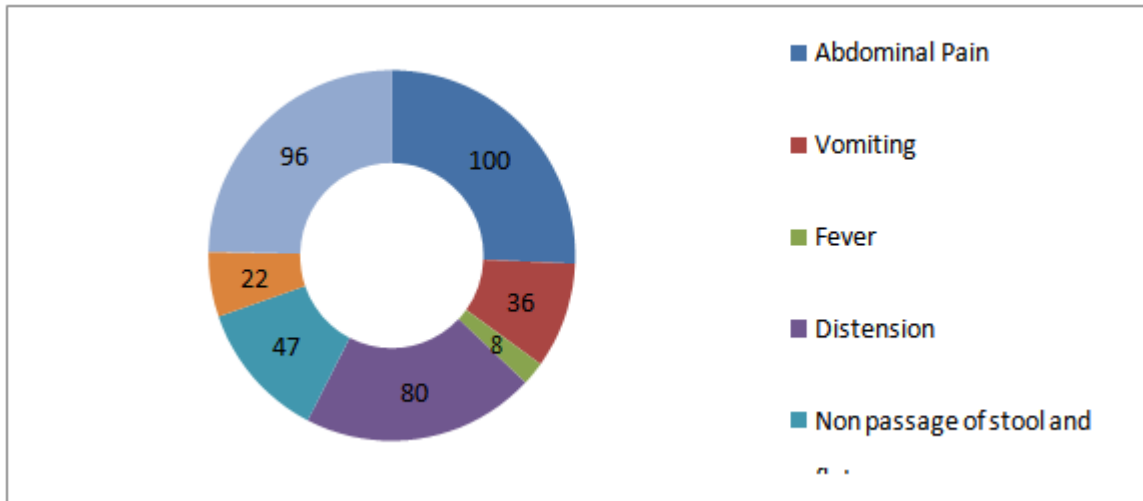


Figure no. 2 showing presenting symptoms in intestinal obstruction

Radiological Finding

Out of the 100 patients, a total of 61 showed positive findings in erect x ray films (figure no-3). 41 patients had air fluid levels on erect film,

Gaseous Dilated loops in 20 patients (1 patient had both the findings) **Ojha et al**¹⁶ (74.6%) had multiple air-fluid levels in 74.6% patients on erect films.

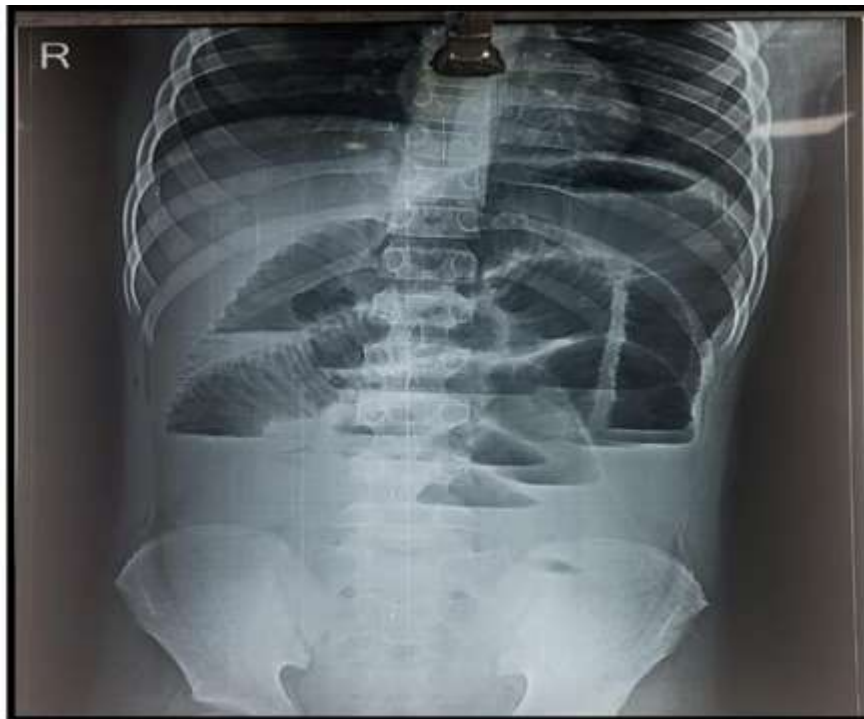


Figure 3: Abdominal erect X-ray showing multiple air fluidlevel- IO

Clinico-Pathological Finding

Our patients showed varying patterns of intraoperative findings, in majority of the patients multiple findings were noted while in few patients' single findings were noted. Adhesions (36 patients) was the most common finding in our patients

reported alone or in association with other findings followed by Ileal (17patients) and appendicular Perforation with appendicular abscess (15) and Ileal Strictures(13) . Meckles diverticulum(7) was also observed in few patients . Four patients were having ovarian cyst and two patients reported



with mesenteric cyst. We also observed 1 patients

of malrotation of gut. (Table no-2)

Authors	Year	Locatiion	No of Cases	Most Common Cause	Second Most Common Cause	Other Causes
Tiwari et al ¹⁷	2017	India	60	Adhesions (33.3%)	Mesenteric ischemia (11.67%)	Koch's abdomen (8.33%)
Adhikari Sounik et al ¹⁸	2010	India	367	Obstructed Hernia (35.9)	Malignancy (16.92)	Adhesions (15.53)
Markogiannakis et al ¹⁹	2007	Athens	150	Adhesions (64%)	Hernias(14%)	Tumors(13%)
Ohene-Yeboah et al ²⁰	2006	Ghana	652	Hernias(63%)	Adhesions (27%)	Volvulus Tumors Strictures
Dervisoglou et al ²¹	2005	Greece	369	Adhesions (76%)	Tumors(11%)	Hernia Ischaemia Bezoars Bile Stones
De La Garza Villaseno ²²	2001	Mexico	452	Adhesions58%	Hernias16%	Tumors13%
Our Study	2022	India	100	Adhesions (36%)	Ileal perforation & Acute on chronic inflammation 16% each	Appendicula r perforation 15% ; Ileal Stricture 13%

Table-2 Comparative Studies of Causes of Intestinal Obstruction.

Surgical Management

In our study, 82 patients were treated utilizing exploratory laparotomy, 16 patients with laparoscopy, and 2 patients with combined treatment of the two approaches. (Figure no-4)

In a thorough analysis of 308 patients from 35 centers conducted over an 8-year period by **Levard H et al²³**, the percentage of "successful"

laparoscopies and the percentage of conversion to laparotomies were each 54.6%. Patients having a history of one or two laparotomies had significantly higher success than those with three or more (56% vs 37%). With a 31% conversion rate, **Duron JJ et al²⁴** colleagues found that the laparoscopic method had no impact on either morbidity or early postoperative mortality.

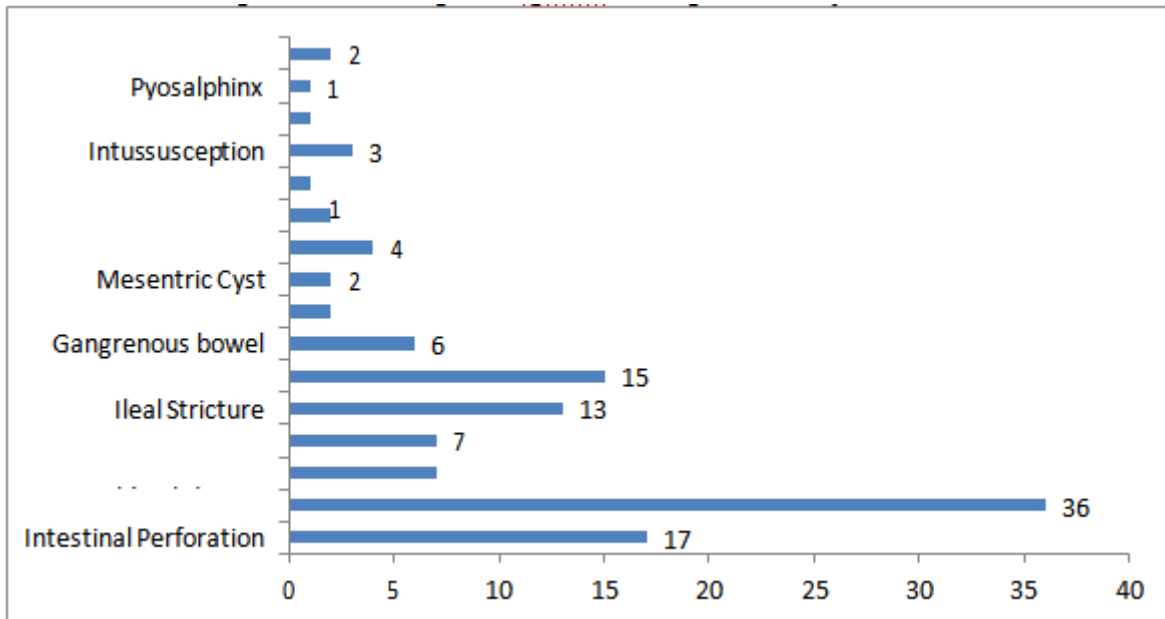


Figure no-4 showing intra-operative finding in our study

Laparoscopic procedures were performed on patients without peritonitis who did not improve with nonoperative treatment. For this reason, we had to take into account the diameter of the intestine, the level of abdominal distention, and the location of the obstruction (i.e., proximal or distal).

According to **Suter et al.**²⁵ a gut diameter greater than 4 cm was linked to a higher rate of conversion: 55% versus 32%. A higher incidence of intraoperative complications and an increased risk of conversion are present in patients who have a distal and total small intestinal obstruction. It is also doubtful that patients with chronic abdominal distention following nasogastric intubation will respond well to laparoscopy.

Hospital Stay in intestinal obstruction patients

The mean hospital stay in our research with intestinal blockage was 9.12 + 4.57 days,

ranging from 0 to 25 days. Majority of patients stayed in the hospital for 5- 9 days (44%); this rate was higher in older patients, those who arrived in hospitals after their symptoms had started, and those who underwent major procedures such resection and anastomosis. Our results were close to those of **Soressa et al**²⁶ who found that the average hospital stay was 9.54 days, with the smallest stay being 2 days and the maximum being 30 days.

Mortality

There were 8 deaths in this study giving mortality rate of 8%. We observed 8 deaths during the course of our study. Amongst them 5 patients had septic shock while 1 septic shock with ARDS, 1 one had cardiogenic shock and 1 had hepatorenal failure. (Table no- 3)

Study	Bhansali & Sethna et al ²⁷	JS Khan et al ²⁸	Lafall Josep et al ²⁹	Sufian & Matsumoto ³⁰	Our study
Mortality	53%	7%	30.7%	19%	8%
Cases studied	41	100	52	171	100

Table no. 3 showing comparison of mortality with other studies



IV. CONCLUSION:

In conclusion, the most common reason for intestinal obstruction was adhesions. Other frequently seen causes of intestinal blockage in our investigation were tubercular etiology and acute or chronic inflammation. The most frequent intraoperative procedures were adhesiolysis + ileostomy and adhesiolysis + additional procedure (appendectomy), while the most frequent method of managing internal organs was exploratory laparotomy. By disseminating pertinent health information, health personnel in the hospital and District could raise public awareness of intestinal obstruction, its symptoms, early Hospitalization and use of laparoscopic approach for management than conventional Method

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