



## A CLINICO-EPIDEMIOLOGICAL PROFILE OF INTESTINAL OBSTRUCTION IN TERTIARY CARE HOSPITAL IN KUMAUN REGION OF UTTARAKHAND

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**ABSTRACT** **Aim:** This study was aimed to provide a clinical and epidemiological profile of intestinal obstruction in a tertiary care hospital in Kumaun region of Uttarakhand, India.

**Materials and Methods:** This was a retrospective study of patients admitted in our hospital with a diagnosis of intestinal obstruction between the years 2018 and 2020 at Dr. Susheela Tiwari Government Hospital, Haldwani, Uttarakhand. The study comprised of 153 patients.

**Results:** The commonest age group affected was 20-50 years. In our patients, the main cause of obstruction was adhesions followed by abdominal tuberculosis with obstructed hernia coming third. Conservative management was advocated in 96 patients while the rest underwent surgery.

**Conclusion:** Adhesion was the main etiology in Intestinal Obstruction. The odds of malignant bowel obstruction was increasing in the proportion of Intestinal Obstruction. There were some differences towards the etiologic spectrum compared with western countries.

**KEYWORDS :** Etiology, intestinal obstruction, demography

### INTRODUCTION

Intestinal obstruction has been one of the most common cause of acute abdomen [1, 2]. According to a retrospective analysis performed in the National Hospital of Zinder, Intestinal obstruction can account for 27.94% in surgery hospital admissions [3]. In developing countries, intestinal obstruction was associated with high mortality [4]. Morbidity and mortality of intestinal obstruction have not changed whether in developed countries or in a less-developed area [5]. Many countries have denoted different tendency towards etiologic spectrum of intestinal obstruction. In the past few years, adhesive intestinal obstruction and malignant bowel obstruction have replaced hernia, the dominant cause in early stage [6], shifted to the most common cause of intestinal obstruction in western countries [7]. However, in undeveloped countries, hernia is still the most common cause of intestinal obstruction and postoperative adhesions increase annually [8]. The exact cause of obstruction can influence the prognosis of patient; henceforth, a study needs to be investigated to clarify the trend towards IO etiology spectrum and make diagnosis more specifically to certain patients, leading to a better prognosis.

At the time of initial evaluation for intestinal obstruction, it is critical to determine whether a true mechanical obstruction or pseudo-obstruction (dysmotility/ileus) is the cause of symptoms; this distinction will guide all subsequent treatment. Clinical judgment must also be employed to determine illness severity, resuscitation requirements, and the urgency of operative intervention. Patients may present acutely, or with a chronic and relapsing problem with symptoms ranging from modest discomfort to critical illness and shock. The patient's symptoms and presenting signs may be caused by a functional obstruction from dysmotility, or a true mechanical obstruction. Mechanical obstruction may be further classified as partial or complete obstruction, with the etiology of mechanical obstruction divided into three main categories: extrinsic, intrinsic/intramural, and intraluminal. Bowel obstruction continues to be one of the most common intraabdominal problems faced by general surgeons. In a 2010 global burden of disease study, bowel obstruction and ileus were responsible for 2.1 deaths, 54 years of life lost, and 54 disability-adjusted life-years per 100,000 population, respectively, second only to peptic ulcer disease for all abdominal conditions for each of these parameters. [9] Independent of the underlying cause, bowel obstruction remains a major cause of morbidity and mortality. Early recognition and aggressive treatment are crucial in preventing irreversible ischemia and transmural necrosis, thereby decreasing mortality and long-term morbidity. Despite multiple recent advances in diagnostic imaging and marked advances in our treatment armamentarium, intestinal obstruction will remain a significant surgical problem given the lack of treatment options to manage adhesions, hernias, and malignancies.

### AIM & OBJECTIVES

To analyze the clinical and epidemiological profiles of patients suffering from Intestinal Obstruction in a tertiary care hospital in Kumaun region of Uttarakhand, India.

### MATERIAL & METHODS

**Study design:** A cross-sectional study.

**Place of study:** Susheela Tewari Government Hospital Haldwani.

**Sample size:** All the confirmed cases of Intestinal Obstruction in study period.

**Period of study:** 20 months, January 2018- Sept 2020

**Inclusion criteria:** All confirmed cases of intestinal obstruction based on clinical and radiological investigations admitted in Susheela Tiwari Government Hospital Haldwani in the study period were included.

**Exclusion criteria:** Patients not willing for informed consent.

### PROTOCOL FOR CASE SELECTION

All confirmed cases of Intestinal Obstruction in 2 years of study period based on clinical and radiological findings, as follows:

- Characteristic abdominal pain of intestinal obstruction, vomiting, distension and obstipation.
- Thorough history taking and clinical examination of each patient carried out as per the prepared Proforma.
- X ray chest and abdomen, USG whole abdomen, Contrast Enhanced Computed Tomography of the whole abdomen.
- Complete blood count, renal function test, liver function test, electrolytes (Na<sup>+</sup>, K<sup>+</sup>, Ca<sup>++</sup> and total Calcium levels), ABG, coagulation profile, serum amylase, serum lipase, C reactive protein levels.
- Changes consistent with intestinal obstruction on cross sectional imaging.

### OBSERVATION AND RESULTS

This study was conducted in Susheela Tewari Government Hospital Haldwani. Total number of patients included in the study were 153. Majority of the patients belonged to the age group of 18-40 years (n=72; 47.0%). Out of 147 patients, 88 were male and 65 were female.

**Table 1: Distribution of study participants according to age.**

Age Group	No.	Percentage
18 – 40 years	72	47.0
41 – 60 years	59	38.5
>60 years	22	14.3
Total	153	100.0

**Table 2: Distribution of study participants according to Sex.**

Sex	No.	Percentage
Male	88	57.5
Female	65	42.4
Total	153	100.0

**Table 3.1: Distribution of study participants according to etiology of Intestinal Obstruction.**

Etiology	No.	Percentage
Adhesions	94	61.4
Tumors	4	2.6
Obstructed hernia	9	5.8
Abdominal Tuberculosis	42	27.4
Volvulus	1	0.6
Intussusception	1	0.6
Paralytic ileus	2	1.2
Total	153	100.0

Most common cause was found to be adhesions (n=94; 61.4%) followed by abdominal tuberculosis and obstructed hernia. Adhesions were more commonly seen in female patients most of whom had undergone LSCS. Obstructed hernia was also seen in both male and female patients. Three cases of femoral hernia were also encountered in female patients. There were also three male patients with carcinoma colon and one male patient with small bowel tumor.

**Table 3.2: Distribution of etiology according to sex of study subjects**

Etiology	Sex		No.
	Male	Female	
	No. (%)	No. (%)	
Adhesions	42	52	94
Tumors	4	0	4
Obstructed hernia	4	5	9
Abdominal Tuberculosis	36	6	42
Volvulus	1	0	1
Intussusception	1	0	1
Paralytic ileus	0	2	2
Total	88 (57.5%)	65 (42.4%)	153

**Table 4: Distribution of study participants according to clinical features.**

Clinical Features	No.	Percentage
Abdominal Pain	130	84.9
Abdominal Distension	65	42.4
Vomiting	112	73.2
Obstipation	59	38.5

Most patients presented with abdominal pain (n=130; 84.9%) followed by vomiting and distension. Majority of the patients were managed conservatively (n=96; 62.7%). Out of 57 patients (37.2%), 13 patients developed complications including burst abdomen (n=3), anastomotic leakage (n=1) and prolonged ileus (n=5).

**Table 5: Distribution of study participants according to management.**

Management	No.	Percentage
Conservative	96	62.7
Operative	57	37.2
Total	153	100

## DISCUSSION

Acute intestinal obstruction is one of the most common causes for surgical admissions worldwide. Bowel obstruction continues to be one of the most common intra abdominal problems faced by general surgeons. In a 2010 global burden of disease study, bowel obstruction and ileus were responsible for 2.1 deaths, 54 years of life lost, and 54 disability-adjusted life-years per 100,000 population, respectively, second only to peptic ulcer disease for all abdominal conditions for each of these parameters.[9] The cause varies; however, adhesions[10] are the most common cause worldwide.[11] In our study, adhesions appeared to be the most common cause followed by intestinal tuberculosis.[12] Intestinal tuberculosis is an important factor in the etiology given the high prevalence of tuberculosis in the Indian subcontinent as well as the rising incidence of HIV in the Indian population. The aim of this study was to discuss and clarify the etiologic spectrum in the Kumaun region of Uttarakhand. It showed in our study that the hospitalization rate of IO was in an increasing trend by years. Both emergency and elective LSCS were the most frequent

intervention causing adhesive intestinal obstruction followed by appendectomy. Primary malignant tumor of the large intestine accounted for the most cases in malignant obstruction. In western countries, the main constitution of intestinal obstruction is adhesive obstruction and gastrointestinal tumors [12], while in some developing even poor countries, inguinal hernia still takes up the majority of the etiology [13]. A population-based study performed by Barmaras et al. showed that the highest incidence of intestine obstruction after laparotomy was ileal pouch-anal anastomosis, followed by open colectomy, which is in contrast with the results in our study [14]. Among patients with malignant obstruction, primary bowel malignant tumors made up for majority. Colorectal cancer is the third most common malignancy in the developed world, and about 25-40% patients present with intestinal obstruction or perforation [15]. It has been reported in China that an upward trend in incidence of colorectal cancer occurred during recent decades. According to statistics, the annual report of China's cancer in 2015 showed that the incidence and the mortality rate of colorectal cancer ranked fifth in categories of tumors [16]. In our study, we could also find that the incidence of bowel tumors rose year by year in intestinal obstruction patients. Once it progressed to relatively highly malignant, the symptoms of intestinal obstruction would occur as the acute abdomen. Tuca et al. reported that it accounted for the highest percentage of malignant bowel obstruction and approximately 3% to 15% of all intestinal obstruction hospitalizations [17]. In our study, 18.58% of intestinal obstruction patients were diagnosed with malignant bowel obstruction. Meanwhile, there were senior predominance of patients taking up in this proportion of etiology. The annually increasing data denoted that to lower the incidence of intestinal obstruction, more attention should be paid on malignant tumors.

Independent of the underlying etiology, bowel obstruction remains a major cause of morbidity and mortality. Early recognition and aggressive treatment are crucial in preventing irreversible ischemia and transmural necrosis, thereby decreasing mortality and long-term morbidity. Despite multiple recent advances in diagnostic imaging and marked advances in our treatment armamentarium, intestinal obstruction will remain a significant surgical problem given the lack of treatment options to manage adhesions, hernias, and malignancies.[18]

## CONCLUSION

Postoperative adhesions are still the most common cause of intestinal obstruction. Among the less common causes of bowel obstruction included malignancy, paralytic ileus, volvulus and intussusception. Clinicians can refer to these studies to focus on previous surgery history and family history of malignancy. Good results could be achieved by early diagnosis and determining the appropriate line of management.

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