

# A Study of Etiological Factors and Management of Intestinal Obstruction in Rural Population Attending A Tertiary Care Hospital

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## A B S T R A C T

**Introduction:** Intestinal Obstruction is a potentially risky surgical emergency associated with high morbidity and mortality. Etiology of acute intestinal obstruction varies among different countries and there has also been a change over decades. The present study was undertaken to identify the different etiologies of intestinal obstruction and monitor the outcome of various methods of management of intestinal obstruction among the people presented with obstruction to a rural hospital.

**Materials and Methods:** A total of 57 patients with features of intestinal obstruction such as abdominal pain and features of bowel obstruction were included. Patients were evaluated for etiology of intestinal obstruction based on diagnosis, clinical findings and for the mode of management that is conservative or surgical.

**Results:** The most prevalent etiology was adhesions (47.37%) followed by hernias (35.08%). Among 57 patients, 23 (40.3%) underwent surgical therapy, 21 (36.8%) were managed by conservative therapy and remaining 13 (22.8%) were managed by both conservative and surgical therapy. In the present study all the patients with conservative management were treated with NPO, IV fluid, crystalloid solution, Foley's catheter and NG tube (59.65%).

**Conclusion:** Prompt and timely diagnosis with multidisciplinary approach and effective management results in favourable outcomes and helps in reducing the morbidity and mortality in patients with intestinal obstruction.

**Keywords:** Intestinal Obstruction, Etiologies, Management

## INTRODUCTION

Intestinal obstruction is defined as obstruction of the passage of the intestine for its contents, most commonly occurs in the small bowel.<sup>1</sup> It is a potentially risky surgical emergency associated with high morbidity and mortality.<sup>2</sup> Intestinal obstruction accounts for approximately 15% of all emergency department (ED) visits for acute abdominal pain.<sup>3</sup>

There are four cardinal features of IO: colicky abdominal pain, distension, vomiting, and constipation. The presentation of these symptoms is affected by the site and type of obstruction.<sup>4</sup> Etiology of acute intestinal obstruction varies among different countries and there has also been a change over decades. Various factors are considered for taking the decision on operative or non operative management. The factors considered are age of the patients, duration of obstruction, volume of nasogastric aspirate, findings on the radiological imaging, previous abdominal surgeries and malignancy.

Management of intestinal obstruction is directed at correcting physiologic derangements caused by the obstruction, bowel

rest, and surgically managed by removing the obstruction. Antibiotics are used to treat intestinal overgrowth of bacteria and translocation across the bowel wall.<sup>5</sup> Aggressive replacement of electrolytes is recommended after adequate renal function is confirmed. The decision to perform surgery for intestinal obstruction can be difficult. Peritonitis, clinical instability, unexplained leukocytosis and acidosis are concerning for abdominal sepsis, intestinal ischemia and perforation. These findings mandate immediate surgical exploration.

Although the mortality due to acute intestinal obstruction is decreasing in urban areas due to early presentation and prompt medical attention, the same is not true in rural population because of late presentation with complications. Poor clinical judgment is also one of the negative factors leading to poor prognosis in case of intestinal obstruction.<sup>6</sup> Hence the present study was undertaken to identify the different etiologies of intestinal obstruction and monitor the outcome of various methods of management of intestinal obstruction among the people presented with obstruction to a rural hospital.

## MATERIAL AND METHODS

The present hospital based prospective observational study was conducted under the Department of General Surgery, Government General Hospital, Anantapuram during January 2019 to December 2019. A total of 57 patients with features of intestinal obstruction such as abdominal pain and features of bowel obstruction after like vomiting, not passing stools or flatus, abdominal distension, hypotension were included in the study.

**Inclusion criteria:** Patients above the age of five years presenting with in view of symptoms of intestinal obstruction like vomiting, not passing stools or flatus, abdominal distension, hypotension irrespective of to the OPD or admitted under the Department of General Surgery.

**Exclusion criteria:** Patients treated on OPD basis and refused full course of treatment.

The demographic data and medical history including age, gender, past medical surgical history along with presenting complaints. Symptoms like, fever, pain in abdomen and vomiting were recorded. These patients were subjected to thorough clinical and systemic examination. These findings were recorded on a predesigned and pretested proforma.

Patients were advised to under go routine haematological and urine examination along with ECG, chest X-ray, USG, CT abdomen.

Patients were evaluated for etiology of intestinal obstruction based on diagnosis and clinical findings. Patients were evaluated for the mode of management that is conservative or surgical. Also in those with conservative management the etiology leading to surgical treatment were also determined.

The data obtained was coded and entered in Microsoft Excel Spreadsheet. The categorical data was expressed as rates, ratios and percentages. Continuous data was expressed as mean±standard deviation.

## RESULTS

A total 57 patients were included in this study. The most common age group was 18 to 30 years, 41 to 50 years and 61 to 70 years comprised of 21.05% of the patients each. The mean age was 46.04±15.67 year and median age was 47 years and ranged between 7 to 72 years. However, there was one case of < 18 years (1.75%). Out of 57 patients, 52.63% of the patients were males and 47.37% were females. The male to female ratio was 1.11:1 (Table 1).

The most prevalent etiology was adhesions (47.37%) followed by hernias (35.08%), bands (5.26%), neoplasm (3.5%), ileal band (3.5%), large bowel stricture (1.7%), ileal stricture (1.7%), small bowel volvulus (1.7%).

Out of 57 studied population, more than 75% patients had pain, vomiting, abdominal distension, dehydration, constipation. On examination, most of the patients had tenderness and distension of abdomen (Table 2).

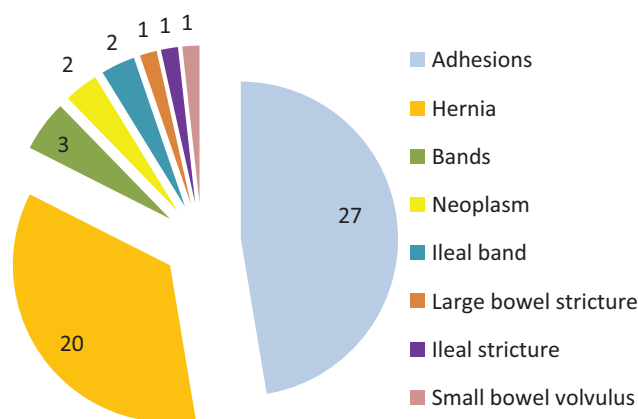
Among 57 patients, 23 (40.3%) underwent surgical therapy, 21 (36.8%) were managed by conservative therapy and remaining 13 (22.8%) were managed by both conservative and surgical therapy. In this study most of the males

| Demographic data | No.of patients | Percentage |
|------------------|----------------|------------|
| Age in years     |                |            |
| <18              | 1              | 1.75       |
| 18-30            | 12             | 21.05      |
| 31-40            | 7              | 12.28      |
| 41-50            | 12             | 21.05      |
| 51-60            | 11             | 19.30      |
| 61-70            | 12             | 21.05      |
| 71-80            | 2              | 3.51       |
| Sex              |                |            |
| Male             | 30             | 52.63      |
| Female           | 27             | 47.37      |

**Table-1:** Distribution of patients according to age and gender

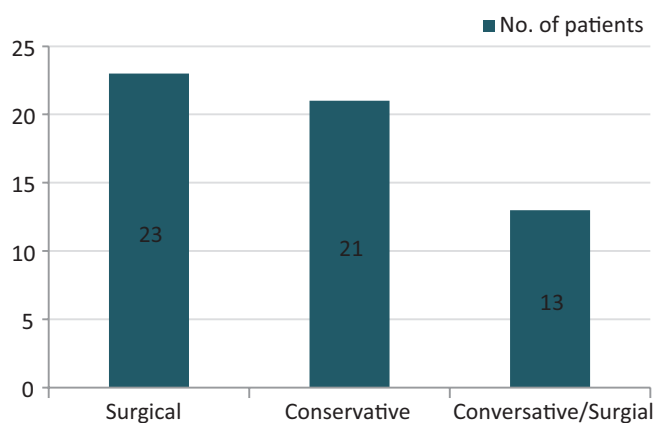
| Clinical Features           | No. of doctors | Percentage (%) |
|-----------------------------|----------------|----------------|
| Symptoms                    |                |                |
| Pain                        | 57             | 100            |
| Vomiting                    | 48             | 84.2           |
| Abdominal distension        | 45             | 78.9           |
| Dehydration                 | 44             | 77.1           |
| Constipation                | 44             | 77.1           |
| Obstipation                 | 29             | 50.8           |
| Fever                       | 10             | 17.5           |
| Signs                       |                |                |
| Tenderness                  | 52             | 91.2           |
| Distension                  | 50             | 87.7           |
| Previous surgical scars     | 33             | 57.8           |
| Sluggish bowel sounds       | 31             | 54.3           |
| Local rise of temperature   | 23             | 40.3           |
| Irreducible ventral hernias | 17             | 29.8           |
| Ballooning empty rectum     | 13             | 22.8           |
| Guarding/Rigidity           | 10             | 17.5           |
| Palpable mass               | 4              | 7.02           |
| Increased bowel sounds      | 2              | 3.5            |

**Table-2:** Clinical features of Intestinal obstruction patients



**Figure-1:** Distribution of patients according to etiology

underwent surgical treatment (33.33%) while, females underwent conservative treatment (40.74%) (Fig 2). In the present study all the patients with conservative management were treated with NPO, IV fluid, crystalloid solution, Foley's catheter and NG tube (59.65%).



**Figure-2:** Graphical representation of management of Intestinal obstruction patients

## DISCUSSION

A total of 57 patients presenting with complaints of abdominal pain and features of bowel obstruction after like vomiting, not passing stools or flatus, abdominal distension, hypotension were studied. These patients were evaluated for etiology and mode of management.

As per this study the most common age group was 18 to 30 years, 41 to 50 years and 61 to 70 years comprised of 21.05% of the patients each. The mean age was  $46.04 \pm 15.67$  years and median age was 47 years and ranged between 7 to 72 years. Out of 57 patients, 52.63% of the patients were males and 47.37% were females. The male to female ratio was 1.11:1. Different studies observed different mean age group of patients affected by intestinal obstruction. Shukla S et al<sup>6</sup>, Khan TS et al<sup>7</sup>, Venugopal K et al<sup>8</sup> reported that majority of the patients were noted between 35 to 55 years of age group. Male preponderance was observed in the similar studies done by Shukla S et al<sup>6</sup>, Venugopal K et al<sup>8</sup> and Khan TS et al.<sup>7</sup> These gross discrepancies may be explained by the different disease patterns in different geographic regions of the world.

The most prevalent etiology was adhesions (47.37%) followed by hernias (35.08%), bands (5.26%), neoplasm (3.5%), ileal band (3.5%), large bowel stricture (1.7%), ileal stricture (1.7%), small bowel volvulus (1.7%) in the present study. In strong agreement to the present study, Jaiswal NK et al<sup>9</sup>, Naveen et al<sup>10</sup> also reported that adhesions followed by hernia as the common etiological factors causing intestinal obstruction. In contrast a study by Adesunkanmi ARK<sup>11</sup>, also reported that sigmoid volvulus as the leading cause of intestinal obstruction in the northern part of Ethiopia. This might imply that the culture, food, age of the patients and geography have huge influences on the prevalence of obstruction.

Out of 57 studied population, more than 75% patients had pain, vomiting, abdominal distension, dehydration, constipation. On examination, most of the patients had tenderness and distension of abdomen. These observations were consistent with a study by Shukla S et al<sup>6</sup> where the predominant symptom was abdominal pain (100%) followed by vomiting (58%) and distension (34.5%). Another study by Khan TS et al<sup>7</sup> to identify and analyze the clinical

presentation, etiopathology, management and outcome of patients with acute mechanical small bowel obstruction reported that, abdominal pain (98.66%) was the predominant symptom followed by vomiting (78.66%) and abdominal distension (78.66%) was the predominant clinical sign which was consistent with the present study.

Among 57 patients, 23 (40.3%) underwent surgical therapy, 21 (36.8%) were managed by conservative therapy and remaining 13 (22.8%) were managed by both conservative and surgical therapy in this study.

Management of intestinal obstruction is directed at correcting physiologic derangements caused by the obstruction, bowel rest, and removing the source of obstruction. The former is addressed by intravenous fluid resuscitation with isotonic fluid. The use of a bladder catheter to closely monitor urine output is the minimum requirement for gauging the adequacy of resuscitation; other invasive measures, such as arterial canalization or central venous pressure monitoring, can be used as the clinical situation warrants. Antibiotics are used to treat intestinal overgrowth of bacteria and translocation across the bowel wall.<sup>12</sup> The presence of fever and leukocytosis should prompt inclusion of antibiotics in the initial treatment regimen. Antibiotics should have coverage against gram-negative organisms and anaerobes, and the choice of a specific agent should be determined by local susceptibility and availability. Aggressive replacement of electrolytes is recommended after adequate renal function is confirmed.<sup>3</sup> Treatment of stable patients with intestinal obstruction and a history of abdominal surgery presents a challenge. Conservative management of a high-grade obstruction should be attempted initially, using intestinal intubation and decompression, aggressive intravenous rehydration and antibiotics.<sup>3</sup> Accordingly in this study conservative management was done in more than one third (36.84%) of the patients which is in line with the adhesions as common cause of intestinal obstruction and all of them were treated with nil per oral (NPO), intravenous (IV) fluid, crystalloid solution, Foley's catheter and NG tube (59.65%).

In the present study all the patients (100%) improved and discharged and it was heartening to know that there was no mortality. Shukla S et al<sup>6</sup> in their study comprised of 200 cases reported mortality in 16 cases that is 8%. Another study by Khan TS et al<sup>7</sup> reported mortality in 4%.

## CONCLUSION

Based on the findings of this study it may be concluded that, adhesions and hernia are the common causes of intestinal obstructions in the rural population. Hernia may be the common cause of intestinal obstruction in males and adhesions is the common cause among females. However, the select cases with intestinal obstruction especially with adhesions as a cause of intestinal obstruction may be advocated with conservative management yet, it may not be successful in all the cases. Prompt and timely diagnosis with multidisciplinary approach and effective management results in favourable outcomes and helps in reducing the morbidity and mortality in patients with intestinal obstruction.

## REFERENCES

1. Ullah S, Khan M. Intestinal obstruction: A Spectrum of causes, Department of Surgery, Postgraduate Medical Institute Lady Reading Hospital, Peshawar Pakistan. *JPMI* 2008;8(1):210-3.
2. Cirocchi R, Abraha I, Farinella E, Montedori A, Sciannameo F. Laparoscopic versus open surgery in small bowel obstruction. *Cochrane Database Syst Rev* 2010;17(2):751-5.
3. Jackson PG, Raiji M, Evaluation and management of intestinal obstruction. *Am Fam Physician* 2011;83(2):159-65.
4. Madziga AG, Nuhu AI: Causes and treatment outcome of mechanical bowel obstruction in North East Nigeria. *West Afr. J Med.* 2008; 27(2): 101 – 5.
5. Ntakiyiruta G, Mukarugwiro B. The Pattern of intestinal Obstruction at Kibogola Hospital, a Rural Hospital in Rwanda. *East and Central African J Surg*, 2009;14(2):103-8.
6. Shukla S, Kumar K, Khusram B, Damor M. Clinico-pathological study of intestinal obstruction and its management. *Int Surg J* 2017;4(1):604-11.
7. Khan TS, Wani ML, Wani SN, Kenu BA, Misgar AS, Fazili A, et al. Clinico-Pathological Profile and Management of Acute Mechanical Small Bowel Obstruction: A Prospective Study. *Arch Clin Exp Surg* 2013;2(3): 154-60.
8. Venugopal K, Kumar SR, Narayanswamy T. A clinic pathological study of 50 cases of intestinal obstruction. *J Evolution Med Dental Sci* 2013;2(49):9581-90.
9. Jaiswal NK, Shekhar S, Ranade P. Study of clinical spectrum and management of acute intestinal obstruction. *Int Surg J* 2018;5(6):1310-4.
10. Naveen N, Mukherjee A, Nataraj YS, LingeGowda SN. A clinical study of intestinal obstruction and its surgical management in rural population. *Hernia.* 2013 May 27;10:20.
11. Adesunkanmi ARK, Agbakwuru E. Changing pattern of acute intestinal obstruction in a tropical African population. *East Afr Med J* 2011;73(11):727-31.
12. Sagar PM, MacFie J, Sedman P, May J, Mancey-Jones B, Johnstone D. Intestinal obstruction promotes gut translocation of bacteria. *Dis Colon Rectum* 1995;38(6):640-4.

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