The Pattern of Acute Intestinal Obstruction: A Hospital Based Study

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ABSTRACT

BACKGROUND: Intestinal obstruction is a surgical emergency that causes confusion both in the diagnosis and the management. It is related by important disease and mortality. The goal of this study was to classify the etiology, to analyse the methods of performance of acute duodenal obstruction in different age groups, various therapeutic modalities of treatment, to accomplish operative management, anticipate the post-operative complications and outcomes of patients with acute intestinal obstruction.

MATERIAL & METHODS: 82 patients of all age groups (except infants) presenting with acute intestinal obstruction were studied between June 2017 and December 2018 in a multispeciality hospital in Eastern India. Patients with history of subacute intestinal obstruction and paralytic ileus were excluded from this study.

RESULTS: Males were found to be affected much more than females. Pain abdomen was the most common symptom found in 94% cases followed by distension and vomiting in 86.6% and 68.3% cases respectively. Most common etiology of intestinal obstruction was due to adhesion and bands (40.3%) followed by obstructed hernia (22%) and malignancy (17%). The most common procedure done in intestinal obstruction in present study was release of adhesions and bands (37.8%) followed by resection and anastomosis (26.8%).

CONCLUSION: Bowel obstruction continues to be one of the most common abdominal problems faced by general surgeons. Success in the treatment of intestinal obstruction depends largely upon early diagnosis, skilful management and treating the pathological effects of the obstruction just as much as the cause itself.

KEYWORDS

intestinal obstruction, adhesions, resection and anastomosis

INTRODUCTION:

Intestinal obstruction is divided into obstruction of the small bowel (including the duodenum) and obstruction of the large bowel. Obstruction may be partial or complete. About 85% of fractional little enteral cross sections resolve without operative treatment, though about 85% of complete little gut deterrents require surgery. Overall, the most well-known reasons for mechanical impediment are grips, hernias, and tumors. Other general causes are diverticulitis, outside bodies (counting gallstones), volvulus (turning of inside on its mesentery), intussusception (extending of one fragment of gut into another), and fecal impaction. Explicit portions of the digestive tract are influenced differently.

In basic mechanical impediment, blockage happens without vascular trade off. Ingested liquid and nourishment, stomach related discharges, and gas collect over the obstacle. The proximal enteral widens, and the distal portion breakdown. The ordinary secretary and absorptive elements of the mucosa are discouraged, and the inside endorser up edematous and clogged. Severe intestinal distension is self-sustaining and dynamic, escalating the peristaltic and secretory disturbances and expanding the dangers of lack of hydration and movement to strangulating deterrent. Strangulating check is deterrent with traded off blood stream; it happens in almost 25% of patients with little enteral hindrance. It is typically connected with hernia, volvulus, and intussusception.3 Strangulating check can advance to dead tissue and gangrene in as meager as 6 hours. Venous Obstruction happens first, trailed by blood vessel impediment, bringing about fast ischemia of the enteral divider. The ischemic inside winds up edematous and infects, prompting gangrene and aperture. In huge gut obstacle, strangulation is uncommon (aside from with volvulus). Perforation may happen in an ischemic fragment (normally little gut) or when stamped expansion happens. The hazard is high if the caecum is widened to a distance ≥ 13 cm. Perforation of a tumor or a diverticulum may likewise happen at the deterrent site 4,5

Obstruction of the small bowel: causes indications not long after beginning: stomach issues based on the umbilicus or in the epigastrium, heaving, and in patients with complete impediment—obstitution. Patients with incomplete impediment may create loose bowels. Extreme, enduring agony recommends that strangulation has happened. Without strangulation, the mid-region isn’t delicate. Hyperactive, piercing peristalsis with surges agreeing with cramps is typical. Sometimes, dilated loops of bowel are palpable. With infarction, the abdomen becomes tender and ascultation reveals a silent abdomen or minimal peristalsis. Shock and oliguria are serious signs that indicate either late simple obstruction or strangulation.6

Obstruction of the large bowel normally causes milder manifestations that grow more steadily than those brought about by little entral hindrance. Expanding stoppage prompts obstruction and stomach distension. Retching may happen (generally a few hours after beginning of different indications) yet isn’t normal. Lower stomach spasms may happen. Physical assessment regularly demonstrates an enlarged guts with noisy borborygmi. There is no delicacy, and the rectum is typically vacant. A mass relating to the site of a discouraging tumor might be discernable. Fundamental side effects are generally mellow, and liquid and electrolyte deficiencies are uncommon. 7,8 Volvulus frequently has a sudden beginning. Torment is persistent, here and there with superimposed floods of colicky torment.

The point of this investigation was to distinguish the etiology, to examine the methods of introduction of intense intestinal hindrance in various age gatherings, different helpful modalities of treatment, to accomplish usable administration, envision the post-usable complications and results of patients with intense intestinal obstacle.

MATERIALS AND METHODS:

A total number of 82 cases of acute intestinal obstruction were studied between June 2017 to December 2018 in a multispeciality hospital in Eastern India. Patients of all age groups (except infants) who attended the OPD and Emergency Department of the hospital, with history and clinical picture suggestive of acute intestinal obstruction, also the patients who had hernia with recent onset of irreducibility, pain, vomiting and constipation were included in this study.

All patients with provisional diagnosis of acute intestinal obstruction were assessed clinically in detail after admission. Patients with history of subacute intestinal obstruction and paralytic ileus were excluded from this study.

On admission, relevant pathological and biochemical investigations were carried out in all cases. Plain X-ray erect abdomen was carried out in almost all patients. Ultrasoundography and CT abdomen was done in some cases whose diagnosis by X-ray was inconclusive.

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Prior to surgery, stabilization of patients with shock, correction of electrolyte imbalance and nasogastric decompression was done. Appropriate surgical procedure was carried out. Postoperative follow up period ranged between 2-6 months from time of discharge. Some patients were not regular in their follow up visits. The results were tabulated according to age, sex, symptoms, signs, probable causative factors, operative findings, operative procedure adopted and post-operative complications.

RESULTS:
A clinical study of 82 cases of acute intestinal obstruction was done for a period of 18 months. It was done in all groups (except infants) with a mean age of 46.5 years. Age distribution was as shown in Table 1. Occurrence of acute intestinal obstruction was common in males (66%) as compared to females (34%).

Patients of intestinal obstruction were mainly from age group 50-59 years (25.6%) (Table 1). Most of the patients (62%) presented with symptoms between 48-96 hours as shown in Figure 1.

The present study of acute intestinal obstruction showed that abdominal pain was seen in 77 patients (94%), followed by distension of abdomen seen in 71 patients (86.6%), and vomiting seen in 56 patients (68.3%). The most common sign encountered was tenderness, seen in 71 patients (86.6%), and vomiting seen in 56 patients (68.3%). The most common issue encountered was tenderness, seen in 71 patients (86.6%), and vomiting seen in 56 patients (68.3%).

Post operative complications were seen in 27 (33%) cases, out of which surgical site infection was most common complication encountered (16%) followed by septicemia seen in 8% of cases.

The most common procedure done in intestinal obstruction in present study was release of adhesions and bands (37.8%) followed by resection and anastomosis (26.8%). Hernioplasty was performed in 18% of cases (Table 4 and Figure 3).

Table 1: Age distribution.

| Age Group | No. of Cases | Percentage |
|-----------|--------------|------------|
| 1-20      | 2            | 2.4        |
| 20-29     | 10           | 12.2       |
| 30-39     | 13           | 15.7       |
| 40-49     | 18           | 22         |
| 50-59     | 21           | 25.6       |
| >60-69    | 16           | 19.5       |
| Total     | 82           | 100        |

Table 2: Symptoms and signs

| Symptoms and signs          | No. of Cases | Percentage |
|-----------------------------|--------------|------------|
| Pain abdomen                | 77           | 94         |
| Distension                  | 71           | 86.6       |
| Vomiting                    | 56           | 68.3       |
| Constipation                | 52           | 63.4       |
| Tenderness                  | 61           | 74.4       |
| Mass Per abdomen            | 15           | 18.3       |
| Visible Peristalsis         | 13           | 15.8       |
| PR structure/Growth         | 2            | 2.4        |

Small intestinal obstruction (58 cases) was seen more commonly than large intestinal obstruction (24 cases).

Most common etiology of intestinal obstruction was due to adhesion and bands (40.3%) followed by obstructed hernia (22%) and malignancy (17%) (Table 3 and Figure 2).

Table 3: Aetiologies of intestinal obstruction.

| Clinical Condition                | No. of Cases | Percentage |
|-----------------------------------|--------------|------------|
| Post operative Adhesions and bands| 33           | 40         |
| Obstructed hernia                 | 18           | 22         |
| Malignancy                        | 14           | 17         |
| TB stricture of ileum             | 3            | 3.7        |
| Volvulus                          | 3            | 3.7        |
| Intussusception                   | 3            | 3.7        |
| Meckels diverticulum              | 2            | 2.4        |
| Mesenteric ischemia               | 2            | 2.4        |

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Table 4: Management of cases in the study

| Management                      | No. of cases | Percentage |
|---------------------------------|--------------|------------|
| Release of adhesion             | 31           | 37.8       |
| Resection and anastomosis (RA)  | 22           | 26.8       |
| Hernioplasty (HP)               | 15           | 18.8       |
| Hernia repair                   | 3            | 3.6        |
| Hemicolectomy                   | 6            | 7.3        |
| Hartman procedure               | 2            | 2.4        |
| Diversion stoma                 | 3            | 3.6        |

Table 5: Postoperative complications.

| Postoperative complications      | No. of Cases | Percentage |
|----------------------------------|--------------|------------|
| Surgical site infection          | 13           | 16         |
| Septicemia                       | 7            | 8          |
| Respiratory tract infection      | 3            | 4          |
| wound dehiscence                 | 2            | 2.5        |
| Anastomotic leak                 | 2            | 2.5        |
| Total                            | 27           | 33         |

Respiratory infection was seen in 4% of cases. Anastomotic leak and wound dehiscence were seen in 2.5% of cases individually (Table 5).

Table 6: Incidence of complications at the time of presentation.

| Time of presentation | No. of Morbidity cases | Percentage of morbidity |
|----------------------|------------------------|-------------------------|
| <48hrs               | 3                      | 4                       |
| >48 hrs              | 25                     | 30                      |

Rate of complications was more when patient presented late to the hospital. Mortality was seen in 3 patients who presented less than 48 hours, while it was seen in 25 patients who presented after 48 hours (Table 6).

Table 7: Outcomes

| Outcome     | No. of cases | Percentage |
|-------------|--------------|------------|
| Cured       | 77           | 94         |
| Dead        | 5            | 6          |
| Total       | 82           | 100        |

Mortality rate in present study was 6% (Table 7). Among them, one patient had mesenteric ischemia; two patients were suffering from malignancy with metastasis and other two patients died due to septicemia and its sequelae.
Bowel obstruction has been documented throughout history with cases detailed in the Praxagor in 350 BC and by Hippocrates.

It constitutes a major cause of morbidity and financial expenditure in hospitals around the world and a significant cause of admissions to emergency surgical departments. Intestinal obstruction occurs in all age groups. In present clinical study, it includes all the age groups except infants. The study showed the peak incidence in the age groups of 50-59 years (25.6%) followed by 40-49 years (22%), 60-69 years (19.5%) which is comparable with the previous study groups Gill SS et al, Thampi D et al. The mean age in present current study is 46.5 years which no different from those in studies by Adhikari S et al which shows mean age of 44 years.

The present study on acute intestinal obstruction in adults shows clear preponderance of male sex over female sex with 54 patients (66%) males and 28 patients (34%) females. Ratio of male: female in present study is 1.95:1. This was in concordance with the studies conducted by in Osiuigwe AN et al and Phillippo L Chalya et al study where male to female ratio was 2.1:1.

Most of the cases presented with abdominal pain (94%), followed by abdominal distension (86.6%), vomiting (68.3%) constipation (63%), which was comparable to the study conducted by Khan et al. and Adhikari et al.

Causes of bowel obstruction include adhesions, hernias, volvulus, endometriosis, inflammatory bowel disease, appendicitis, tumors, diverticulitis, ischemic bowel, tuberculosis, and intussusception. Small bowel obstructions are most often due to adhesions and hernias while large bowel obstructions are most often due to tumors and volvulus. The diagnosis may be made on plain X-rays; however, CT scan is more accurate. Ultrasound or MRI may help in the diagnosis of children or pregnant women.

The condition may be treated conservatively or with surgery. In small bowel obstruction about 25% require surgery. Complications may include sepsis, bowel ischemia, and bowel perforation.

The prognosis for non-ischemic cases of small bowel obstruction is good with mortality rates of 3-5%, while prognosis for small bowel obstruction with ischemia is with mortality rates as high as 30%.

Cases of large bowel obstruction related to cancer are more complicated and require additional intervention to address the malignancy, recurrence, and metastasis, and thus are associated with poorer prognosis.

Out of the 82 cases, the site of obstruction was small bowel in 58 cases and large bowel in 24 cases. Hence, small bowel obstruction was found to be the most common cause. In the study conducted by Malik et al., in 71.1% of the cases, the obstruction was located on the small bowel.

Among the 82 cases, most common cause of acute intestinal obstruction was found to be post operative adhesions and bands which accounted for 40% of cases. Second most common cause was found to be obstructed/strangulated inguinal hernia which accounted for 22% of cases. This is different from the study conducted by Adhikari et al where inguinal hernias account for most of the cases.

The most common surgical procedure was adhesiolysis followed by resection and anastomosis/colostomy. Next common procedure was hernia reduction and repair which included inguinal, femoral, incisional, and paraumbilical hernia repairs. Most of the cases recovered without any complications (67%). Infection was the major cause of morbidity and was seen in 16% of patients. Mortality was 6% and was commonly seen in patients with strangulation and infected age. Two deaths were due to sepsis. This observation is comparable to a similar study conducted by Adhikari et al. and Ramachandran.

The mortality rate in the present study is comparable to Ramachandran CS et al. Study but it is more when compared to Adhikari S et al study. The mortality in intestinal obstruction is more in patients who develop strangulation and gangrene of the bowel, also who reached the hospital late. With all these, the age of the patient, general condition of the patient, duration of symptoms and operative procedures carries a prominent role in progress as well as the mortality.

CONCLUSION

Present study concluded that intestinal obstruction is seen more commonly in middle age group although no age is immune. Males were affected twice as common as females. Abdominal pain was the most common symptom, while tenderness was the most common sign. Average time of presentation of patient of obstruction was 2-4 days. Small bowel obstruction is more common than large bowel obstruction.

Bowel obstruction continues to be one of the most common abdominal problems faced by general surgeons. Irrespective of the cause, it remains a major cause of morbidity and mortality.

Success in the treatment of intestinal obstruction depends largely upon early diagnosis, skilful management and treating the pathological effects of the obstruction just as much as the cause it self.

Early recognition and aggressive treatment are crucial in preventing irreversible ischemia and transmural necrosis and thereby in decreasing mortality and long-term morbidity. Post-operative adhesion caused most cases of small bowel obstruction while large bowel obstruction was caused most commonly by malignancy. Plain X-ray erect abdomen is the single important diagnostic tool for diagnosing intestinal obstruction and its level of obstruction.

In present study it had been observed that early diagnosis, adequate preoperative hydration, prompt investigations and early operative intervention improves survival in patients of intestinal obstruction.

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