



## Incidence and Causes of Intestinal Obstruction in Saudi Adults: Tertiary Care Hospital Study

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### Abstract

To determine the incidence and causes of intestinal obstruction in Adults. This is a retrospective review of all adult patients who were diagnosed with intestinal obstruction at King Abdulaziz University Hospital between January 2005 and December 2012. According to the cause, patients were classified into two categories: patients with mechanical obstruction and patients with functional obstruction. The patients' medical records were reviewed for age, gender, causes of the intestinal obstruction, clinical picture, diagnostic imaging and management. The data were entered and analyzed using the statistical package for social sciences (SPSS Inc, Chicago, IL, USA), version 16.00. Total of 320 cases of intestinal obstruction, 184 were males (57.5%) and 136 were females (42.5%). The mean age was  $47.11 \pm 13.74$  years old (range 18-89). Mechanical obstruction were found in 232 patients (72.5%) while functional obstruction were found in 88 patient (27.5%). The most common cause of intestinal obstruction was post-operative adhesions which was reported in 92 patients (28.75%); it was followed by intestinal tumors in 43 patients (13.44%), diverticular disease in 41 patients (12.81%), post-abdominal surgery paralytic ileus in 33 patients (10.31%), mesenteric ischemia in 31 patients (9.67%), Crohn's disease in 28 patients (8.75%), intra-abdominal infection in 24 patients (7.5%), foreign body impaction in 6 patients (1.9%), impacted stool in 6 patients (1.9%), intussusception in 6 patients (1.9%), mesenteric lymphadenopathy in 4 patients (1.25%), ascariasis in 3 patients (0.94%) and abscess of intestinal wall in 3 patients (0.94%). Post-operative abdominal adhesions was the most common cause of intestinal obstruction in our patients (28.78%) followed by intestinal tumor (13.44%). It is important for the clinician and surgeon to know common causes of this problem in order to provide proper patient management.

**Keywords:** Intestinal obstruction, bowel obstruction, mechanical obstruction, paralytic ileus, post-operative adhesions.

### Introduction

Intestinal obstruction is a common surgical problem that surgeons face in usual clinical practice. There are many causes of intestinal obstruction which are either mechanical or functional (paralytic ileus)<sup>1</sup>. Each cause of intestinal obstruction needs different approach and management<sup>2</sup>.

Common mechanical causes are post-operative adhesions, benign or malignant intestinal tumors, hernias, foreign bodies, impacted stool, intussusception, and rarely gall stones<sup>3</sup>. Functional obstruction may be secondary to intestinal infections, electrolyte imbalances (such as decreased potassium levels), decreased blood supply to the intestines (mesenteric ischemia), intra-abdominal infection (appendicitis), or as a complication of abdominal surgery<sup>4</sup>.

This study was conducted to determine the incidence and different causes of intestinal obstruction in adults of our region.

### Methodology

A retrospective study of all adult patients who were diagnosed with bowel obstruction at King Abdulaziz University (KAUH)

between January 2005 and December 2012 (total of 320 patients both males and females) was undertaken. KAUH is the only university teaching hospital and one of four tertiary hospitals in the western region of Saudi Arabia, with capacity of 754 beds.

Patients' medical records were reviewed after obtaining local ethical approval. Patients were classified into two categories according to the cause of intestinal obstruction either patients with mechanical obstruction or functional obstruction. Data sheet was designed and divided to include patient's age, gender, causes of the intestinal obstruction, clinical picture, diagnostic imaging and management.

The data were entered and analyzed using the statistical package for social sciences (SPSS Inc, Chicago, IL, USA), version 16.00. The quantitative data were presented in the form of mean, standard deviation and range.

### Results and Discussion

Total of 320 cases of intestinal obstruction, 184 were males (57.5%) and 136 were females (42.5%). The mean age was  $47.11 \pm 13.74$  years old (range 18-89). Table-1 shows the demographic data of our intestinal obstruction's patients.

**Table-1**  
**Demographic data of the intestinal obstruction's patients**

|        | Frequency<br>(n=320) | Percentage<br>(%) | Age                               |
|--------|----------------------|-------------------|-----------------------------------|
| Male   | 184                  | 57.5              | Mean=46.75±16.55<br>Range (18-85) |
| Female | 136                  | 42.5              | Mean=49.94±15.52<br>Range (23-89) |
| Total  | 320                  | 100               | Mean=47.11±13.74<br>Range (18-89) |

Mechanical obstruction, including post-operative adhesions, intestinal tumors, diverticular disease, Crohn's disease, foreign body, impacted stool, intussusceptions, mesenteric lymphadenopathy, ascariasis and abscess of intestinal wall, were found in 232 patients (72.5%); while functional obstruction, including post-abdominal surgery, mesenteric ischemia and intra-abdominal infections, were found in 88 patients (27.5%). Table-2 shows the distribution of our intestinal obstruction's patients into these two categories.

**Table-2**  
**Distribution of patients into the intestinal obstruction's categories**

| Category                      | Frequency<br>(n=320) | Percentage<br>(%) |
|-------------------------------|----------------------|-------------------|
| <b>Mechanical obstruction</b> | <b>232</b>           | <b>72.5</b>       |
| Male                          | 130                  | 40.63             |
| Female                        | 102                  | 31.88             |
| <b>Functional obstruction</b> | <b>88</b>            | <b>27.5</b>       |
| Male                          | 54                   | 16.88             |
| Female                        | 34                   | 10.63             |

The most common cause of intestinal obstruction was post-operative adhesions which was found in 92 patients (28.75%); it was followed by intestinal tumors in 43 patients (13.44%), diverticular disease in 41 patients (12.81%), post-abdominal surgery paralytic ileus in 33 patients (10.31%), mesenteric ischemia in 31 patients (9.67%), Crohn's disease in 28 patients (8.75%), intra-abdominal infection in 24 patients (7.5%), foreign body impaction in 6 patients (1.9%), impacted stool in 6 patients (1.9%), intussusception in 6 patients (1.9%), mesenteric lymphadenopathy in 4 patients (1.25%), ascariasis in 3 patients (0.94%) and abscess of intestinal wall in 3 patients (0.94%). Table-3 shows causes of intestinal obstruction.

The most common presenting picture of intestinal obstruction was abdominal pain with distention. Erect abdominal X-ray was diagnostic in 291 patients (91 %). Management was different according to the cause. In general, it was surgical in 175 patients (54.5%) and conservative in 145 patients (45.5%).

Intestinal obstruction is relatively common surgical problem. Many studies reported that obstruction is mechanical in more than 60% of patients. On the other hand, functional obstruction

account only small percentage<sup>5-8</sup>. In our study, mechanical obstruction found to be in 72.5 % of cases.

**Table-3**  
**Causes of intestinal obstruction**

| Cause                      | Frequency<br>(n=320) | Percentage<br>(%) |
|----------------------------|----------------------|-------------------|
| Post-operative adhesions   | 92                   | 28.75             |
| Intestinal tumors          | 43                   | 13.44             |
| Diverticular disease       | 41                   | 12.81             |
| Post-abdominal surgery     | 33                   | 10.31             |
| Mesenteric ischemia        | 31                   | 9.67              |
| Crohn's disease            | 28                   | 8.75              |
| Intra-abdominal infection  | 24                   | 7.5               |
| Foreign body impaction     | 6                    | 1.9               |
| Impacted stool             | 6                    | 1.9               |
| Intussusception            | 6                    | 1.9               |
| Mesenteric lymphadenopathy | 4                    | 1.25              |
| Ascariasis                 | 3                    | 0.94              |
| Abscess                    | 3                    | 0.94              |

In a study conducted by Zerey et al and other by Van der wal et al, the most common cause of intestinal obstruction was the post-operative adhesions<sup>9-10</sup>. This is similar to our finding since it was observed in 28.75% of the cases. Second most common cause we found was the intestinal tumors both benign and malignant. Adenocarcinoma of the colon was the most common observed tumor that causes intestinal obstruction. This is also similar finding reported by Mitry et al in 2001<sup>11</sup>.

Other causes such as diverticular disease, Crohn's disease, foreign body, impacted stool, intussusceptions, mesenteric lymphadenopathy, ascariasis, abscess of intestinal wall, post-abdominal surgery, mesenteric ischemia and intra-abdominal infections are less common but must be considered.

### Conclusion

Post-operative abdominal adhesions was the most common cause of intestinal obstruction in our patients (28.78%) followed by intestinal tumor (13.44). It is important for the clinician and surgeon to know common causes of this common problem in order to provide proper patient management.

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