

## ORIGINAL ARTICLE

## AETIOLOGICAL FACTORS IN MECHANICAL INTESTINAL OBSTRUCTION

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**Background:** Intestinal obstruction occurs when the normal flow of intestinal contents is interrupted. The most frequent causes of intestinal obstruction are postoperative adhesions and hernias, which cause extrinsic compression of the intestine. Less frequently, tumours or strictures of the bowel can cause intrinsic blockage. Objective of the study was to find out the various aetiological factors of mechanical intestinal obstruction and to evaluate the morbidity and mortality in adult patients presenting to Surgical 'A' unit of Ayub teaching hospital with mechanical intestinal obstruction. **Methods:** This cross-sectional study was conducted from March 2009 to September, 2009. All patients presenting with intestinal obstruction and were above the age of 12 years were included in the study. Patients with non-mechanical obstruction were excluded from the study and those who responded to conservative measures were also excluded. **Results:** A total of 36 patients with age ranging from 12 to 80 years (Mean age  $37.72 \pm 19.74$  years) and male to female ratio of 1.77:1, were treated for mechanical intestinal obstruction. The most common cause for mechanical intestinal obstruction was adhesions (36.1%). Intestinal tuberculosis was the second most common cause (19.4%), while hernias and sigmoid volvulus affected 13.9% patients each. Malignancies were found in 5.6% cases. **Conclusion:** Adhesions and Tuberculosis are the leading causes of mechanical intestinal obstruction in Pakistan. Although some patients can be treated conservatively, a substantial portion requires immediate surgical intervention.

**Keywords:** Intestine, Mechanical (Dynamic), Intestinal obstruction.

## INTRODUCTION

Obstruction of the bowel may be Dynamic (mechanical) obstruction or adynamic (non-mechanical) obstruction in which no true peristalsis is seen.<sup>1</sup> Abdominal pain, vomiting, constipation, abdominal distension and failure to pass flatus are the cardinal features of intestinal obstruction.<sup>2</sup>

Mechanical obstruction is one of the most serious and frequently encountered emergencies on surgical floor, presenting as acute abdomen.<sup>3</sup> An estimated 20% of hospital general surgical emergency admissions are for the management of intestinal obstruction.<sup>4</sup> Managing intestinal obstruction is a continuous challenge to surgeons all over the world.<sup>5</sup>

Patient with intestinal obstruction are often seriously ill and require frequent assessment, monitoring of vital signs and clinical progress to determine the need for surgical intervention.<sup>6</sup> Surgical management requires early diagnosis and treatment with meticulous balance of fluids and electrolytes and if appropriate; timely surgical intervention.<sup>7</sup> It may be caused by a number of conditions, such as external hernias (19%), volvulus (11%), tuberculosis (20%), malignancy (19%) and post operative or inflammatory adhesions (26%) as the most common cause of intestinal obstruction.<sup>6,8</sup> Tuberculosis (36%) is emerging as the leading cause of dynamic intestinal obstruction in Pakistan. The causes of intestinal obstruction are variable in different parts of the world. This makes it essential that the studies should be conducted periodically in every region to define the local

causes with idea of improving surgical health services. Therefore this study was conducted with objectives to find out the frequency of various etiological factors of mechanical intestinal obstruction and to evaluate the morbidity and mortality in adult patients presenting with intestinal obstruction.

## MATERIAL AND METHODS

The study cross sectional study was conducted in department of surgery, Ayub Teaching Hospital; Abbottabad from March 26, 2009 to September 2009. All patients with intestinal obstruction who were admitted to Surgical 'A' unit of Ayub Teaching Hospital Abbottabad through OPD, casualty and referrals from medical units and above age of 12 years were included in the study. Informed consent from patients/relative was obtained. The diagnosis of intestinal obstruction was made on the basis of detailed history, clinical findings, x ray abdomen and ultra sound of the abdomen. Other investigations for fitness for anaesthesia, to exclude a dynamic cause and for the management of intestinal obstruction were carried out, i.e., complete blood picture, electrolytes, urea, creatinine, X ray chest and ECG. Patients with non-mechanical obstruction were excluded from the study and those who responded to conservative measures were also excluded.

Laparotomy was performed in those cases who did not improve with conservative treatment and where mechanical cause of intestinal obstruction was suspected. Biopsy was taken where required for histopathological

confirmation. operative details, e.g., causes, site of obstruction and operative procedure were recorded. The patients were followed for a period of two months for postoperative complications and mortality. Data were analysed using SPSS-10.

## RESULTS

A total of 36 patients with mechanical intestinal obstruction were treated during the study period. The ages of the patients ranged from 12–80 years (Mean age 37.72±19.74 years). Twenty-three (63.9%) were males and thirteen (36.1%) were female with male to female ratio of 1.77:1. Pain was the most common (100%) symptom followed by abdominal distension (90%) and vomiting (85%). Intestinal obstruction due to adhesion was the most common cause (36.1%) (Table-1).

Out of 36 patients, 27 (75%) underwent surgical intervention and 9 (25%) were treated conservatively. Amongst the operated cases 9 (25%) developed surgical site infection and 1 (2.8%) had anastomotic leak. Mortality rate was 2.8%.

**Table-1: Causes of intestinal obstruction**

Cause of obstruction	Number (%)
Adhesion	13 (36.1)
Intestinal tuberculosis	7 (19.4)
Volvulus	5 (13.9)
Hernia	5 (13.9)
Malignancies	2 (5.6)
Worms	2 (5.6)
Faecal impaction	1 (2.8)
Superior mesenteric artery syndrome	1 (2.8)

## DISCUSSION

Clinical presentations of our cases are almost consistent with the study conducted by Ismail *et al*<sup>1</sup> and Qureshi MI *et al*<sup>5</sup>. The mean age of the patients was 37.4 years which is comparable with that reported by Ismail *et al* (37.5).<sup>1</sup> Markogiannakis H *et al*<sup>9</sup> reported mean age of the patients as 63.8±1.3 years while mean age of patients was 25 years in a study conducted by Drozd W *et al*.<sup>10</sup> These gross discrepancies may be due to different disease patterns in different geographic regions of the world.

Male to female ratio was 1.77:1 which is almost same as reported by Qureshi MI *et al*.<sup>5</sup> Sule AZ<sup>11</sup> reported male to female ratio as 1.33:1 in their study from Nigeria in 2009. The difference in the ratio for different regions may be due to difference in their diet and incidence of malignancies.

In the current study the main cause of mechanical intestinal obstruction was adhesions followed by intestinal tuberculosis as the second most common cause. Ch AK *et al*<sup>6</sup> also reported that adhesion is the most common cause of intestinal obstruction

followed by tuberculosis and malignancies. Qureshi MI *et al*<sup>5</sup> observed almost similar findings in their study where postoperative adhesions (38%) was the most common cause for mechanical small bowel obstruction. Weibel and Majno<sup>12</sup> in an autopsy study of 752 cadavers, found an incidence of adhesions of 67% in those that had undergone previous abdominal surgery.

Donald Menzies and Harold Ellis<sup>8</sup> performed a detailed study on intestinal obstruction. They reported Twelve (10.4%) of 115 patients undergoing first-time laparotomies had adhesions. They further found that of the 210 patients who previously had surgery, 195 (93%) were found at laparotomy to have intra-abdominal adhesions that were attributable to their previous surgery. These both figures do not match our figures (13%) because we did not divided patients in groups of first time laparotomy and recurrent laparotomy and this is the limitation of our study.

## CONCLUSION

We conclude that adhesions and Tuberculosis are the leading causes of mechanical intestinal obstruction in our region. Although some patients can be treated conservatively, a substantial portion requires immediate surgical intervention.

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