

*Original Article*

## Similarities between Preexplorative Diagnosis and Perexplorative Findings of Intestinal Obstruction Patients in Two Tertiary Care Hospitals in Bangladesh

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### *Abstract*

**Background:** Intestinal obstruction is a common surgical problem that surgeons face in clinical practice. Still intestinal obstruction is a major problem in medical college hospitals in Bangladesh. Causes of intestinal obstruction remain same as earlier. There is lack of statistical data in our country. So, this study will be helpful in various aspect of management of intestinal obstruction patients by providing data. **Objective:** To find out similarities between preoperative diagnosis with actual peroperative findings of intestinal obstruction. **Materials and Methods:** This cross-sectional study was conducted from April 2013 to April 2014 at Enam Medical College Hospital and Dhaka Medical College Hospital. Two hundred patients were selected by purposive sampling of diagnosed cases of intestinal obstruction. **Results:** Among the subjects male were 124 (62%) and female were 76 (38%). Mean age was  $34.56 \pm 9.13$  years. The maximum respondents were from 21–30 years age group (54%) followed by 31–40 years (18%) age group. Chronic intestinal obstruction was present in 53% cases and acute intestinal obstruction in 47% cases. The clinical profile showed that all patients had abdominal pain followed by vomiting (78%). The preoperative diagnosis of intestinal obstruction was neoplastic obstruction (24%) followed by obstructed hernia (22.5%). The highest similarities (100%) were observed in case of volvulus and ileosigmoid knotting. Obstructed hernia had the highest accuracy (97.7%) followed by neoplastic obstruction (91.66%). Maximum patients (13.5%) suffered from wound infection followed by burst abdomen (3%). **Conclusion:** The preoperative diagnoses are very much similar to peroperative findings. The clinical parameters and other mandatory diagnostic tools commonly used in tertiary level hospitals in our country showed diagnostic accuracy in diagnosis of intestinal obstruction.

**Key words:** Intestinal obstruction; Preoperative diagnosis; Peroperative findings; Similarities

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### **Introduction**

Intestinal obstruction is a common surgical emergency all over the world. It is defined as obstruction in forward propulsion of the contents of the intestine due to dynamic, adynamic or pseudo-obstruction. It is predisposed by varying underlying anomalies and diseases, which are difficult to define pre-operatively.<sup>1</sup>

Intestinal obstruction may also be classified as small

bowel and large bowel obstruction.<sup>2</sup> The diagnostic and therapeutic approach to bowel obstruction should be systematic. The main aetiology of obstruction is adhesions which account for 75% of cases of small bowel obstruction; the other causes include hernias, malignant bowel obstruction, inflammatory bowel disease, internal hernias, volvulus and strictures.<sup>3</sup>

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Though intestinal obstruction can be diagnosed easily, the underlying causes except postoperative adhesions and external hernias are difficult to be diagnosed preoperatively. Although the mortality due to acute intestinal obstruction is decreasing with better understanding of pathophysiology, timely surgical intervention based on improved modalities and imaging studies, but still the mortality ranges from 5–10% and more in developing countries. Aim of this study was to find out the accuracy of pre-operative diagnosis in case of intestinal obstruction patients admitted to hospital.<sup>4,5</sup>

Still intestinal obstruction is a major problem in medical college hospitals. Nowadays there is increasing number of laparotomy and other operations due to advancement of medical science. So development of post-operative bands and adhesions still remain predominant. There is lack of statistical data in our country, so this study will be helpful in various aspects of management of intestinal obstruction patient. A retrospective study was conducted at Department of Surgery of Agartala Government Medical College & Govind Ballabh Pant Hospital, Agartala, Tripura from November 2012 to November 2016. The study group comprised of 87 cases of acute intestinal obstruction in age group of above 12 years. The common age group affected was 41–50 years, common sex was male, the commonest cause of acute intestinal obstruction in this study was adhesions and bands (41.4%) followed by malignancy (26.4%). The other causes of intestinal obstruction are obstructed hernia (9.2%), volvulus (6.9%), stricture (5.7%), ileocecal tuberculosis (3.4%), and superior mesenteric artery thrombosis (3.4%). The most common operation performed was adhesiolysis (39%) followed by resection and anastomosis (17.2%) and the most common post-operative complication observed was wound infection (29.9%). The mortality in this study was 9.2%.<sup>6</sup>

An acute onset small bowel obstruction (SBO) is one of the most common reasons for emergency admissions for abdominal pain. Many of these obstructions are of sudden onset and most are on the basis of previous operative interventions and residual adhesive bands.<sup>7</sup> Tubercular intestinal obstruction may be acute or chronic and most commonly involving the illeocecal region.<sup>8</sup>

This study will help to find out the causative factors of intestinal obstruction preoperatively and its relation with peroperative findings. This will highlight the commonest causes of intestinal obstruction in the geographical location of the study, which will suggest measures for prevention and treatment of the condition.

## Materials and Methods

This observational descriptive cross-sectional study was conducted in the Departments of Surgery, Enam Medical College & Hospital, Savar, Dhaka and Dhaka Medical College & Hospital during the period of April 2013 to April 2014. Two hundred consecutive cases from all admitted patients with clinical and laboratory evidence of intestinal obstruction were included. Sample size was determined by  $z^2pq/d^2$  formula; here,  $z$ =confidence level. Adult patients diagnosed as intestinal obstruction and who consented for surgical management were included. Patients managed conservatively, patients who are not fit for surgery or not willing to be a part of this study and adynamic intestinal obstruction due to electrolyte imbalance and diabetes were excluded. Patients admitted into the above mentioned hospitals and after meeting the inclusion and exclusion criteria, a consecutive sampling technique was applied for selecting the study patients. On admission relevant pathological and biochemical investigations were done in all cases. Plain X-ray abdomen in erect posture was done in all patients. Ultrasonography of abdomen was done in some cases whose diagnosis by X-ray was inconclusive. Serum electrolytes were done in required cases only. Surgery was done in all cases of acute presentation. Information was collected from the subjects who gave consent and participated in the study willingly. Structured questionnaire was filled in at the time of admission by the investigator. Structured follow-up sheet was used during the period of hospitalization. Main outcome variables studied were age, sex, clinical findings, pre-operative diagnosis, preoperative management and peroperative findings. Informed written consent was taken from all patients. All documents were preserved confidentially and questions were asked in Bangla. After collection, data editing and clearing were done manually and prepared for data entry and analysis by using computer.

**Results**

This study was done in the departments of Surgery of Enam Medical College & Hospital and Dhaka Medical College & Hospital. The study duration was one year. The sample size was 200. The mean age of study population was  $34.56 \pm 9.13$  (11–73) years. Among the study subjects 124 (62%) were male and 76 (38%) were female. The maximum respondents were from age group 21–30 years (54%) followed by 31–40 years (18%). The minimum number of respondents was from age group 51–60 years (4%) (Table I). All 200 patients presented with abdominal pain followed by vomiting in 78% cases (vomiting is the early feature of small bowel obstruction). Weight loss (69%) and low grade fever (57%) were the important features, usually these coincide with chronic obstruction (Table II). The preoperative diagnoses of intestinal obstruction were highest as neoplastic obstruction (24%) followed by obstructed hernia (22.5%) (Table III). Out of 200 patients neoplastic obstruction was found highest (23.5%) preoperatively followed by obstructed hernia (22%) (Table IV). Out of 200 patients highest accuracy (100%) was observed in case of volvulus. But in more frequent cases, obstructed hernia has got the highest accuracy (97.7%) followed by neoplastic obstruction (91.66%) (Table V). Out of 200 subjects, 36 patients experienced different complications. Among them, maximum patients suffered from wound infection (13.5%) followed by burst abdomen (3%) (Table VI).

Table I: Distribution of study subjects according to age (N=200)

Age group (in years)	Frequency	Percentage
11–20	18	9
21–30	108	54
31–40	36	18
41–50	18	9
51–60	8	4
>60	12	6
Total	200	100

Table II : Distribution of study subjects according to clinical presentation (N=200)

Clinical presentation	Frequency	Percentage
Abdominal pain	200	100
Vomiting	156	78
Constipation	140	70
Weight loss	138	69
Abdominal tenderness	126	63
Fever	114	57
Abdominal distension	104	52
Diarrhea/constipation	44	22
Features of peritonitis	22	11
Abdominal mass	25	12.5
Previous operation scar	38	19

Table III: Distribution of patients according to preoperative diagnoses (N=200)

Preoperative diagnosis	Frequency	Percentage
Obstructed hernia	45	22.5
Tuberculous obstruction	36	18
Bands and adhesion	42	21
Neoplastic obstruction	48	24
Intussusception	5	2.5
Volvulus	20	10
Crohn’s disease	4	2
Total	200	100

Table IV: Distribution of patients according to preoperative findings (N=200)

Preoperative diagnosis	Frequency	Percentage
Obstructed hernia	44	22
Tubercular obstruction	32	16
Bands and adhesion	40	20
Neoplastic obstruction	47	23.5
Intussusception	3	1.5
Volvulus	20	10
Crohn’s disease	2	1
Burst appendix	9	4.5
Meckel’s diverticulitis	2	1
Foreign body obstruction	1	0.5
Total	200	100

Table V: Distribution of subjects based on diagnostic similarity (peroperative diagnoses with preoperative findings) (N=200)

Preoperative diagnosis	Peroperative similarity	Percentage
Obstructed hernia	44/45	97.7
Tubercular obstruction	30/36	83.33
Bands and adhesion	38/42	90.47
Neoplastic obstruction	44/48	90.47
Intussusception	3/5	60
Volvulus	20/20	100
Crohn's disease	2/4	50
Total	181/200	90.5

Table VI: Distribution of study subjects based on postoperative complications (N=200)

Type of complications	Frequency	Percentage
Wound infection	27	13.5
Burst abdomen	6	3
Ileostomy prolapse	2	1
Anastomotic leakage	4	2
Colostomy retraction	1	0.5
Septicemia	1	0.5
Paralytic ileus	2	1

## Discussion

Accurate diagnosis of acute abdomen is still difficult despite improvement in clinical examinations and investigations. Acute surgical emergencies constitute 50% of all general surgical admissions and 50% of them are for acute abdomen, 50% of which require surgical intervention.<sup>9</sup>

The mean age of the subjects in this study was  $34.56 \pm 9.13$  years which is almost similar to those of another series.<sup>10</sup> The maximum patients (54%) presented in the third decade of life whereas Bhansali & Sethna<sup>11</sup> recorded the majority of cases being in the 3<sup>rd</sup> and 4<sup>th</sup> decades of life.

The predominant symptom in our study was abdominal pain (100%) followed by vomiting (78%). Abdominal tenderness was the predominant clinical sign present in 63% of patients. Our findings are similar to another series reported in the literature on small bowel obstruction.<sup>7</sup>

In this series, abdominal pain was colicky in nature, usually starting in the central abdomen and radiating to the entire abdomen – 200/200 patients (100%) experiencing this while a continuous type of pain was present in 93 of 200 patients (46.5%) when peritonitis developed. Strangulation obstruction was confirmed during surgery in 28 patients in our study; 12 of these 28 patients (42.85%) had colicky abdominal pain similar to that in patients with simple obstruction. Similar observations were made by Silen et al<sup>12</sup> in their series of 480 cases. Vomiting was the second commonest (78%) symptom in our study and merits a special mention here. Most of our obstruction was high obstruction.

In this study, previous operative scarring was present in 38 of 42 patients with adhesion obstruction (90.47%). Mucha<sup>13</sup> noted a history of previous operation in 144 of 154 (93.50%) patients with adhesive small bowel obstruction.

The preoperative diagnosis of intestinal obstruction was observed highest as neoplastic obstruction (24%) followed by obstructed hernia (22.5%), which is similar to the findings of Naveen et al<sup>1</sup>. Out of 200 patients neoplastic obstruction was found highest (23.5%) preoperatively followed by obstructed hernia (22%), which is also similar to a study of Chakma et al<sup>6</sup> of 87 cases.

In 94% cases preoperative diagnosis was found accurate that supports the results of different previous series.<sup>14</sup> Out of 200 patients highest accuracy (100%) was observed in case of volvulus. But in more frequent cases neoplastic obstruction has got the highest accuracy (97.91%) followed by obstructed hernia (97.7%).

In this study 36 patients experienced different complications. Among them, maximum patients (13.5%) suffered from wound infection followed by burst abdomen (3%). This result is similar to Chakma et al<sup>6</sup> of 87 cases.

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