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CASE SERIES OF SMALL INTESTINAL OBSTRUCTION IN ADULT

NITIN R. NANGRE[1], A. M. SHAH[1*], SHREESH S. KOLEKAR[1], ARUN K. KULKARNI[1] AND MAYUR NAGVEKAR[1]

[1]Department of General Surgery, Krishna Institute of Medical Sciences, Karad, India.

AUTHORS' CONTRIBUTIONS

This work was carried out in collaboration among all authors. Authors NRN and AMS designed the study, performed the statistical analysis, wrote the protocol, and wrote the first draft of the manuscript. Authors SSK, AKK managed the analyses of the study. Author MN managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

In adult surgical procedures, small bowel obstruction (SBO) is normal, largely due to postoperative adhesion. Acute SBO is less frequent and has distinct etiologies in people without a history of abdominal surgery, trauma, or clinical hernia. Congenital bands are an extraordinarily unusual cause. Aim of the study is to study the clinical presentation of intestinal obstruction in adult population. The case series of small intestinal obstruction in adult is the cross sectional study. The present paper was performed on all minor intestinal obstruction cases within the surgery department, Krishna Institute of Medical Sciences (KIMS), Karad. The present study concluded that 18-30 years is the age group and the male sex is most prominent for acute small intestine obstruction. The most popular clinical presentation is stomach pain, distension, tenderness.

Keywords: Small intestinal obstruction; congenital band; morbidity; bowel obstruction.

1. INTRODUCTION

Over the past century, the anatomical site of Bowel Obstruction (BO) remained unchanged; however, the aetiological influences in both small and large BOs have changed dramatically. As time passes, more and more elderly patients are diagnosed with BO [1]. However, BO remains one of the most prevalent surgical emergencies in general surgery units [2] and appears to be a significant source of morbidity and financial spending [3]. The most frequent causes of BO were peritoneal adherence and hernia, adding 42.3 percent [4]. The future applicants for major abdominal surgery with long-term morbidity and likely death are

**Corresponding author: Email: amshah020@gmail.com;*

all BO patients. The choice of surgery and its timing are also important.

2. AIM AND OBJECTIVES

To study etiopathological factors causing intestinal obstruction in adult population. To study different modalities of management of intestinal obstruction with emphasis over early surgical interventions in its management. To analysis of bowel obstruction morbidity and mortality in the adult population.

3. REVIEW OF LITERATURE

The small intestine has many functions and is a complex organ. It is, in fact, capable of feeding, absorption and secretion, of endocrine activity and of shielding the internal atmosphere from toxic substances taken in and against luminous bacteria and their toxins. A number of pathologic mechanisms cause small-bowel obstruction (SBO). Intra-abdominal adhesion is the most frequent cause of SBO in developing nations, accounting for around 65 to 75 percent of cases, followed by hernias, Crohn's disease, malignancy, and volvulus [5]. SBO is primarily caused by hernias (30-40 percent), adhesions (about 30 percent), and tuberculosis (about 10 percent), along with malignancy, Crohn's disease, volvulus, and bacterial infections in developed nations, on the other side [6]. The general pattern in developed nations is an increase in the occurrence of SBO from adhesions due to higher occurrence of laparotomy [7]. Essential issues about intestinal obstruction are its effects on body fluid / electrolyte balances and the mechanical impact of elevated pressure on intestinal perfusion. The intestinal tract dilates when it filled with intestinal secretions and ingested air at the point of obstruction [8]. Morbidity and mortality depend on early identification and proper diagnosis of obstruction. Untreated, strangulated obstructions cause mortality in 100 percent of patients. If surgery is done within 36 hours, the mortality rate will be lowered to 8%. The death rate is 25% if surgery in these patients is delayed over 36 hours [9].

Computed tomography (CT) is suitable for further review in patients with possible intestinal obstruction of which clinical evaluation and radiography do not include a definitive diagnosis. CT is adaptive to the diagnosis of high-grade obstruction (up to 90% in certain series) [10] and has the added advantage of identifying the cause and degree of obstruction in most patients [11]. In addition, CT may classify developing causes of intestinal obstruction, such as volvulus or intestinal strangulation.

4. MATERIALS AND METHODS

The case series of small intestinal obstruction in adult is the cross sectional study. The current research was performed on all small intestinal obstruction cases within the surgery department, Krishna Institute of Medical Sciences (KIMS), Karad. The period of data collection was spread from December 2015 to June 2017. After collection of data, the data entry forms were checked for their completeness and missing and incomprehensible data was rechecked from the respective participant profile. Data entry was done in MS Excel data sheet. This procedure was conducted over the period of 2 months. The data cleaning and the retrieval of the missing data were done over a period of one month. The collected data was analyzed over a three month period and the report writing was completed by end of Oct 2017.

5. OBSERVATION AND RESULTS

The above Table 1. shows that 35 (35.0) cases were between 18-30 years, 12 (12.0) cases were 31-40 years, 21 (21.0) cases were 41-50 years, 26 (26.0) cases were 51-60 years and 6 (6.0) cases were more than 60 years.

The above Table 2. shows distribution of cases according to blood urea nitrogen level. It was observed that 32 (32.0) cases were having BUN level between 11-20 mg/dl, 34 (34.0) cases were having BUN level between 21-30 mg/dl, 20 (20.0) cases were having BUN level between 31-40 mg/dl and 14 (14.0) cases were having BUN level between 41-50 mg/dl.

Table 1. Participants distribution according to age group

Age group (in years)	Frequency	Percent
18-30	35	35.0
31-40	12	12.0
41-50	21	21.0
51-60	26	26.0
More than 60	6	6.0
Total	100	100.0

Table 2. Distribution of participants according to Blood urea Nitrogen (BUN)

Blood urea Nitrogen (BUN) mg/dl	Frequency	Percent
11-20	32	32.0
21-30	34	34.0
31-40	20	20.0
41-50	14	14.0
Total	100	100.0

Table 3. Distribution of participants according to Serum Creatinine level

Serum creatinine level mg/dl	Frequency	Percent
less than 0.5	26	26.0
0.500-0.999	31	31.0
1.000-1.499	18	18.0
1.500-1.999	14	14.0
More than 2.00	11	11.0
Total	100	100.0

Table 4. Relation of operative time with morbidity and mortality

Duration of surgery	Morbidity	Mortality
91-120 min	3	0
121-150 min	6	1
151-180 min	10	1
More than 180	12	3
Total	31	5

The Table 3. shows that 26 (26.0) cases were having serum creatinine level less than 0.5 mg/dl, 31 (31.0) cases were having serum creatinine level between 0.500-0.999 mg/dl, 18 (18.0) cases were having serum creatinine level between 1.00-1.499 mg/dl, 14 (14.0) cases were having serum creatinine level between 1.500-1.999 mg/dl and 11 (11.0) cases were having serum creatinine level more than 2.0 mg/dl.

The Table 4. shows distribution of cases in relation of operative time with morbidity and mortality. It was observed that among the morbidity cases, 3 cases had surgery time of 91-120 minutes, 6 cases had surgery time of 121-150 minutes, 10 cases had surgery time of 151-180 minutes and 12 cases had surgery time of more than 180 minutes. Among the mortality cases, 1 case had surgery time of 121-150 minutes, 1 case had surgery time of 151-180 minutes and 3 cases had surgery time of more than 180 minutes.

6. DISCUSSION

When making a decision on the treatment of small bowel obstruction, clinical presentation of small intestine obstruction, physical examination results, laboratory and radiographic inspection reports are obviously relevant. In my study, it was observed that 35 (35.0) cases were between 18-30 years, 12 (12.0) cases were 31-40 years, 21 (21.0) cases were 41-50 years, 26 (26.0) cases were 51-60 years and 6 (6.0) cases were more than 60 years. Deshmukh SN et al [12] found that 4 (8.0) cases were between 18-20 years, 5 (10.0) cases were 21-30 years, 8 (16.0) cases were 31-40 years, 8 (16.0) cases were 41-50 years, 11 (22.0) cases were 51-60 years and 9 (18.0) cases were more than 60 years. Gill SS et al [13] in his study also found similar observations regarding age of the cases. Adhikari S et al [14] found the most common age affected was 41 to 50 years. While one researcher Cole GJ et al [15] found that the most common age group affected was 31-40 years. Similar observation was reported by Singh H et al [16] who also found 31-40 years as the most common age group. In our study we found the most common age group was 18- 30 years. Our age group was lower than the age groups reported by these researchers.

6.1 Distribution of Participants according to WBC Group

In my study it was determined that 32 (32%) cases were having WBC count between 11001-15000 count/cumm, 62 (62%) cases were having WBC count between 15001-20000 count/cumm and 6 (6%) cases

were having WBC count between 20001-25000 count/cumm. Mehran Peyvasteh [17] in his study found that 104 (49.28%) cases were having WBC count between less than 10000 count/cumm, 83 (39.33%) cases were having WBC count between 10000-15000 count/cumm and 24 (11.37%) cases were having WBC count more than 15000 count/cumm.

6.2 Distribution of Participants according to Blood Urea Nitrogen (BUN)

In my study, it was determined that 32 (32%) cases were having BUN level between 11-20 mg/dl, 34 (34%) cases were having BUN level between 21-30 mg/dl, 20 (20%) cases were having BUN level between 31-40 mg/dl and 14 (14%) cases were having BUN level between 41-50 mg/dl. Mehran Peyvasteh [17] in his study found that azotemia was present in 32 (15.16%) of the cases.

6.3 Relation of Operative Time with Morbidity and Mortality

In the present study, it was determined that among the morbidity cases, 3 cases had surgery time of 91-120 minutes, 6 cases had surgery time of 121-150 minutes, 10 cases had surgery time of 151-180 minutes and 12 cases had surgery time of more than 180 minutes. Among the mortality cases, 1 case had surgery time of 121-150 minutes, 1 case had surgery time of 151-180 minutes and 3 cases had surgery time of more than 180 minutes. The morbidity and mortality are both more in the cases which require more surgery time.

7. CONCLUSION

The current study concluded that 18-30 years is the age group and male gender is the most prominent for acute small intestine obstruction. The most popular clinical presentation is stomach pain, distension, tenderness. The other typical findings on physical examination are hypotension, elevated heartbeat, elevated respiratory rate, raised WBC count. Previous surgical experience has been seen in 41 percent of patients and the most prominent aetiology in our sample is adhesions and hernia. Like post surgical complications, some patients had wound inflammation and wound dehiscence.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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