

Original Article

A Clinical study on acute intestinal obstruction at a tertiary care centre

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Abstract:

Background: More early the diagnosis of acute intestinal obstruction is made, more chances of success are there. At the same time, after diagnosis, appropriate management also decides the chances of success. Pathophysiological effects of the condition should be kept in mind while managing such cases.

Objective: To study clinical profile of patients with acute intestinal obstruction.

Methods: Prospective observational study was carried out among 90 cases of acute intestinal obstruction. Complete resuscitation of the patients was carried out. Once the patient was stable, surgical intervention was done in the indicated cases as per the standard operative guidelines. Throughout the postoperative period, the patients were monitored carefully in the postoperative intensive care units or wards depending on the patients' general condition and toxemia.

Results: Incidence of acute intestinal obstruction was 25.7%. Incidence of intestinal obstruction was highest in >50 years (66.7%) cases. Hernia and Strictures (TB and non-TB) was more common in females than males. Incisional hernia was most common type in 64.3%. Descending colon, sigmoid, rectum was the most common site of carcinoma in 41.7%. Small bowel was involved more than large bowel for hernia, adhesions and band, strictures, mesenteric ischemia. But, carcinoma was almost three times more in large bowel compared to small bowel. Incidence of gangrene was 100% in case of mesenteric ischemia. Only 13 cases had postoperative complications. Most common complication was wound infection in six cases.

Conclusion: Incidence of acute intestinal obstruction was 25.7%. incidence of complications was very less postoperatively.

Key words: Descending colon, sigmoid, rectum, acute intestinal obstruction

Introduction:

The incidence of intestinal obstruction changes from 2.6 – 15% of all causes of acute abdomen. ¹ The most critical factor affecting the outcome is whether the obstruction has progressed to the point of strangulation. The spectrum of intestinal obstruction is also changing. In the developed countries, the most common cause of bowel obstruction has changed from external hernias to adhesions. ² The spectrum varies from country to country and region to region. Mortality rates ranging from 5.8% in non-gangrenous bowel obstruction

³ to as high as 37% in strangulated obstruction ⁴ has been reported. Most medical centres report an overall mortality rate of 5-10%. ² This reduction in mortality has come from more advanced perioperative care and earlier operative intervention when appropriate. ⁵

More early the diagnosis of acute intestinal obstruction is made, more chances of success are there. At the same time, after diagnosis, appropriate management also decides the chances of success. Pathophysiological effects of the condition should be kept in mind while managing such cases. ⁵

In this study, the pathophysiology, various aetiological factors, the diagnosis, various investigative procedures, preoperative, perioperative & postoperative management are discussed in detail, with particular emphasis on strangulation, as it alters the prognosis significantly. A better understanding of pathophysiology, early diagnosis, and proper preoperative management and surgery reduces the risk of strangulation, thereby reducing morbidity and mortality.

Present study was carried out to study clinical profile of patients with acute intestinal obstruction.

MATERIALS & METHODS

Study design: Prospective observational study

Settings: Department of General Surgery, Krishna Institute of Medical Sciences, Secunderabad

Study period: June 2017- June 2019

Sample size: A total of 90 cases of acute intestinal obstruction were taken up for final study

Inclusion criteria:

1. Adults of either gender
2. Signs and symptoms suggestive of acute intestinal obstruction

Exclusion criteria:

1. Age less than 18 years
2. Those with paralytic ileus
3. Those with Subacute intestinal obstruction
4. Those with Pseudo-obstruction

Permissions:

Institution Ethics Committee permission was obtained. Informed consent was taken from the first degree relatives of the patients.

Methodology:

As soon as the patient was admitted, first priority was complete resuscitation of the patients. Routine IV fluids were given to ensure complete hydration. In some cases, we also gave crystalloid fluids. Decompression was done using the nasogastric tube. Prophylactic use of antibiotics was done. Continuous monitoring of the vital parameters was done.

If indicated, the patients were given the blood transfusion. Conservative management was the method of choice for those cases who showed improvement.

Once the patient was stable, surgical intervention was done in the indicated cases as per the standard operative guidelines. The choice of the surgical intervention was dependent upon the patient requirement based on his response and condition. Certain factors like release of bands

and adhesions, reduction of intussusceptions, resection and anastomosis for gangrenous bowel, etc. were taken into consideration while deciding the type of surgical intervention.

Throughout the postoperative period, the patients were monitored carefully in the postoperative intensive care units or wards depending on the patients' general condition and toxemia. Postoperatively Ryle's tube aspiration, intravenous fluids, and antibiotics were continued and tapered or removed on an individual case basis.

All patient details related to age, sex, type of hernia, carcinoma status, and complications after surgery were recorded in the pre-designed, pre-tested, semi-structured study questionnaire.

Informed consent obtained from all the patients or next of kin for utilization of the data, investigations and clinical photographs in the study. The data collected was analysed using proportions.

RESULTS

Table 1: Incidence, recovery rate and mortality in acute intestinal obstruction

Parameters	Number	Percentage
Total number of acute abdominal emergencies operated	350	100
Total number of acute intestinal obstruction cases	90	25.7
Over all recovery rate of acute intestinal obstruction (N=90)	87	96.7%
Mortality in acute intestinal obstruction (N=90)	3	3.3%

During the study period a total of 350 cases of emergency acute abdomen underwent surgery. Among them the incidence of acute intestinal obstruction was 25.7%. In that only three died. (Table 1)

Table 2: incidence of intestinal obstruction in various age groups

Age (years)	Number	%
18-30	4	4.4
31-50	26	28.9
> 50	60	66.7

The incidence of intestinal obstruction was highest in the age group of more than 50 years (66.7%) and it was lowest in the younger age group where only four cases were seen. (Table 2)

Table 3: Sex distribution of various cases of intestinal obstruction

Various cases	Number	Male	Female
Hernia	42 (46.7%)	7	35
Adhesions and band	24 (26.7%)	11	13
Carcinoma	12 (13.3%)	6	6
Volvulus	2 (2.2%)	2	0
Strictures (TB and non-TB)	7 (7.8%)	2	5
Mesenteric ischemia	3 (3.3%)	1	2

Hernia and Strictures (TB and non-TB) was more common in females than males. Adhesions and band were slightly more common in females than males. (Table 3)

Table 4: Incidence of various types of hernia causing intestinal obstruction

Types of hernia	Number	%
Incisional	27	64.3
Inguinal	6	14.3
Umbilical	7	16.7
Femoral	2	4.8

Incisional hernia was the most common type in 64.3% of the cases followed by umbilical hernia in 16.7% of the cases. (Table 4)

Table 5: Incidence of various sites of carcinoma causes intestinal obstruction

Sites of carcinoma	Number	%
Ascending colon	2	16.7
Transverse colon	2	16.7
Descending colon, sigmoid, rectum	5	41.7
Small bowel	3	25

Descending colon, sigmoid, rectum was the most common site of carcinoma in 41.7% of the cases followed by small bowel in 25% of the cases. (Table 5)

Table 6: Relative incidence of involvement of large and small bowel in various cases

Cases	Small bowel	Large bowel
Hernia	36	6
Adhesions and band	23	1
Carcinoma	3	9
Volvulus	0	2
Strictures (TB and non-TB)	7	0
Mesenteric ischemia	3	0
Total	72	18

Small bowel was involved more than the large bowel for hernia, adhesions and band, strictures, mesenteric ischemia. But, carcinoma was almost three times more in large bowel compared to small bowel. (Table 6)

Table 7: Incidence of gangrene in various cases of intestinal obstruction

Etiological types	No. of cases	No. of cases with gangrene	%
Hernia	42	9	21.4
Adhesions and band	24	8	33.3
Volvulus	2	1	50
Mesenteric ischaemia	3	3	100

Incidence of gangrene was 100% in case of mesenteric ischemia followed by 50% in cases of volvulus, followed by 33.3% in cases with adhesions and band. (Table 7)

Table 8: Incidence of postoperative complications

Complications	Number	%
Prolonged ileus	4	4.4

Electrolyte imbalance	4	4.4
Wound infection	6	6.7
Wound dehiscence	2	2.2
Anastomoses leak	1	1.1

Only 13 cases had postoperative complications. Most common complication was wound infection in six cases followed by prolonged ileus and electrolyte imbalance in four cases each. (Table 8)

Discussion:

We found that the incidence of acute intestinal obstruction was 25.7%. The incidence of intestinal obstruction was highest in the age group of more than 50 years (66.7%) and it was lowest in the younger age group where only four cases were seen. Similar findings were also reported by authors like Souvik A et al ⁶ and Priscilla SB et al. ⁷ The mean age in the study by Souvik A et al ⁶ was 44 years which is similar to the present study findings but a lower mean age of 33 years was reported by Khan JS et al. ⁸

We observed that in the present study, females were more affected than males. But, other studies like that by Souvik A et al ⁶, Soressa U et al ⁹ found that the males were more affected than females.

In the present study, in 46.7% of the cases, the cause of intestinal obstruction was obstructed/strangulated Hernia. Among all external hernia cases, Incisional hernia was the most common type in 64.3% of the cases followed by umbilical hernia in 16.7% of the cases. 21.4% of the cases in the present study had gangrene in hernia. Ramachandran et al ¹⁰ found that the incidence of strangulated small bowel obstruction was 38.6% and that of obstructed hernia was 21.4%. Budharaja et al ¹¹ observed that the incidence of gangrene was 22% similar to the present study finding of 21.4%. Souvik A et al ⁶ found that in 35.9% of the cases, the cause of the intestinal obstruction was obstructed hernia. These findings are similar to the findings of the present study.

26.7% of the cases in the present study had adhesions and bands due to various causes and it was second common cause of intestinal obstruction. In a study by Jain BL et al ¹² they contributed to 25.5% of the cases of intestinal obstruction which is similar to the present study. Ti TK et al ¹³ also reported similar findings with an incidence of 23.8%. But, Fuzun M et al ¹⁴ reported a higher incidence of adhesions as cause of intestinal obstruction.

We noted that in 13.3% of the cases, the intestinal obstruction was due to carcinoma. It was more common in the large bowel compared to the small bowel. Ti TK et al ¹³ observed from their study that in 37.2% of the cases, there was presence of carcinoma of descending colon and rectum. Ramachandran et al ¹⁰ found that the sigmoid colon cancer was present in 6.6% of the cases. Fuzun M et al ¹⁴ reported that in their study 3.4% of the cases had cancer of ascending colon and 27% of the cases had cancer of sigmoid colon.

In the present study volvulus was seen in two cases. The location in both the cases was sigmoid and both were males in their forties. They were operated by Hartmann's procedure. Sankaran V et al ¹⁵ found that among the 24 cases of volvulus 12 of them were located in the sigmoid region. Budharaja SN et al ¹¹ observed that in 18.2% of the cases of intestinal obstruction the cause was volvulus. In that almost 12% was due to volvulus of the small

bowel. Roggo A et al ¹⁶ found that in 46% of the cases, there was twisted segment with gangrene. They concluded that in 3.5% to 6.2% of the cases with small bowel obstruction, the cause is small bowel volvulus. Ramachandran et al ¹⁰ found that the volvulus accounted for 24% of cases of small bowel obstruction.

In the present study, seven cases had strictures. More so in females i.e. five cases and two in males. Five cases were due to intestinal tuberculosis. Sharif A et al ¹⁷ from their study found that intestinal tuberculosis was the most common cause of intestinal tuberculosis.

Mesenteric vascular thrombosis was seen in three cases. Tiwari SJ et al ¹⁸ found from their study that in 11.7% of the cases of intestinal obstruction, the cause was mesenteric ischemia.

In the present study 17 cases had postoperative complications. The death rate was 3.3%.

Conclusion:

To conclude, acute intestinal obstruction remains an important surgical emergency and one of the most common abdominal problems faced by general surgeons in the surgical field. Irrespective of the cause, it remains a major cause of morbidity and mortality.

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