



CLINICAL STUDY OF DYNAMIC SMALL BOWEL OBSTRUCTION IN ADULTS IN RURAL SETUP

General Surgery

Dr. Abhishek Gupta*

(MS) Assistant Professor, Department Of Surgery, Government Medical College, Orai (Jalaun). *Corresponding Author

Dr. Devashish Kaushal

Associate Professor, Department Of Urology, All India Institute Of Medical Science, Bhopal (M.P)

ABSTRACT

Intestinal obstruction is a common surgical emergency all over the world the purpose. Of conducting this study was to evaluate common causes of this surgical entity and to emphasize on need of early intervention so as to achieve optimum results and significantly reduce both morbidity and mortality.

KEYWORDS

Intestinal obstruction, adhesions, hernia, intraperitoneal malignancy.

INTRODUCTION

Intestinal obstruction is a common surgical emergency all over world. It is defined as obstruction in forward propulsion of intestinal contents. Intestinal obstruction can either be due to mechanical or neurological cause. It is predisposed by varying underlying anomalies and diseases, which are difficult to define preoperatively. Though intestinal obstruction can be diagnosed easily, the underlying cause except postoperative adhesion and external hernias are difficult to be diagnosed preoperatively.

Although the mortality due to acute intestinal obstruction is decreasing with better understanding of pathophysiology, improvement in diagnostic technique, fluid and electrolyte correction, much potent anti-microbial and knowledge on intensive care, but still the mortality is high and most of the mortalities occur in elderly individuals who seek late treatment and who are having associated pre existing disease like diabetes mellitus, COPD and cardiac disease.

The dictum of never let the sun set or rise in small bowel obstruction has made early surgical intervention for intestinal obstruction a routine practice. This in turn has reduced the incidence of strangulation of bowel, which was major cause of mortality in already ill patient.

Success in treatment of patient with acute intestinal obstruction depend largely upon early diagnosis, skillful management and appreciation of importance of treating the pathological effects of obstruction just as much as the cause itself.

When small intestinal obstruction is recognized and treated efficiently in its early stage, the immediate and late results are extremely gratifying in most patients.

With rapid advances in medical field it is now possible to salvage what would have been lost in earlier times.

Advent of newer surgical techniques, better understanding of fluid and electrolyte imbalance, newer potent antibiotics, modern anaesthesia, imaging techniques like X-ray, USG, CT-scan, it is now possible to reduce morbidity and mortality significantly. However, treatment of intestinal obstruction with strangulation remains an important problem till date.

AIMS AND OBJECTIVES

1. To study the incidence of small intestinal obstruction in rural population.
2. To study common etiological factors of small intestinal obstruction.
3. To study morbidity and mortality in cases of small intestinal obstruction.

MATERIALS AND METHODS

This study is based on detailed study of 50 cases of small intestinal obstruction admitted in department of surgery, Pravara Rural Hospital Loni between May 2009 to November 2011. This hospital draws patients mainly from rural areas in Ahmednagar district.

Patient taken in the study belong to age above 18 years of age to very old age.

Each and every case was studied starting from detailed history; presenting complaints, general and systemic examination.

Management:

Every patient was admitted in surgical ward. Adequate time was spent for routine pre-operative investigations, plain X ray abdomen and for correction of fluid and electrolyte imbalance. Early management included decompression of bowel by Ryle's tube and flatus tube. intravenous fluid and antibiotics were administered routinely. Abdominal girth, temperature, hourly pulse, respiratory rate, blood pressure and urine output were closely monitored.

After resuscitation all those cases, except which were relieved by conservative means were posted for exploratory laparotomy under general anaesthesia. Intraoperative finding were noted, every attempt was made for detecting of exact cause of intestinal obstruction and manage it accordingly. Specimens were sent for histopathological examination. Clinical photograph were taken whenever uncommon pathology was encountered.

Postoperatively patient were managed by repeated Ryle's tube aspiration and temperature, pulse, respiratory rate, blood pressure and urine output were monitored. Intravenous fluid, analgesics, antibiotics were given in all cases.

Blood transfusion were given as and when required. Any postoperative complication was detected promptly and treated accordingly. Postoperative follow up was done from the time of discharge of the patient for 2-3 months. Some patients were not regular in their follow up.

RESULT

Table 1: Occurrence of dynamic small intestinal obstruction in patients of acute abdomen attending surgery OPD/causality from May 2009 to November 2011

	Male	Female	Total number of patients
Acute abdomen	146	122	268
Intestinal obstruction	28	22	50
Percentage	19.17%	18.03%	18.65%

Table 2: Sex wise distribution of dynamic small intestinal obstruction

	Number of patients	Percentage
Males	28	56%
Females	22	44%

Table 3: Occurrence of dynamic small intestinal obstruction in different age group of adult population

Age in years	Number of patients	Percentage (%)
18-30	12	24%
31-40	7	14%
41-50	14	28%

51-60	5	10%
>60	12	24%

Table 4: Symptomatic presentation in patient of dynamic small bowel obstruction

	Number of patients	Percentage (%)
Abdominal pain	49	98%
Vomiting	40	80%
Distension	39	78%
Constipation	29	58%
Swelling/lump	11	22%

Table 5: Signs seen in Dynamic small bowel Obstruction

	Number of patients	Percentage (%)
Tenderness	47	94%
Distention	39	78%
Tachycardia	39	78%
Guarding/ Rigidity (Generalized)	35	70%
Scarmark	20	40%
Sluggish bowel sounds	20	40%
Hyer- peristaltic bowel sounds	16	32%
Swelling/Lump	11	22%
Guarding/Rigidity (Localized)	09	18%

Table 6: Etiology of dynamic small bowel obstruction

	Number of patients	Percentage (%)
Adhesions	26	52%
Obstructed hernia	9	18%
Intussusception	5	10%
Bands	4	8%
Strictures	4	8%
Malignancy	2	4%

Table 7: Patient with postoperative complication

Patient with postoperative complication	Number of patients	Percentage (%)
22	50	44%

Table 8: Postoperative complication seen in dynamic small bowel obstruction

	Number of patients	Percentage (%)
Wound infection	16	32%
Fever	16	32%
Seroma	15	30%
Wound gape	8	16%
Fistula	2	4%
Burst abdomen	2	4%
Septicemia	1	2%

DISCUSSION

Occurrence of small bowel obstruction:

50 patients of small bowel obstruction were surgically treated in Pravara Rural Hospital Loni from May 2009 to November 2011. During the study period (from May 2009 to November 2011) 268 patients reported to surgery OPD and casualty with the complaints of "acute abdomen". In the present study occurrence of small intestinal obstruction in patients attending surgery OPD (patient requiring operative intervention were considered) with acute abdomen was 18.6% with male percentage of 19.17% and female percentage of 18.03%. Small intestinal obstruction was cause of acute abdominal surgical condition in 20% of patients (Surgery of small intestine by Nelson and Nyhus^[1]).

Age and sex:

Small intestinal obstruction may occur at any age although it is rare in children and young adults its incidence rises in middle age group and reaches its plateau in those over 50 years of age (Maingot^[3]).

In the present study only adult patients were included (above 18 years of age) and it was found to be commonest between 41-50 years of age (27.5%). The second higher incidence was found to be in patient above

60 years of age (25%). The explanation which I would like to give is presently the etiological shift is towards adhesions, which is more common in middle age and elderly population.

Fuzan^[3] reported mean age of 56 years. Studies done by Gill and Eggleston^[4] has reported 17% of cases in the age group of 50-54 years. Findings in there study almost co relates with present study.

Sex incidence

In our study the incidence of intestinal obstruction in males was 28(56%) and that of female was 22(44%). Male to female ratio is 1.2:1. The male preponderance is consistent with studies reported from other part of the world Fuzan^[3] and Lee^[5] reported 2:1 male to female ratio. Budharaja^[6] reported in his study a ratio of 4:1 between male and female.

Symptomatology

Four classical symptoms of small bowel obstruction i.e. pain in the abdomen, vomiting, distension and constipation were evident in majority of patients in addition to this patient suffering from obstructed hernia were found to have swelling in inguinoscrotal region.

Abdominal pain:

Abdominal pain was chief complaint followed by vomiting, distension, and constipation. Pain was colicky in nature. Continuous type of pain was found in strangulation^[6-7].

Distension:

A study by Haridimos Markogiamakis et al^[8] to identify and analyse the clinical presentation, management and outcome of patient with acute mechanical bowel obstruction along with the etiology of obstruction and the incidence and cause of bowel ischemia, necrosis and perforation was done prospectively between 2001 and 2002 in 150 patients. A conclusion was made that abdominal distension and constipation are most common symptoms and physical finding in patients with acute mechanical bowel obstruction.

Walter J Burette et al^[9] (1961) stated that distension, vomiting and abdominal pain are the important sign and symptoms and help in early diagnosis of small intestinal obstruction.

Lasalle D Lefall et al^[10] reported (74%) patients with strangulated small intestinal obstruction. In this study following observation were noted

1. Abdominal tenderness (82%)
2. Tachycardia (70%)
3. Leucocytosis (64%)
4. Fever (32%)
5. Hernias (29%)
6. Shock (28%)

Vomiting:

In our study vomiting was found in (80%) of cases. Vomiting may be reflex such as may be found in any acute abdominal pain but it is then followed by persistent regurgitation vomiting. A high small bowel obstruction is characterised by copious vomiting from the start. At an early stage the vomiting consist of semidigested food, later watery fluid laden with bile and finally it is malodorous and faeculent. This results from profuse bacterial growth in obstructed segment of intestine^[2].

Constipation:

In the present study constipation was found in (80%) of patients. In complete obstruction there is absolute constipation. There may be some bowel movement that evacuates colonic contents present distal to the obstruction sight.

In intussusception or volvulus blood stained stool may be passed (Ian Aird^[11]) Study conducted by Haridimos Markogiamakis et al^[8] to identify clinical presentation in patients of bowel obstruction done on 114 patients reported (80.6%) of patients to be suffering from constipation.

Signs

Tenderness was present in (94%) of patients and was commonest sign in our study. Budharaja^[6] in his study reported (90%) of patients with tenderness. Lasalle D Lefall^[12] reported 82% patients with tenderness.

Tachycardia was present in (78%) of patients **Lasalle D Lefall**^[12] in his study reported (70%) patients with tachycardia.

Generalised guarding and rigidity was present in (70%) of patients. While patients with obstructed hernia presented with localised guarding and rigidity which was present in (18%) of patients.

Generalised guarding and rigidity usually signify gangrenous intestinal obstruction.

Scar mark in presence of Scar Mark whether recent or old always suggest an underline band or adhesions^[2]. In our study scar mark was present in (40%) of patients and maximum number of these patients had adhesion as etiology of bowel obstruction.

Auscultation : is of great value in diagnosis of bowel obstruction. Bowel sound are normal except during attacks of colic when they occur in burst rushes and become loud high pitch and metallic quality. Silent abdomen suggest ileus or infection of bowel.

Etiology

In our study following etiological factors were found

1. Adhesions
2. Obstructed hernia
3. Intussusception
4. Stricture
5. Bands
6. Malignancies

Adhesions:

In present study it is the commonest cause of small bowel obstruction (52%) These results are comparable with study done by **Haridimos Markogiannakis et al**^[8] from 2001 to 2002. Adhesion was found to be most common cause of obstruction (64%).

Another study done by **Tariq Wahab Khanzada**^[13] found incidence of adhesion in small bowel obstruction to be around (36%).

In another literature by **Muhammad Saeed Akthar et al**^[14] from July 2003 to Dec 2003 found adhesion as the most common cause.

In our study majority of patient who have adhesions as cause of intestinal obstruction there was previous operative history like hysterectomy, tubectomy, appendicectomy, and exploratory laparotomy done for peritonitis.

Fuzan^[3] study in 582 patients found than 246 (42.2%) patients the cause for intestinal obstruction was adhesions due to previous operations.

Hernia:

A total no. of 9 (18%) cases of intestinal obstruction are related to hernia in this study of 50 cases all 9 cases of hernia are in male patients.

Ramachandra^[15] reported (21.4%) of patient suffering from hernias leading to small bowel obstruction.

Budharaja^[6] revealed etiology for acute intestinal obstruction secondary to obstructed hernia accounted for (33%).

The **Saudi Journal of gastroenterology**^[16] published a retrospective study of acute intestinal obstruction in 367 patients in eastern India from 2005 and 2008. The commonest age group affected was 20-60 years and main cause of obstruction was obstructed hernia.

A study by **Lo, Oswens et al**^[7] to review the etiologies of patient who underwent surgery for small bowel obstruction. A case series of 430 patient (252 men) were reviewed. Peritoneal adhesions and hernia were most common causes of bowel obstruction contributing (42.3%) and (26.8%) respectively of all the cases.

A study by **Jahangir Sarwar Khan et al**^[18] to determine the pattern of intestinal obstruction studied in 100 cases from January 2001 to December 2003. They concluded that inguinal hernias are the commonest cause of intestinal obstruction in their setup.

Intussusception:

In our study of 50 cases 5 cases (10%) were of intussusception . **Ti56** revealed in his study of 261 patient the incidence of intussusception

accounted for (6.3%) 17cases of intestinal obstruction. Another series by **Kuruvilla**^[19], intussusception accounted for (6.3%) of cases. **Ponka J.L**^[20] (1967) showed incidence of (5%).

Stricture:

Present study accounted for 4 cases of stricture as a cause for intestinal obstruction. **Budharaja**^[6] in review of 242 cases reported that stricture giving rise to acute intestinal obstruction. Obstruction were seen in (2.1%) of cases.

The study series of **Sircar**^[21] reported that (5%) of cases of abdominal tuberculosis presented with stricture which lead to acute intestinal obstruction.

Kappor^[22] in series managed 109 cases of abdominal tuberculosis out of which (8.2%) cases had acute intestinal obstruction due to stricture.

Bands:

In our study intestinal obstruction due to bands accounted for 4 (8%) of cases.

A study series by **Gill and Eggleston**^[4] of 147 cases showed that (6.8%) of small intestinal obstruction is due to bands.

Malignancies:

Malignancies accounted for (4%) of cases in present study. **Magtinte D.D.T., Paterson L.A. Vahey T.N. et al**^[23] reported that neoplastic obstruction of small intestine currently accounts for less than (10%) of all cases of small intestinal obstruction. This is because malignancy of small bowel is rare.

Postoperative morbidity and mortality:

In our study wound infection and fever was found to be the commonest complication found in 16 patients each, followed by seroma collection seen in 15 patients. Wound gape was seen in 8 patients. Burst abdomen and fistula was seen in 2 patients each and 1 patient developed septicemia (many patients had multiple complications).

There was no mortality encountered during this study. Majority of patients who developed complications were either of old age or presented late in hospital overall morbidity in our study was (44%).

Study done by **Bjorg Filde Fevang et al**^[24] in Norway to study factors influencing complications and death after operation for small bowel obstruction using multi-factorial statistical methods was done retrospectively in 877 patients. The study resulted and concluded that old age, comorbidity, nonviable strangulation and treatment delay of more than 24 hours were significantly associated with an increased death rate.

A study by **Lo Oswens et al**^[7] done on 430 patients also concluded that small bowel obstruction is associated with significant morbidity and chances of morbidity increases with old age, small bowel obstruction with strangulation and late presentation.

In study by **Aziz Ur Rehman et al**^[25] from July 2006 to December 2007, wound infection (38.8%) was commonest postoperative complication.

Another study done by **Mohamed Sham et al**^[26] from 1996 to 2006 showed no mortality but 74% of patients developed significant post operative wound infection.

SUMMARY AND CONCLUSION

Present study comprises of 50 cases of small intestinal obstruction surgically treated in Pravara Rural Hospital Loni from May 2009 to November 2011.

There were 28 males and 22 females. Most of them belonging to low socioeconomic status residing in rural areas and were farmers by occupation, maximum number of cases were between 41 to 50 years.

Abdominal pain, distention, vomiting, constipation were the four classical symptoms found in majority of patients.

Tenderness and distention were seen in large group of patients. Tenderness, guarding rigidity, signified underlying strangulation which required urgent exploration. In the situation of diagnostic dilemma, it is better to operate and see than to wait and watch.

Adhesions, obstructed hernia, intussusceptions, bands, stricture were common causes. Post operatively wound infection and fever was commonest complication noted.

In our study there was no mortality. In present era there is better understanding of fluid and electrolyte imbalance. Introduction of newer broad spectrum antibiotics, modern anaesthesia, good pre operative resuscitation, early surgical intervention and good post operative management, all this contributed to low mortality rate in our study.

REFERENCES:

1. Surgery of the small intestine:- Nelson, Nyhus, Appleton and Lange 1987
2. Maingots abdominal operations:- zinaer 10th ed.
3. Fuzan, Kaymake E, Harmanciogluo, Astarcioglu K: Principle cause of mechanical bowel obstruction in surgically treated adult in Western Turkey BJS 1991;78:202-03
4. Gill.s.s,eggleson FC; Acute intestinal obstruction ; Arch Surgery 1965;91:389-92
5. Lee SH,ong ETC; Changing pattern of intestinal obstruction in malayasia-a review of 100 consecutive cases.BJS 1991;78:181-182
6. Budharaja S.N., Govinrajalus:- Acute intestinal obstruction in Pondicherry Ind.j orsurg.3,111,1976
7. Silen Williams, Michael F:- Strangulation obstruction of small intestine. Arch surg.85;137,1962
8. Haridimos Markogiannakis, Evangelos Messaris, Dimitrios Dardamanis, Nikolaos Pararas, Dimitrios Tzertzelis, Panagiotis Giannopoulos, Andreas Larentzakakis, Emmanouel Lagoudianakis, Andreas Manouras, Ioannis Bramis World J Gastroenterol 2007 January 21; 13(3): 432-437. Acute mechanical bowel obstruction: Clinical presentation, etiology, management and outcome.
9. Burdette, Steven: Clinical management of intestinal obstruction-arch surg.83:120,1961
10. Lefall L.D.,Syphax B; Clinical aids in strangulated intestinal obstruction Am. Jor. Surg.120;756,1970.
11. Ian Aird:- The new Aird's companion in surgical studies-Burnand, Young.
12. Lefall L.D.,Syphax B; Clinical aids in strangulated intestinal obstruction Am. Jor. Surg.120;756,1970.
13. Tariq Wahab Khanzada, Abdul Samad, Champa Sushel Etiological Spectrum Of Dynamic Intestinal Obstruction" Department of Surgery, Isra University Hospital, Hyderabad, Pakistan. (January 2002 to December 2006).
14. Muhammad Saeed Akhtar, Han Shukr*- Analysis Of Different Causes Of Mechanical Intestinal Obstruction at CMH Raalpindi. (July 2003 to December 2003).
15. Ramachandran C.S.: Intestinal volvulus IJS 1989;66-70
16. India Souvik Adhikari, Mohammed Zahid Hosseinl, Amitabha Dasl, Nilanjan Mitra2, Udipta Ray 1 1 Department of Surgery, Medical College, Calcutta, India 2 Department of Surgical Gastroenterology Medical College, Calcutta, India. The Saudi journal of gastroenterology Year : 2010 1 Volume : 16 Issue : 4 1 Page : 285-287 , Etiology and outcome of acute intestinal obstruction: A review of 367 patients in Eastern
17. Lo, Oswens; Law, Wai; Choi, Hok; Lee, Yee; Ho, Judy; Seto, Chi Langenbeck's. Early outcomes of surgery for small bowel obstruction: analysis of risk factors Archives of Surgery, Volume 392, Number 2, March 2007, pp. 173-178(6)
18. Jahangir Sarwar Khan, Junaid Alam, Hamid Hassan, Written Pattern Of Intestinal Obstruction A Hospital Based Study *Mohammad Iqbal. Issue Year : 2007, Issue Number 4.
19. Kuruvila M.J., Challen C.R., Rajagopal A.K., Rakas J.S.: Major cause of intestinal obstruction in Libya.BJS 1987;74:314-315.
20. Ponka J.L.: Intussusception in infants and adults Surg gyn/obs 124 99, 1967.
21. Sircar S., Taneja V.A. Kanasara U. : Clinical presentation of abdominal tuberculosis — A Prospective study JR Ima 1996; 94: 342-344.
22. Kapoor V.K., Gupta S., Sikora S.S. Acute tubercular abdomen IJS 1991; 53-71.
23. Maglente DDT, Paterson L.A., Vahey T.N. et al : Entrocylosis in partial small bowel obstruction Ann. Jor. Surg 147;325,1984.
24. Bjorg Tilde Fevang, MD, Jonas Fevang, MD, Lodve Stangeland, MD, PhD, Odd Soreide, MD, PhD, FRCS, FACS, Knut Svanes, MD, PhD, and Asgaut Viste, MD, PhD From the Department of Surgery, Haukeland University Hospital, University of Bergen, Bergen, Norway. Ann study 2005; 27#42:529-537, Complications and Death After Surgical Treatment of Small Bowel Obstruction A 35-Year Institutional Experience.
25. Aziz Ur Rehman, Mazhar Khan, Zahid Aman, Mohammad Zia UI Haq, Siddique Ahmad, Sarfaraz Ahmad, Department of Surgery, Hayatabad Medical Complex Peshawar "Pattern Of Small Bowel Obstruction In Adults"— Pakistan (July 2006 to December 2007).
26. Mohamed Shams, Sherif Farrag, Mohamed Gamal, Department of Surgery, Faculty of Medicine, Suez Canal University, Ismailia, Post Appendectomy Adhesive Small Intestinal Obstruction, Is Conservative Treatment Of Value Egypt(1996 to 2006).