Scholars Journal of Applied Medical Sciences
Abbreviated Key Title: Sch. J. App. Med. Sci.
ISSN 2320-6691 (Online)
ISSN 2347-954X (Print)

A Unit of Scholars Academic and Scientific Society, India
www.saspublishers.com

General Surgery

A Study of Intestinal Obstruction and Factors Affecting Morbidity and Mortality

Ankur Bhatnagar[1], Prashant Shrivastava[2*], Arjit Singh[3], Tanmay Anand[4]
[1]Department of General Surgery, G.R.M.C, Gwalior, India
[2]Associate Professor, Department of Surgery, G.R.M.C, Gwalior, India
[3]3rd year Post-Graduate student, Department of General Surgery, G.R.M.C, Gwalior, India
[4]3rd year Post-Graduate student, Department of General Surgery, G.R.M.C, Gwalior, India

Original Research Article

***Corresponding author**
Prashant Shrivastava

Article History
Received: 10.10.2017
Accepted: 10.11.2017
Published: 30.11.2017

DOI:
10.36347/sjams.2017.v05i12.005

Abstract: The present study intends to enumerate various etiological factors of intestinal obstruction and to study various factors that affect the morbidity and mortality from intestinal obstruction. 120 patients of intestinal obstruction admitted between April 2010 to Sept. 2011 in Department of Surgery of J.A. Group of Hospitals, Gwalior. Adhesions are the commonest cause of bowel obstruction comprising 35% of total cases. The maximum incidence was seen in 21-30 years age group at 24.17% of total cases with mean age of 39.16 years. Higher morbidity was seen in elderly patients especially males, and mortality rate is higher in patients operated after 5 days of onset of symptoms at 19.04% as compared to overall mortality in operated patients (8.82%).
Keywords: Intestinal obstruction, bowel obstruction, morbidity, mortality.

INTRODUCTION

Intestinal obstruction is partial or complete blockage of the bowel that results in the failure of the intestinal contents to pass through. When called upon to deal with a case of acute intestinal obstruction, the surgeon is confronted with one of the gravest and most disastrous emergencies. The patient may be and often is a man or a woman in the prime of life in full enjoyment of vigorous health, who without warning is suddenly seized with the most intolerable pain in the abdomen, followed by collapse and vomiting at first light, but later unremitting.

Things have changed since that time, now mortality rate being half or less than half.

Success in treatment of intestinal obstruction depends largely on early diagnosis, skilful management and an appreciation of treatment of the pathologic effects of obstruction just as much as the cause itself. The present study intends to enumerate various etiological factors of intestinal obstruction & study each of it independently focusing on the role of each in causing the illness.

The other part of the study deals with the various factors that affect the morbidity and mortality from intestinal obstruction in patients whatsoever be the etiology of obstruction in these patients. The purpose of this study is to discover ways and means by which the patient of intestinal obstruction be managed, so there is minimal morbidity & mortality.

MATERIALS AND METHODS

120 patients of intestinal obstruction admitted between April 2010 to Sept. 2011 in Department of General Surgery of J. A. Group of Hospitals, Gwalior (MP). On admission in the emergency ward, detailed presenting history and past history about similar complaints, previous operations, any diseases (co-morbidities) like pulmonary TB, diabetes mellitus, hypertension, allergies, asthma, epilepsy etc., was taken and noted in the working proforma.

Complete physical examination was carried out and necessary investigations were done. As soon as the patient was admitted he was kept nil per orally and supportive management was instituted in the form of intravenous fluids and electrolyte replacement, gastric suction by Ryle's tube. Catheterization was done to measure urine output, to assess renal function and perfusion, and to serve as a guide to correction of shock if present. Plain x-ray abdomen in erect posture was done as a mandatory investigation and preparations for surgery (if intervention is required) were done.

Typical symptoms of intestinal obstruction are those that are present in most of the cases of intestinal obstruction irrespective of its etiology. There are four typical symptoms - pain, vomiting, distension, absolute constipation. All four of them may not be present in single patient but they are more frequently seen.

Primary aim of surgery was to relieve the obstruction and to perform life saving procedure. Criteria for subjecting patients to surgery included increasing pain and distension with gross abdominal tenderness, tachycardia and other features of toxicity like fever, leukocytosis and failure of non-operative treatment.

Surgical procedure performed, except for external hernias, consisted of midline exploratory laparotomy with finding out the site and cause of obstruction and considering the general condition of patient definitive procedure was undertaken or diverting stoma(s) were created.

Cases were then studied under the following heads

- Etiology and distribution of causative pathology in intestinal obstruction.
- Incidence and distribution of obstruction in male, females & relation to mortality
- Incidence and etiology in different age groups, and its relation to mortality.
- Mortality with different types of obstruction.
- Mortality in respect to site of obstruction.

RESULTS

Adhesions are the commonest cause of bowel obstruction comprising 35% of total cases. The maximum incidence was seen in 21-30 years age group at 24.17% of total cases with mean age of 39.16 years. Male:female ratio was 2.2:1. Majority of cases of bowel obstruction were due to involvement of small bowel (86.67%). Pain (89.17%) and distension (80.83%) were most consistent symptoms. Higher morbidity was seen in elderly patients especially males, and in those patients who were operated after 5 days of onset of symptoms. Overall mortality of the study was 6.67%. Mortality was higher in patients more than 60 years of age (15.79%), in patients with bowel strangulation (25%) and in patients with history of associated disease (22.22%). Mortality rate was higher in patients operated after 5 days of onset of symptoms at 19.04% as compared to overall mortality in operated patients (8.82%). Hypotension and shock at the time of admission was associated with 37.5% mortality. Wound infection was the commonest post-operative complication occurring in 35.29% of operated patients.

DISCUSSIONS

The problem of intestinal obstruction has been of immense academic interest throughout this century perhaps due to the fact that it is one of the most commonly dealt with emergencies by surgeons.

In the present study, adhesions are the commonest cause of bowel obstruction, comprising about 35% of total cases in which about 69% cases are due to post operative adhesions and rest 31% cases are due to inflammatory adhesions.

Table-1: Post-operative adhesions as a cause of intestinal obstruction in different studies

Author	Year published	Total cases	Total cases due to Adhesions (%)	Post operative adhesions (% of total adhesions)
Malik *et al.*[5]	2010	229	41.04	60
Markogiannakis[7]	2007	150	64.8	100
Akgun *et al*. [2]	2002	699	25.3	75.7
Present study	-	120	35	69

Cheadle *et al.* [3] and McEntee *et al* [6] also reported that post-operative adhesions account for 60% to 98% of total cases due to adhesions.

The maximum incidence was seen in the 3rd decade (21-30 years) at 24.17% followed by 31-40 years age group (16.67%). Jain and Prasad [4] also found maximum age incidence between 21-30 years. Adhikari *et al* [1] found maximum incidence (26.7%) in more than 60 years age group. The sex ratio is 2.2:1 which corresponds closely with work of Akgun *et al* [2] at 2.46:1 and Malik *et al* [5] at 2.85:1.

Table-2: Site of bowel involvement in intestinal obstruction

Study	Small bowel (%)	Large bowel (%)
Gill *et al*.[12]	86	14
Saran *et al*.[13]	77.78	22.22
Markogiannakis *et al*.[7]	76	24
Malik *et al*.[5]	85	15
Present study	85.18	14.8

Simple obstruction was seen in 90% with involvement of small intestine in 85.18% and large bowel in 14.8%. Strangulation was seen in 10% cases with involvement of small intestine in 100% and large intestine in 0%. The most common cause of simple obstruction involving large intestine was volvulus in 56.25% cases, out of total cases involving large intestine.

Table-03: Incidence of strangulated obstruction

Author	Simple obstruction (%)	Strangulated obstruction (%)
Akgun *et al.* [2]	68.3	31.6
Deutsch *et al.* [11]	81.4	18.6
Bizer *et al.* [10]	90	10
Present study	90	10

Classically, a tetrad of symptoms has been associated with intestinal obstruction. But all patients do not always present with all of them. Pain in abdomen was the presenting feature in 89.17% cases. Taneja *et al* [9] reported pain in 88% cases and Markogiannakis *et al* [6] in 88.67% and Cheadle *et al* [3] reported pain in 92% cases. Vomiting was seen in 28.33% cases which closely correspond to work by Adhikari *et al* [1] in 24.8%.

Conservative line was chosen in 43.33% cases and 56.67% cases were operated. In the study by Adhikari *et al* [1], 21.5% of patients were managed conservatively and 78.5% patients were managed operatively. Complications in the post-operative period occurred in 37 patients out of total 68 operated patients. Wound infection was the most common complication, Burst abdomen requiring emergency closure of abdomen occurred in 5.88% patients as compared to 4.4% cases in the study by Adhikari *et al* [1].

The mortality rate in present study was 6.67%. The study shows a decrease in mortality as compared to earlier studies by Smith *et al*.[8] and McEntee *et al* [7] at 14.5% and 11.4% respectively, and reflects a better understanding of the pathophysiology of obstruction and more stress on preoperative resuscitation and optimization of the patient.

CONCLUSION

The present study has brought to light certain interesting facts about this very common emergency encountered in surgical wards. It reaffirms that now the commonest cause of intestinal obstruction is adhesions (comprising 35% of total cases) as opposed to western literature where malignancy is commonest.

Mortality was higher in patients more than 60 years of age (15.79%), in patients with bowel strangulation (25%) and in patients with history of associated disease (22.22%). Mortality rate is higher in patients operated after 5 days of onset of symptoms at 19.04% as compared to overall mortality in operated patients (8.82%). It is essential to remember that "never allow the sun to set or rise in a case of intestinal obstruction".

REFERENCES

1. Souvik A, Hossein MZ, Amitabha D, Nilanjan M, Udipta R. Etiology and outcome of acute intestinal obstruction: A review of 367 patients in Eastern India. Saudi journal of gastroenterology: official journal of the Saudi Gastroenterology Association. 2010 Oct;16(4):285.
2. Akgun Y, Yilmaz G, Akbayin H. Causes and effective factors on mortality of intestinal obstruction in the South East Anatolia. Turkish journal of medical sciences. 2002;32(2):149-54.
3. Cheadle WG, Garr EE, Richardson JD. The importance of early diagnosis of small bowel obstruction. Am Surg. 1988;54:565-569
4. Jain BL, Prasad M, Int. Obs. Ind. J. Surgery. 1990; 25: 28-29.
5. Malik AM, Shah M, Pathan R, Sufi K. Pattern of acute intestinal obstruction: is there a change in the underlying etiology?. Saudi journal of gastroenterology: official journal of the Saudi Gastroenterology Association. 2010 Oct;16(4):272.
6. McEntee G, Pender D, Mulvin D, McCullough M, Naeeder S, Farah S, Badurdeen MS, Ferraro V, Cham C, Gillham N, Matthews P. Current spectrum of intestinal obstruction. British journal of surgery. 1987 Nov 1;74(11):976-80.
7. Markogiannakis H, Messaris E, Dardamanis D, Pararas N, Tzertzemelis D, Giannopoulos P, Larentzakis A, Lagoudianakis E, Manouras A, Bramis I. Acute mechanical bowel obstruction: clinical presentation, etiology, management and outcome. World Journal of Gastroenterology: WJG. 2007 Jan 21;13(3):432.
8. Smith GA, Perry Jr JF, Yonehiro EG. Mechanical intestinal obstructions; a study of 1,252 cases. Surgery, gynecology & obstetrics. 1955 Jun;100(6):651-60.
9. Taneja OP, Batra S, Eggleston FS. Factors influencing morbidity & mortality in acute intestinal obstruction. Ind. J. Surg. 24 : 755-770, 1962.

10. Bizer LS, Liebling RW, Delany HM, Gliedman ML. Small bowel obstruction: the role of nonoperative treatment in simple intestinal obstruction and predictive criteria for strangulation obstruction. Surgery. 1981 Apr;89(4):407-13.
11. Deutsch AA, Eviatar E, Gutman H, Reiss R. Small bowel obstruction: a review of 264 cases and suggestions for management. Postgraduate medical journal. 1989 Jul 1;65(765):463-7.
12. Gill SS, Eggleston FC. Acute intestinal obstruction Arch. Surg. 1965; 91.
13. Saran Harbhajan, Singh SD, Dandia AK. Pendse: Acute intestinal obstruction review of 50 cases. Ind. Med. Ass. 1977; 6, 455-460.