International Journal of Research and Review
DOI: https://doi.org/10.52403/ijrr.20210919
Vol.8; Issue: 9; September 2021
Website: www.ijrrjournal.com
Original Research Article *E-ISSN: 2349-9788; P-ISSN: 2454-2237*

A Descriptive Study of Clinical Presentation, Etiology and Management in Acute Mechanical Bowel Obstruction

Rajendra Prasad Bugalia[1], Hariom Meena[2], Sandeep Kumar[3], Rajendra Mandia[4]

[1]Associate Professor, [2]3rd Year Resident, [3]2nd Year Resident, [4]Senior Professor & HOD,
Department of Surgery SMS Medical College, Jaipur, Rajasthan. India

Corresponding Author: Rajendra Prasad Bugalia

ABSTRACT

Background: Acute mechanical bowel obstruction is a common surgical emergency and a frequently encountered problem in abdominal surgery. It constitutes a major cause of morbidity in hospitals around the world and a significant cause of admissions to emergency surgical departments. Intestinal obstruction belongs to highly severe conditions, requiring a quick and correct diagnosis as well as immediate, rational and effective therapy.

Method: This is a prospective observational study which was carried on 130 patients of abdominal obstruction in the department of general surgery Sawai Man Singh Hospital Jaipur.

Results: The majority of patients in our study were 31-40 years of age group. Mostly patients were male account about 86.15%. Pain abdomen was the most frequent presenting symptoms (95.38%) and absence of passage of flatus and feces was next complain (89.23%). Nausea and vomiting was present in 84.62% of patients. Abdominal tenderness was the most common physical finding on clinical examination (96.92%). Abdominal distension was present in 81.54% patients. Adhesions and bands were the most prevalent etiology of obstruction in the small bowel obstruction (58.45%) and tumour and volvulus were the most common etiology in the large bowel (12.31%).

Conclusion: Intestinal obstruction is most commonly caused by intra-abdominal adhesions, Koch's abdomen, malignancy and obstructed hernia. Conservative treatment with bowel rest and fluid resuscitation is successful in a variable proportion of patients. Patients with clinical degradation on assessment and radiological scans evoking ischemia or strangulated bowel obstruction need urgent surgery.

Key Words: Bowel Obstruction, Pain, Adhesions, Tumour.

INTRODUCTION

Mechanical bowel obstruction is an old and common surgical emergency. Acute mechanical bowel obstruction continues to be one of the most common intra abdominal conditions encountered by general surgeon in their practice. Most of bowel obstructions occur in the small intestine [1]. Acute intestinal obstruction occurs when there is an interruption in the forward flow of intestinal contents. This interruption can occur at any point along the length of the gastrointestinal tract, and clinical symptoms often vary based on the level of obstruction. Intestinal obstruction is most commonly caused by intra-abdominal adhesions, malignancy, or intestinal herniation [2]. The clinical presentation generally includes nausea and emesis, colicky abdominal pain, and a failure to pass flatus or bowel movements. The classic physical examination findings of abdominal distension, tympany to percussion, and high-pitched bowel sounds suggest the diagnosis [3]. Radiologic imaging can

confirm the diagnosis, and can also serve as useful adjunctive investigations when the diagnosis is less certain. Although radiography is often the initial study, contrast computed tomography is recommended if the index of suspicion is high or if suspicion persists despite negative radiography [4]. Management of uncomplicated obstructions includes fluid resuscitation with correction of metabolic derangements, intestinal decompression, and bowel rest. In conservative management regular reassessment is mandatory for early recognition of signs of bowel ischemia that would require a surgical operation [5]. Accurate early recognition of intestinal strangulation in patients with mechanical bowel obstruction is important to decide on emergency surgery or to allow safe nonoperative management of carefully selected patients. Although close and careful clinical evaluation, in conjunction with laboratory and radiologic studies, is essential for the decision of proper management of patients with acute mechanical bowel obstruction a preoperative diagnosis of bowel strangulation cannot be made or excluded reliably by any known parameter, combinations of parameters, or by experienced clinical judgement [6]. However when the diagnosis is in doubt computed tomography (CT) will help clarify the situation. The CT diagnosis of a bowel obstruction and its discrimination from an adynamic ileus are based on the detection of fluid, luminal content, air-filled loops of bowel proximal to the obstruction the presence of a definite localised transition zone and the presence of collapsed loops of small bowel or colon distal to the obstruction[7]. Evidence of vascular compromise or perforation or failure to resolve with adequate bowel decompression is an indication for surgical intervention. The clinical picture, however, of these patients along with the etiology of obstruction and strangulation prevalence are variable, while appropriate management remains controversial. In general, appropriate treatment of acute mechanical bowel obstruction as well as timing of surgery for patients selected to undergo operative intervention still remain controversial. Management of this condition requires careful assessment and awareness while the appropriate treatment needs to be tailored to the individual situation. Furthermore, no specific factors that may predict success of conservative or surgical management have been identified. Although modern surgical management continues to focus appropriately on avoiding operative delay whenever surgery is indicated, not every patient is always best served by immediate operation certain entities, such as bowel obstruction secondary to incarcerated abdominal wall hernia, and patients with clinical signs and symptoms suggestive of strangulation do require prompt operative intervention[8]. Other conditions, however, such as postoperative adhesions, particularly in patients with numerous previous abdominal procedures or concomitant medical problems, often justifiably benefit from a trial of nonoperative management. We, therefore, conducted this prospective study to identify and analyse the clinical presentation of patients with acute mechanical bowel obstruction in our department, the etiology of obstruction as well as management and outcome of these patients.

AIM AND OBJECTIVE

AIM

- To describe clinical Presentation, etiology and management in patients of acute mechanical bowel obstruction.

OBJECTIVES

- To assess the incidence of ischemia, gangrene and perforation in patients of acute mechanical bowel obstruction.
- To assess the morbidity and outcome in patients of acute mechanical bowel obstruction.

METHOD AND MATERIAL

STUDY AREA: This study carried out at Sawai Man Singh Medical College and Hospital, Jaipur Rajasthan.

STUDY DESIGN: The present study was a hospital based Descriptive prospective study.

STUDY PERIOD: The study period was from July 2019 to December 2020.

SAMPLING TECHNIQUE: A sample of 130 patients presenting with sign and symptoms of acute mechanical bowel obstruction required at 95% confidence level and 30% relative error.

STUDY POPULATION: All patients with sign and symptoms of acute mechanical bowel obstruction and above the age of 12 years include the study who report to general surgery department of SMS Hospital Jaipur Rajasthan.

INCLUSION CRITERIA: The patients with sign and symptoms of acute mechanical bowel obstruction above the age of 12 years.

EXCLUSION CRETERIA:

1. Patients below 12 years of age.
2. Patients with paralytic ileus.

METHODOLOGY

The study was approved by the ethical committee of the institute and a prior informed consent was taken from patients. All patients underwent basic relevant investigations and the attending surgeon and the patient had total decision making ability on the course of treatment. Demographic profile of patients and clinical data including history, symptoms and signs were recorded. The appropriateness of operative or non operative approach to management was determined by consensus of attending surgeon based on findings at exploration and the ultimate clinical course of each patient.

All patients were evaluated for various intraoperative findings and postoperative outcome and data was analysed using the IBN statistical package for social sciences (SPSS) version 17.0.

RESULTS

Table 1 Age Distribution

S No	Age(years)	Cases	Percentage
1	11-20	12	09.24
2	21-30	17	13.08
3	31-40	34	26.17
4	41-50	28	21.54
5	51-60	18	13.87
6	61-70	13	10.00
7	>70	08	06.18
8	Total	130	100

Table 2 Sex Distribution

S No	Sex	Cases	Percentage
1	Male	112	86.15
2	Female	18	13.85
3	Total	130	100

Table 3 Distribution of Clinical features

S No	Clinical features	Cases		Percentage	
		Yes	No	Yes	No
1	Pain Abdomen	124	06	95.38	04.62
2	Obstipation	116	14	89.23	10.77
3	Nausea & Vomiting	110	20	84.62	15.38
4	Abdomen distension	106	24	81.54	18.46

Table 4 Distribution of Abdominal Signs

S No	Abdominal Sign	Cases		Percentage	
		Yes	No	Yes	No
1	Tenderness	126	04	96.92	03.08
2	Guarding	108	22	83.08	16.92
3	Sign of shock	12	118	09.23	90.77
4	Rigidity	04	126	03.08	96.92

Table 5 Distribution of cases according to aetiology

S No	Pathology Distribution	Cases	Percentage
1	Adhesion	48	36.92
2	Bands	28	21.53
3	Koch's abdomen	13	10.00
4	Large bowel tumor	11	08.47
5	Obstructed hernia	09	06.92
6	Sigmoid Volvulus	05	03.84
7	Stricture	03	02.30
8	Intussusception	02	01.53
9	Appendicular	02	01.53
10	Meckel s diverticulum	02	01.53
11	Ileoileal Knotting	02	01.53
12	Idiopathic(pyoperitoneum)	02	01.53
13	Gall stone Ileus	01	00.76
14	SMA Syndrome	01	00.76
15	Crohns' disease	01	00.76
13	Total	130	100

Table 6 Distribution According to Bowel Status

S No	Bowel Status	Cases		Percentage	
		Yes	No	Yes	No
1	Ischemia	28	102	21.54	78.46
2	Gangrene	06	124	04.62	95.38
3	Perforation	03	127	02.31	97.69

Table 7 Distribution According to Treatment

S No	Treatment	Cases	Percentage
1	Conservative	42	32.30
2	Operative	88	67.70
3	Total	130	100

Table 8 Distribution of Outcome

S No	Outcome	Cases		Percentage	
		Yes	No	Yes	No
1	ICU Admission	34	96	26.15	73.85
2	Mortality	04	126	03.08	96.92

DISCUSSION

Acute mechanical bowel obstruction remains a frequently encountered problem in abdominal surgery and a common surgical emergency which is a frequent cause of admissions to hospital emergency surgical departments. The majority of patients in our study were 31-40 years of age group. Mostly patients were male account about 86.15%. In our study most of patients presented with acute mechanical small bowel obstruction. This has also been found in other studies with small bowel obstruction accounting for about 80% of total obstruction cases [8,9]. Regarding clinical presentation of our patients pain abdomen was the most frequent presenting symptoms (95.38%) and absence of passage of flatus and feces was next complain (89.23%). Nausea and vomiting was present in 84.62% of patients. Abdominal tenderness was the most common physical finding on clinical examination (96.92%). Abdominal distension was present in 81.54% patients. In 12.31% patients there were signs of shock on arrival. Our results, even though some differences are noticed, are in accordance with the literature [10]. Particularly reported abdominal pain (92%), vomiting (82%), abdominal tenderness (64%), and distension (59%) as the most frequent symptoms and signs. Prospectively studied 100 patients with adhesive small bowel obstruction and found that the presenting symptoms were vomiting (77%), colicky abdominal pain (68%), absence of passage of flatus and feces (52%), whereas abdominal distension constituted the most frequent clinical sign with a prevalence of 56%[11].

In our study Adhesions, bands, Koch abdomen, incarcerated hernias, and large bowel cancer constitute the most frequent causes of obstruction. Moreover, adhesions and bands were the most prevalent etiology of obstruction in the small bowel obstruction (58.45%) and tumour and volvulus were the most common etiology in the large bowel (12.31%) [12,13]. Several studies postulate that adhesions are responsible for 32%-74% of bowel obstruction and are the leading cause of small intestinal obstruction representing 45%-80% of it [14]. The vast majority (65%-90%) of the patients with adhesive obstruction have undergone previous abdominal operations. As for the types of previous operations in our study patients, appendectomies, gynecological operations and laparotomy. Incarcerated hernias were the predominant cause of bowel ischemia, necrosis, and perforation [15]. It should also be emphasized that bowel ischemia was reversible in half of our cases with obstruction due to incarcerated hernias justifying, thus immediate surgery in these patients [16].

Other less common causes of obstruction reported in our study were Crohn's disease, gallstone ileus, SMA syndrome, strictures, intussusception, Meckel's diverticulum, ileoileal knotting and pyoperitoneum accounting for 6%-9%.

Even though the appropriate management of adhesive obstruction is still controversial. The increasing role of adhesions as a cause of acute intestinal obstruction demands greater need for routine preventive measures against adhesion formation [17]. A number of intraoperative measures are now encouraged during elective abdominal surgery to reduce the incidence of adhesions that might subsequently produce intestinal obstruction.

In our study 32.30% patients was successfully nonoperatively treated. This was more prevalent regarding adhesive small bowel obstruction. Similar to other studies, of those patients that were operated, a substantial proportion required immediate

operation. Much attention should be paid to the treatment of these patients since the incidence of bowel ischemia, gangrene and perforation is significantly high [18]. Strangulation rate in the literature ranges from 7% to 42%. In our study incidence of ischemia of 21%, gangrene 4.62% and of perforation of 2.3%. Moreover, the incidence of bowel ischemia, gangrene, and perforation in adhesive obstruction was very low. These results have been also described in other studies [19]. In our study post operative ICU requirement was 26.13% patients and mortality was 3%. Most common complications were chest infections and surgical site infections. 4 patients were reoperated for anastomotic leak. Average hospital stay was 7-10 days.

Strangulated obstruction requires emergency surgery, and early recognition is often life-saving since delay in treatment is an independent predictive factor of mortality and, in addition, bowel strangulation is an independent predictor of complication and, even more, of mortality while the mortality rates of patients with strangulated obstruction are two to 10 times higher than those of patients with non-strangulated obstruction [20]. Moreover, accurate early recognition of intestinal strangulation in patients with mechanical bowel obstruction is important to allow safe nonoperative management of carefully selected patients. Traditionally, such recognition is based on the presence of one or more of the classical signs: vascular compromise, continuous abdominal pain, fever, tachycardia, peritoneal signs on physical examination, leukocytosis, and metabolic acidosis. Close and careful clinical evaluation, in conjunction with laboratory and radiologic studies, is essential for the decision of proper management of patients with acute mechanical bowel obstruction; if any uncertainty exists, prompt operative intervention is indicated. It should be emphasized, though, that great caution should be taken for the management of these patients since studies have shown that preoperative diagnosis of bowel strangulation cannot be made or excluded reliably by any known clinical, laboratory, or radiologic parameter, combinations of parameters, or by experienced clinical judgement.

CONCLUSION

Adhesions, bands, Koch abdomen, obstructed hernias, and large bowel cancer and sigmoid volvulus are the most common causes of obstruction. Some of these patients can be safely and effectively nonoperatively treated, particularly those with adhesive obstruction, a substantial portion requires immediate operation. The risk of strangulation is significantly higher in incarcerated hernias than other obstruction causes.

Acknowledgement: None

Conflict of Interest: None

Source of Funding: None

Ethical Approval: Approved

REFERENCES

1. Richards WO, Williams LF. Obstruction of the large and small intestine. Surg Clin North Am. 1988;68:355–376.
2. Cheadle WG, Garr EE, Richardson JD. The importance of early diagnosis of small bowel obstruction. Am Surg. 1988;54:565–569. Kuremu, R.T. & Jumbi, G. (2006) Adhesive intestinal obstruction. East African Medical Journal 83, 333-336.
3. Sarr MG, Bulkley GB, Zuidema GD. Preoperative recognition of intestinal strangulation obstruction. Prospective evaluation of diagnostic capability. Am J Surg. 1983;145:176–182.
4. Renzulli P, Krähenbühl L, Sadowski C, al-Adili F, Maurer CA, Büchler MW. Modern diagnostic strategy in ileus. Zentralbl Chir. 1998;123:1334–1339.
5. Lawal OO, Olayinka OS, Bankole JO. Spectrum of causes of intestinal obstruction in adult Nigerian patients. S Afr J Surg. 2005;43:34, 36.

6. Ihedioha, U., Alani, A., Modak, P., Chong, P. & O'Dwyer, P.J. (2006) Hernias are the most common cause of strangulation in patients presenting with small bowel obstruction. Hernia 10, 338-340.
7. Williams SB, Greenspon J, Young HA, Orkin BA. Small bowel obstruction: conservative vs. surgical management. Dis Colon Rectum. 2005;48:1140–1146
8. Kuremu RT, Jumbi G. Adhesive intestinal obstruction. East Afr Med J. 2006;83:333–336.
9. Lopez-Kostner F, Hool GR, Lavery IC. Management and causes of acute large-bowel obstruction. Surg Clin North Am. 1997;77:1265–1290.
10. Miller G, Boman J, Shrier L et al Etiology of small bowel obstruction Am J Surg 180:33-36 , 2000.
11. Chiedozi LC, Aboh IO, Piserchia NE. Mechanical bowel obstruction. Review of 316 cases in Benin City. Am J Surg. 1980;139:389–393.
12. Perea García J, Turégano Fuentes T, Quijada García B, Trujillo A, Cereceda P, Díaz Zorita B, Pérez Díaz D, Sanz Sánchez M. Adhesive small bowel obstruction: predictive value of oral contrast administration on the need for surgery. Rev Esp Enferm Dig. 2004;96:191–200.
13. Gürleyik E, Gürleyik G. Small bowel volvulus: a common cause of mechanical intestinal obstruction in our region. Eur J Surg. 1998;164:51–55.
14. Tamijmarane A, Chandra S, Smile SR. Clinical aspects of adhesive intestinal obstruction. Trop Gastroenterol. 2000; 21: 141–143.
15. 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;89:407–413.
16. Kössi J, Salminen P, Laato M. The epidemiology and treatment patterns of postoperative adhesion induced intestinal obstruction in Varsinais-Suomi Hospital District. Scand J Surg. 2004;93:68–72.
17. Chalya, P.L., Mchembe, M.D., Mshana, S.E., Rambau, P., Jaka, H. & Mabula, J.B. (2013) Tuberculous bowel obstruction at a university teaching hospital in Northwestern Tanzania: a surgical experience with 118 cases. World Journal of Emergency Surgery 8, 12.
18. Chouhery, A.K. & Azam, M. (2004) An etiological spectrum of mechanical intestinal obstruction. Pakistan Armed Forces Medical Journal 54, 19–24.
19. Drozdz, W., Lejman, W. & Tusiński, M. (2005) Mechanical bowel obstruction. Surgical problem at the turn of the XIX-XX century, and the XX-XXI century. One institutional experience. Przeg Lek 62, 105–110.
20. Ismail, Khan, M., Shah, S.A. & Ali, N. (2005) Pattern of dynamic Intestinal Obstruction in adults. Journal of Postgraduate Medicine 19, 157–61.

How to cite this article: Bugalia RP, Meena H, Kumar S et.al. A descriptive study of clinical presentation, etiology and management in acute mechanical bowel obstruction. *International Journal of Research and Review*. 2021; 8(9): 136-141. DOI: *https://doi.org/10.52403/ijrr.20210919*

******