RESEARCH PAPER | Medical Science | Volume : 5 | Issue : 10 | October 2015 | ISSN - 2249-555X

Acute intestinal obstruction in adults - its outcome - a prospective study in a teritiary health care centre in Andhra Pradesh

KEYWORDS: Acute mechanical bowel obstruction; Clinical presentation; Etiology; Management; Outcome

Dr G.Venkata Ramanaiah
Assistant professor of surgery, S.V. Medical college, Tirupathi, Chittoor ,A.P

Dr K. manohar
Professor of surgery , S.V. Medical college, Tirupathi, Chittoor, A.P

ABSTRACT *Acute intestinal obstruction is a common surgical emergency globally with high morbidity and mortality. (1-5). It constitutes a major cause of morbidity and financial expenditure in hospitals around the world[7] and a significant cause of admissions to emergency surgical departments[6,8].Immediate and correct diagnosis of this condition and its etiology is essential[9,10,12-14]. The clinical picture, however, of these patients[10,15,16] along with the etiology of obstruction[11,7,14,17-19] and strangulation prevalence are variable[20,21,22], while appropriate management remains controversial[11.6-7,13,21,23]. We, therefore, conducted this prospective study to identify and analyze 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.*

Results: *Of the 207 patients of acute intestinal obstruction, 141 patients suffered from bands and adhesions and 24 patients suffered from sigmoid volvulus.The mean age of the patients was 32years.43 patients suffered from gangrene of the bowel and mortality rate was 14%.*

Introduction :
In our S.V.R.R Govt General Hospital ,intestinal obstruction constituted 10% of all surgical emergencies. Strangulated bowel is seen in 10% of these cases.

The most important concern regarding acute intestinal obstruction is its progression to strangulation, causing gangrene and perforation due to the difficulty in distinguishing simple from strangulation obstruction [24]. Therefore, accurate and prompt recognition of bowel strangulation is important in deciding the need for early emergency surgery in such patients [25-28]. Although careful clinical evaluation in conjunction with biochemical and radiological studies is essential, bowel strangulation still cannot be predicted preoperatively by any means with certainty [25,27,29]. As reviewed from the literature, the clinical presentation, etiology and incidence of strangulation are variable, [25,30-32] while the appropriate management remains controversial [25,30,31].

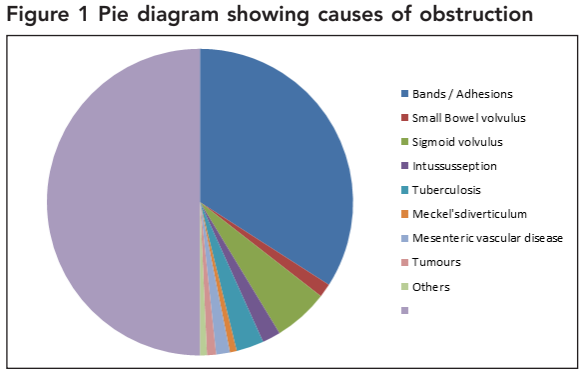
Objective :
The objective of the study was to decide the various aetiological factors of intestinal obstruction. The mode of presentation of intestinal obstruction depending on aetiology and various factors which decide the outcome of the patient example ,age ,sex,time of presentation ,aetiological factors.

Materials and Methods
A prospective study of 207 patients, presenting with acute intestinal obstruction over a period of 3 years from 2012 to 2014 at S.V.R.R. Govt General hospital, Tirupati was undertaken. All cases of intestinal obstruction treated by surgery in the three years (2012 to 2014) were included in the study. Patients with obstructed inguinal hernia and pyloric stenosis of various causes were excluded from this study .An analysis of all emergency procedures with special attention to their mortality rates on an average per year was undertaken .For the purpose of study particulars of the patient with regard to age ,sex , clinical features , operative details and postoperative outcome were noted down. From these data critical evaluation was made regarding points in diagnosis,choice of operative procedure and prognostic indices. Clinical examination ,X- ray findings and lab investigations were emphasized with regard to diagnosis and prognosis.

Results :
Table 1 shows the following

Intestinal obstruction	Distribution of cases
Bands / Adhesions	141
Small Bowel volvulus	6
Sigmoid volvulus	24
Intussusseption	8
Tuberculosis	12
Meckel'sdiverticulum	3
Mesenteric vascular disease	6
Tumours	4
Others	3
	207

Figure 1 Pie diagram showing causes of obstruction



Volume : 5 | Issue : 10 | October 2015 | ISSN - 2249-555X

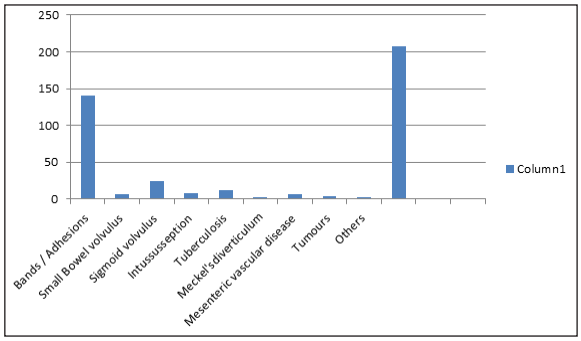


Figure 2 Columns showing causes of obstruction

Table 1: 207 cases of acute intestinal obstruction were admitted and operated during 2012 to2014.The various aetiological factors responsible for intestinal obstruction in this 207 cases were shown. The commonest cause of acute small bowel obstruction in this study was bands and adhesions .The commonest cause of acute large bowel obstruction was sigmoid volvulus.

Table 2 shows the following

Age	Minimum	Maximum	Mean age
(in years)	13	85	32

Sex	Males	Females
	158	49

Table 2: The minimum age of presentation of patients with intestinal obstruction was 13 years. The maximum age of the patient presenting with intestinal obstruction was 85 years.The mean age was 32 years. M:F = 3:1.

Table 3 shows the following

Causes of strangulation	Number
Small intestinal volvulus	02
Sigmoid volvulus	06
Intussusception	01
Adhesive bands	27
Meckel's diverticulam with bands	01
Mesenteric vascular disease (Gangrene Bowel)	06
	43

Figure 3 Causes of Strangulation

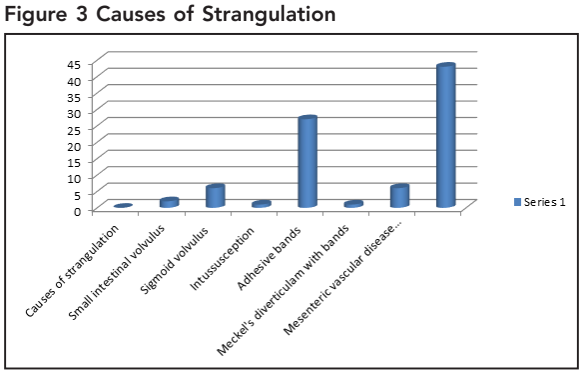


Table 3 :Out of 207 cases of intestinal obstruction ,43 cases were with strangulation of the bowel.The various causes of strangulation of the bowel were shown in the table.

Table 4 shows the following

Total number of intestinal obstruction	207
Simple obstruction	164
Strangulated Bowel	43
Total number of deaths	23
Percentage of mortality	14%

Table 4 : Total number of cases with acute intestinal obstruction admitted and undergone surgery were 207. Out of 207 cases - 164 cases were with simple intestinal obstrction i.e due to bands , adhesions , volvulus, TB adhesions , intussuception etc. Out of 207 cases - 43 cases were with strangulated intestinal obstruction . Total number of deaths who have undergone operative management both for simple and strangulated obstruction were 23 cases . The percentage of mortality rate was 14%.

Table 5 shows the following

	Number
Total cases of intestinal obstruction	207
% of gangrene of bowel	20.8

Table 5 :Total number of cases admitted and operated were 207, out of which the % of cases presenting with strangulated intestinal obstruction were 20.8%.

Discussion

Acute intestinal obstruction is one of the common life threatening emergencies all over the world.[33-36] There is a global change in the spectrum of etiology of acute intestinal obstruction over the past few years. A number of recent studies have found adhesive obstruction to be the most common cause.[37-39]

The majority of our study group 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[12,40,41]. Regarding clinical presentation of our patients, absence of passage of flatus and/or feces were the most frequent presenting symptoms and abdominal distension was the most common physical finding on clinical examination. Additionally, vomiting, nausea, colicky abdominal pain, and abdominal discomfort were frequent symptoms on arrival. Our results, even though some differences are noticed, are in accordance with the literature .[10,15,16,42,43].

Adhesions constitute the most frequent causes of obstruction [7,8]. This finding was also noticed in our study. 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[7,8,10]. The vast majority (65%-90%) of the patients with adhesive obstruction have undergone previous abdominal operations [16,17].In the present study, this was observed in all such patients. 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[11]. External plication procedures, Pharmacologic agents, including corticosteroids and other anti-inflammatory agents, cytotoxic drugs, and antihistamines, anticoagulants,

Volume : 5 | Issue : 10 | October 2015 | ISSN - 2249-555X

such as heparin, dextran solutions, dicumarol, and sodium citrate, Intraperitoneal instillation of trypsin, papain, pepsin ,Hyaluronidase ,fibrinolytic agents such as streptokinase, urokinase, and fibrinolytic snake venoms are used to reduce recurrent intestinal obstruction .[44,45]

Much attention should be paid to the treatment of these patients since the incidence of bowel ischemia, necrosis, and perforation is significantly high. Strangulation rate in the literature ranges from 7% to42%[8,15,20]. In addition, Kossi *et al* [22] reported an incidence of ischemia of 20%, of necrosis of 8%, and of perforation of 2%. In the literature, complication rate ranges from 6% to 47%[10,40] whereas mortality ranges from 2% to 19% [8,10,14].

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[11,6,7]. Management of this condition requires careful assessment and awareness while the appropriate treatment needs to be tailored to the individual situation[13,23]. Furthermore, no specific factors that may predict success of conservative or surgical management have been identified[23]. 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. As it was also proved in the present study, patients with clinical signs and symptoms suggestive of strangulation do require prompt operative intervention[11,7]. 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[11,6,7].

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 2 to 10 times higher than those of patients with non-strangulated obstruction [8,10,13,14,15]. Moreover, accurate early recognition of intestinal strangulation in patients with mechanical bowel obstruction is important to allow safe non operative management of carefully selected patients[11,6,27,28].

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[27,28]. 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[11].

Conclusion

Acute intestinal obstruction remains a major cause of mortality in our environment, adhesions being the most common cause. The mortality has remained unacceptably high. It is apparent from this report that increased efforts to repair before strangulation occurs are likely to reduce the incidence and mortality from strangulated intestinal obstruction. In addition research aimed at finding ways to reduce adhesion formation may reduce the incidence of adhesive obstructions. For affected patients, high quality surgical expertise coupled with sound clinical judgment and early surgery when needed will greatly improve survival.

Furthermore a general improvement in health care infrastructure especially in the rural communities could further reduce mortality as patients may then present early.

REFERENCE

1. Osuigwe AN, Anyanwu Acute intestinal obstruction in Nnewi Nigeria: A five year review. Nigerian J Surg Res. 2002;4:107–11. 2. Ohene-Yeboah M, Adippah E, Gyasi-Sarpong K. Acute intestinal obstruction in adults in Kumasi, Ghana.Ghana Med J. 2006;40:50–4. [PMC free article] [PubMed] 3. McConkey SJ. Case series of acute abdominal surgery in rural Sierra Leon. World J Surg. 2002;26:509–13. [PubMed] 4. Wilson MS, Ellis H, Menzies D, Moran BJ, Parker MC, Thompson JN. A review of the management of small bowel obstruction. Ann R Coll Surg Engl. 1999;81:320–8. [PMC free article] [PubMed] 5. Miller G, Boman J, Shrier I, Gordon PH. Natural history of patients with adhesive small bowel obstruction. Br J Surg. 2000;87:1240–7. [PubMed] 6 patients with adhesive small bowel obstruction. Br J Surg 2000;87: 1240-1247 7 Miller G, Boman J, Shrier I, Gordon PH. Etiology of small bowel obstruction. Am J Surg 2000; 180: 33-36 8 Ihedioha U, Alani A, Modak P, Chong P, O'Dwyer PJ. Hernias are the most common cause of strangulation in patients presenting with small bowel obstruction. Hernia 2006; 10:338-340 9Díte P, Lata J, Novotný I. Intestinal obstruction and perforation--the role of the gastroenterologist. Dig Dis 2003;21: 63-67 10 Cheadle WG, Garr EE, Richardson JD. The importance of early diagnosis of small bowel obstruction. Am Surg 1988; 54: 565-569 11Mucha P. Small intestinal obstruction. Surg Clin North Am 1987; 67: 597-620 12Renzulli P, Krähenbühl L, Sadowski C, al-Adili F, Maurer CA,Büchler MW. Modern diagnostic strategy in ileus. Zentralbl Chir 1998; 123: 1334-1339 13 Lopez-Kostner F, Hool GR, Lavery IC. Management and causes of acute large-bowel obstruction. Surg Clin North Am 1997; 77: 1265-1290 14 Chiedozi LC, Aboh IO, Piserchia NE. Mechanical bowel obstruction. Review of 316 cases in Benin City. Am J Surg 1980;139: 389-393 15 Kuremu RT, Jumbi G. Adhesive intestinal obstruction. EastAfr Med J 2006; 83: 333-336 16 Perea García J, Turégano Fuentes T, Quijada García B, TrujilloA, Cereceda P, Díaz Zorita B, Pérez Díaz D, Sanz SánchezM. Adhesive small bowel obstruction: predictive value of oral contrast administration on the need for surgery. Rev Esp Enferm Dig 2004; 96: 191-200 17 Lawal OO, Olayinka OS, Bankole JO. Spectrum of causes of intestinal obstruction in adult Nigerian patients. S Afr J Surg 2005; 43: 34-36 18 Gürleyik E, Gürleyik G. Small bowel volvulus: a common cause of mechanical intestinal obstruction in our region. Eur J Surg 1998; 164: 51-55 19 Tamijmarane A, Chandra S, Smile SR. Clinical aspects of adhesive intestinal obstruction. Trop Gastroenterol 2000; 21: 141-143 20 Sarr MG, Bulkley GB, Zuidema GD. Preoperative recognition of intestinal strangulation obstruction. Prospective evaluation of diagnostic capability. Am J Surg 1983; 145: 176-182 21Bizer 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 22 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 23Williams SB, Greenspon J, Young HA, Orkin BA. Small bowelobstruction: conservative vs. surgical management. Dis ColonRectum 2005; 48: 1140-1146 24Shatila AH, Chamberlain BE, Webb WR. Current status of diagnosis and management of strangula¬tion obstruction of the small bowel. Am J Surg 1976;132:299-303. 25. Mucha P Jr. Small intestinal obstruction. Surg Clin North Am 1987;67:597-620. 26. Miller G, Boman J, Shrier I, Gordon PH. Natural history of patients with adhesive small bowel ob¬struction. Br J Surg 2000;87:1240-1247. 27. Richards WO, Williams LF Jr. Obstruction of the large and small intestine. Surg Clin North Am 1988;68:355-376. 28. Sarr MG, Bulkley GB, Zuidema GD. Preoperative recognition of intestinal strangulation obstruction. Prospective evaluation of diagnostic capability. Am J Surg 1983;145:176-182. 29. Renzulli P, Krähenbühl L, Sadowski C, al-Adili Maurer CA, Büchler MW. [Modern diagnostic strategy in ileus]. [Article in German]. Zentralbl Chir 1998;123:1334-1339. 30. Chiedozi LC, Aboh IO, Piserchia NE. Mechanical bowel obstruction. Review of 316 cases in Benin City. Am J Surg. 1980;139:389-393. 31. Lawal OO, Olayinka OS, Bankole JO. Spectrum of causes of intestinal obstruction in adult Nigerian patients. S Afr J Surg 2005;43:34,36. 32. 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. 33Osuigwe AN, Anyanwu Acute intestinal obstruction in Nnewi Nigeria: A five year review. Nigerian J Surg Res. 2002;4:107–11. 34. McEntee G, Pender D, Mulvin D, McCullough M, Naeeder S, Farah S, et al. Current spectrum of intestinal obstruction. Br J Surg. 2005;74:976–80. [PubMed] 35. Menzies D, Parker M, Hoare R, Knight A. Small boission. wel obstruction due to postoperative adhesions: treatment patterns and associated costs in 110 hospital admissions. Ann R Coll Surg Engl.2001;83:40–6. [PMC free article] [PubMed] 36. Madziga AG, Nuhu AI. Causes and treatment outcome of mechanical bowel obstruction in north eastern Nigeria. West Afr J Med. 2008;27:101–5. [PubMed] 37. Tamijmarane A, Chandra S, Smile SR. Clinical aspects of adhesive intestinal obstruction. Trop Gastroenterol. 2000;21:141–3. [PubMed] 38. Oladele AO, Akinkuolie AA, Agbakwuru EA. Pattern of intestinal obstruction in a semi urban Nigerian hospital. Niger J Clin Pract. 2008;11:347–50. [PubMed] 39. Markogiannakis H, Messaris E, Dardamanis D, Pararas N, Tzertzemelis D, Giannopoulos P, et al. Acute mechanical bowel obstruction: Clinical presentation, etiology, management and outcome. World J Gastroenterol. 2007;13:423–37. [PMC free article] [PubMed] 40 Mohamed AY, al-Ghaithi A, Langevin JM, Nassar AH. Causes and management of intestinal obstruction in a Saudi Arabian hospital. J R Coll Surg Edinb 1997; 42: 21-23 41 Wysocki A, Krzywoń J. Causes of intestinal obstruction. Przegl Lek 2001; 58: 507-508 42 Lau KC, Miller BJ, Schache DJ, Cohen JR. A study of largebowel volvulus in urban Australia. Can J Surg 2006; 49: 203-207 43 Zubaidi A, Al-Saif F, Silverman R. Adult intussusception: a retrospective review. Dis Colon Rectum 2006; 49: 1546-1551 44 Hayanga AJ, Bass-Wilkins K, Bulkley GB: Current management of small-bowel obstruction. Adv Surg 39:1–33, 2005. 45 Mak SY, Roach SC, Sukumar SA: Small bowel obstruction: Computed tomography features and pitfalls. Curr Probl Diagn Radiol 35:65–74, 2006.