International Surgery Journal
Deshmukh SN et al. Int Surg J. 2016 May;3(2):492-496
http://www.ijsurgery.com
pISSN 2349-3305 | eISSN 2349-2902

DOI: http://dx.doi.org/10.18203/2349-2902.isj20160944

Research Article

Pattern of dynamic intestinal obstruction in adults at tertiary care centre

Santoshkumar N. Deshmukh*, Audumbar N. Maske

Department of General Surgery, Dr. Vaishampayan Memorial Govt. Medical College, Solapur, Maharashtra, India

Received: 19 March 2016
Accepted: 28 March 2016

***Correspondence:**
Dr. Santoshkumar N. Deshmukh,
E-mail: santoshkumarndeshmukh@gmail.com

ABSTRACT

Background: Mechanical intestinal obstruction is a common surgical emergency. The causes of intestinal obstruction include hernias, postoperative adhesions, malignancy, strictures etc. The etiology of this condition varies in different parts of the world and within same country. Aim of this study was to determine the etiology of intestinal obstruction, evaluate the factors affecting morbidity and mortality in our region.
Methods: This prospective descriptive study was conducted in department of surgery at a tertiary care teaching hospital at Solapur from June 2012 to June 2014. All the adult patients, irrespective of sex with diagnosis of dynamic intestinal obstruction undergoing exploratory laparotomy were included in the study. Laparotomy findings were recorded and in the postoperative period patients were followed up for detection of complications and treatment.
Results: 50 patients were treated for mechanical intestinal obstruction. Mean age was 49.5 years and male to female ratio was 1.7:1. External hernia (50%) was the commonest cause of intestinal obstruction followed by postoperative adhesion (39%).Wound infection was the commonest postoperative complication.
Conclusions: External hernia is the leading causes of mechanical intestinal obstruction in our region. Old age, delayed presentation, associated co-morbidities, increases the morbidity and mortality in these patients.

Keywords: Dynamic intestinal obstruction, Adults, External hernias

INTRODUCTION

Acute mechanical bowel obstruction is a common surgical emergency and a major cause of admission of patients to emergency surgical department. It constitutes a major cause of morbidity and financial expenditure in hospitals. Intestinal obstruction belongs to highly severe conditions requiring a quick and correct diagnosis as well as immediate, rational and effective therapy.

Regional as well as worldwide variations in the pattern of intestinal obstruction and changes in the disease pattern from time to time are well documented in the literature Periodic studies are needed to evaluate the etiological factors as well as changing pattern of disease.[1]

Present study was undertaken to determine the etiology, to evaluate the factors affecting morbidity and mortality, postoperative complications in patients with intestinal obstruction in our region.

METHODS

After obtaining the institutional ethics committee approval, present prospective descriptive study was carried out in department of surgery at a tertiary care teaching hospital at Solapur, Maharashtra, India. Ours is a rural tertiary care centre surrounded by many villages. Present study was carried out for a period of 2 years (June 2012 to June 2014) on 50 patients.

Inclusion criteria

- Adult patients (Age18 years and above), regardless of gender, presented with dynamic intestinal obstruction (small as well as large) and undergone exploratory laparotomy, were included.

Exclusion criteria

- Patients below 18 years of age.
- Patients with adynamic intestinal obstruction and those responded to conservative measures were excluded.

On admission detailed history & thorough clinical examination was performed as per prefixed proforma. The data regarding age, sex, residence, socioeconomic status, duration of symptoms, associated diseases were documented after direct interview with patient or patient's attendants.

The diagnosis of intestinal obstruction was made on the basis of detailed history, clinical findings, plain abdominal radiograph, and ultra sound examination. Laboratory investigations like complete blood count, blood sugar, serum creatinine, serum electrolytes, HIV and Hepatitis B status and urine analysis were carried out. All patients with adhesive intestinal obstruction were initially given a trial of conservative treatment for 48 hours. If there was no spontaneous resolution of obstruction, exploratory laparotomy was done. Conservative treatment also discontinued if there was progression of signs and symptoms after initial resuscitation. Exploratory laparotomy was performed after taking due informed written consent of the patient & relatives. Operative details like cause of obstruction, site of obstruction and operative procedure performed were recorded. Whenever required specimen was sent for histopathological examination for definitive diagnosis. Postoperatively patients were followed up for first 6 months for detection of early as well as late complications. The data collected were entered into MS-Excel sheets and analysis was carried out using statistical package for social sciences (SPSS-version 16). On the basis of analysis and observation, results were drawn and discussed and compared with other relevant literatures.

RESULTS

During the study period, 50 patients were admitted in surgical ward with the diagnosis of intestinal obstruction and underwent exploratory laparotomy.

The most vulnerable age group in this study was 51 to 60 years (22%).The next most common age group affected was 61 to 70 years (18%).

Out of 50 cases studied, 32 were male and 18 were females. Thus males outnumbered the females.

Table 1: Age incidence.

Age group in years	No. of cases	Percentage
>18-20	4	8%
21-30	5	10%
31-40	8	16%
41-50	8	16%
51-60	11	22%
61-70	9	18%
71 years and Above	5	10%

Table 2: Sex incidence.

Sex	No. of cases	Percentage
Males	32	64%
Females	18	36%
Total	50	100%

Table 3: Signs and symptoms.

Signs and symptoms	No. of cases	Percentage
Abdominal pain	50	100%
Abdominal distension	47	94%
Vomiting	45	90%
Constipation	37	74%

Table 4: Site of obstruction.

Site of obstruction	No. of cases	Percentage
Small bowel	44	88%
Large bowel	6	12%

Table 5: Duration of symptoms.

Duration of symptoms	No. of cases	Percentage
1 to 2 days	15	30%
3 to 4 days	28	56%
5 to 6 days	07	14%

Table 6: Etiology of obstruction.

Etiology of obstruction	No. of cases	Percentage
External hernias	25	50%
Adhesions	15	30%
Malignancies	4	8%
Volvulus	3	6%
Tuberculosis	1	2%
Intussusception	1	2%
Meckel's diverticulum	1	2%

Table 7: Residence of patients.

Residence	No. of cases	Percentage
Rural	33	66%
Urban	17	34%

Table 8: Socioeconomic status (according to modified BG Prasad classification).

Socioeconomic status	No. of cases	Percentage
Upper class	0	0%
Upper middle class	2	4%
Middle class	3	6%
Lower middle class	3	6%
Lower class	42	84%

Table 9: Associated diseases.

Associated diseases	No. of cases	Percentage
Diabetes Mellitus	2	4%
Liver cirrhosis	1	2%
Hypertension	3	6%
Ischemic heart disease	3	6%
COPD	4	8%

Table 10: Postoperative complications.

Complications	No. of cases	Percentage
Wound infection (Surgical site infection)	6	12%
Wound dehiscence /(Burst abdomen)	3	6%
Septicaemia	3	6%
Pneumonia	2	4%
Faecal fistula (Enterocutaneous fistula)	1	2%

The most common symptom in our study was abdominal pain, present in all 50 cases (100%) followed by distension in 47 cases (94.00%), vomiting 45 cases (90.00%) and least being constipation in 37 cases (74.00%).

Table 11: Analysis of death.

Age and sex	Interval between onset of symptoms and laparotomy	Operative findings	Operative procedure done	Associated disease	Cause of death
69 M	6 days	Carcinoma of caecum	Right hemicolectomy with ileotransverse anastomosis	COPD	Pneumonia
65 F	3 days	Strangulated femoral hernia	Resection & anastomosis	Ischemic heart disease	Septicaemia
72 F	5 days	Strangulated incisional hernia	Resection & anastomosis	Diabetes mellitus	Septicaemia
70 M	4 days	Carcinoma of ascending colon	Right hemicolectomy with ileotransverse anastomosis	Ischemic heart disease	Pneumonia
50 M	2 days	Obstructed umbilical hernia	Reduction of hernia with herniorrhaphy	Alcoholic liver disease	Hepatic encephalopathy

(COPD=Chronic obstructive pulmonary disease, M=male, F=female)

Out of 50 patients, 44 patients (88%) presented with small bowel and 6 patients (12%) with large bowel obstruction. Thus small bowel obstruction was more common than large bowel obstruction.

In our study, 15 cases (30%) presented within 48 hours after onset of symptoms. 28 patients (56%) presented within 3 to 4 days and 7 patients (14%) presented on 5th & 6th day.

Out of 50 patients, 5 patients succumbed to death in post-operative period. The overall mortality rate in our study was 10%.

External hernia (50%) was the commonest cause of intestinal obstruction followed by adhesions (30%) in our study. Majority of patients 33 (66%) in our study were from rural area.

Majority of patients (84%) in our study were from poor socioeconomic class. Wound infection (12%) was the commonest complication noted in this study followed by wound dehiscence (6%) and septicaemia (6%).

DISCUSSION

Acute intestinal obstruction is one of the common life threatening emergencies all over the world. No age is immune for intestinal obstruction. Most commonly affected age group in our study was 51 to 60 years (22% cases). Similar observation was reported in the study conducted by Gill SS et al.[2] In the studies conducted by Adhikari S et al.[3] most commonly affected age group was 41 to 50 years. While in the studies by Singh H et al[4] and Cole GJ et al.[5] the most commonly affected age group was 31 to 40 years. The mean age of the patient in this study was 49.5 years. The mean age in the studies by Malik AM et al, Hadi A et al, Mehmood Z et al, Ismail et

al, Manzoor A et al, Alvi AR et al[6-11] Was 43.08, 37.50, 41.40, 37.50, 42.50, 44.50 years respectively.

Male to female ratio in this study was 1.7:1. Similar observations (male predominance) were reported by other studies.[7-12] Male predominance in this study may be because a large number of our patients had obstructed or strangulated inguinal hernia, and in our country males as compared to females suffer more from the inguinal hernias. Incidence of small bowel obstruction (88%) was more than large bowel obstruction (12%) in our study. Similar observations are reported by various other studies.[6,7,13]

While in the study conducted by Ullah S et al[14] the incidence of large bowel obstruction was more than small bowel obstruction. Abdominal pain (100%) and distension (94%) are the predominant symptoms of presentation in our study. These findings are almost consistent with the other studies.[3,9,15-17] Majority of patients (56%) presented late to hospital i.e. 48 hours after the onset of symptoms. This may be because in our study out of 50 patients 33 (66%) were from rural area. 42 patients (84%) were from low socioeconomic status. Poverty, illiteracy, and poor transportation facilities might be the contributing factors for this. Socioeconomic status of the patient in this study was determined by Modified BG Prasad socioeconomic classification. The advantage of this classification is that it is applicable to both rural and urban area. It utilizes per capita monthly income of individual.[18] late presentation of patient to the hospital was also reported by the authors from other developing countries.[19,20]

External hernia (50%) was the commonest cause of intestinal obstruction in our study followed by adhesions (30%). Similar findings are also reported by various national and international studies.[3,15,21,22] Wound infection was the commonest post-operative complication noted in our study. Similar observation was also reported by other studies.[3,23,15] The overall mortality rate in our study is 12 %. This figure is comparable with the studies reported by Ohene-Yeboah M et al.[24] and Lawal OO et al.[21]

CONCLUSION

External hernia is the leading cause of intestinal obstruction in our region. We feel increasing awareness among the people, especially in rural areas, about the complications of hernia and insisting them for early repair may reduce the incidence of intestinal obstruction. Old age, delayed presentation to hospital, associated co-morbid conditions increases the morbidity and mortality in these patients. Poverty and illiteracy among the people adds to this problem. Early diagnosis and timely surgical intervention may decrease morbidity and mortality of this condition.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the institutional ethics committee

REFERENCES

1. Baloch NA, Babar KM, Mengal MA, Babar SA. A Spectrum of mechanical intestinal obstruction. J Surg Pakistan. 2002;7(1):7-9.
2. Gill SS, Eggleston FC. Acute Intestinal Obstruction. Arch Surg. 1965;91:589-91.
3. Adhikari S, Hossein MZ, Das A, Mitra N, Ray U. Etiology and outcome of acute intestinal obstruction: A review of 367 patients in Eastern India. Saudi J Gastroenterol. 2010;16(4):285-7.
4. Singh H. Acute intestinal obstruction: A review of 504 cases. JIMA. 1973;60(12):455-60.
5. Cole GJ. A review of 436 cases of intestinal obstruction in Ibanan. Gut. 1965;6:151-1624.
6. Malik K, Ahmed W, Channa A, Khan A, Waheed I. Pattern of intestinal obstruction in Jinnah postgraduate medical centre, Karachi. J Coll Physician Surg Pak. 1991;12:32-5.
7. Hadi A, Aman Z, Batool I, Khan M. Causes of mechanical intestinal obstruction in adults. JPMI. 2010;24(3):212-6.
8. Mehmood Z, Aziz A, Iqbal M, Sattar I, Khan A. Causes of intestinal obstruction: a study of 257 patients. J Surg Pak. 2005;10:17-9.
9. Ismail, Khan M, Shah SA, Ali N. Patterns of dynamic intestinal obstruction i adults. J Postgrad Med Inst. 2005;19:157-61.
10. Manzoor A, Mohammad AM. Pattern of Mechanical intestinal obstruction in adults. J Coll Physicians Surg Pak. 1999;9:441-3.
11. Alvi AR. Pattern of mechanical bowel obstruction: a review of 111 cases. Pak J Surg. 1994;10:121-4.
12. Adesunkanmi AR, Agbakwuru EA. Changing pattern of acute intestinal obstruction in tropical African population. East Afr Med J. 1996;11:727-31.
13. 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.
14. Ullah S, Khan M, Mumtaz N, Naseer A. Intestinal Obstruction: A Spectrum of causes. Hayatabad medical complex Peshawar Pakistan. JPMI. 2009;23(2):188-192.
15. Khan JS, Alam J, Hassan H, Iqbal M. Pattern of intestinal obstruction a hospital based study. Pak Armed Forces Med J. 2007;57(4):295-9.
16. Perea GJ, Turegano FT, Quijada GB, Trujillo A, Diaz CZB, Perez DD et al. Adhesive small bowel obstruction: predictive value of oral contrast administration on the need for surgery. Rev Esp Enferm Dig. 2004;96:191-200.

17. Cheadle WG, Garr EE, Richardson JD. The importance of early diagnosis of small bowel obstruction. Am Surg. 1988;54:565-9.
18. Mangal A, Kumar V, Panesar S, Talwar R, Raut D, Singh S. Updated BG Prasad socioeconomic classification 2014: A commentary. Indian J Public Health. 2015;59:42-4.
19. Chalya PL, McHembe MD, Mshana SE, Rambau P, Jaka H, Mabula JB. Tuberculous bowel obstruction at a university teaching hospital in Northwestern Tanzania: a surgical experience with 118 cases. World J Emerg Surg. 2013;16:8(1):12.
20. Shittu OB, Gana JY, Alawale EO, Ogundiran TO. Pattern of mechanical intestinal obstruction in Ibadan: a 10 year review. African J Med Sci. 2001;30:17-21.
21. Lawal OO, Olayinka OS, Bankole JO. Spectrum of causes of intestinal obstruction in adult Nigerian patients. S Afr J Surg. 2005;43:34-6.
22. Wysocki A, Krzywoñ J. Causes of intestinal obstruction. Przegl Lek. 2001;58(6):507-8.
23. Bhange SR, Jadhav SE, Naik AM: A prospective study of intestinal obstruction in a rural hospital in India. Indian J Appl Res. 2011;1(12):166-8.
24. Ohene-Yeboah M, Adippah E, Gyasi-Sarpong K. Acute intestinal obstruction in adults in Kumasi, Ghana. Ghana Med J. 2006;40:50-4.

Cite this article as: Deshmukh SN, Maske AN. Pattern of dynamic intestinal obstruction in adults at tertiary care centre. Int Surg J 2016;3:492-6.