How to Cite:
Rao, G. N., S. R. Nagendrababu, S. R. N., anjali, G. sri, sarvani, G., & Raju, D. S. S. K. (2022). Decoding the changing etiology and management protocols of intestinal obstruction: A prospective clinical study. *International Journal of Health Sciences*, *6*(S7), 2089–2095.
https://doi.org/10.53730/ijhs.v6nS7.11763

Decoding the changing etiology and management protocols of intestinal obstruction: A prospective clinical study

Dr. G. Nagabhushana Rao, M.S.
General Surgery, Civil Surgeon, Department Of General Surgery, District Hospital, Vizianagaram, Andhra Pradesh
Email: gnbrao.jyothi@gmail.com

Dr. S. R. Nagendrababu, M.S.
General Surgery, Assistant Professor, Andhra Medical College, Visakhpatnam, Andhra Pradesh
Corresponding Author email: nagusalapu@gmail.com

Gorle Sri Anjali
Intern, Andhra Medical College, Vishakhapatnam, Andhra Pradesh

Gaddipati sarvani
Intern, Andhra Medical College, Vishakhapatnam, Andhra Pradesh

Dr. D. S. S. K. Raju
Assistant Professor, Department Of Biochemistry, Maharajah's Institute Of Medical Sciences, Vizianagaram, Andhra Pradesh

***Abstract*---**Background: Obstruction of the bowel is one of the most common problems intra-abdominally seen by surgeons in their practice. The reasons associated with these obstructions are biochemical disturbances correlated to adhesion, neoplasms, and/or hernia. Obstruction of either the large intestine or small intestine remains the major cause of mortality and morbidity. Methods: The study included a total of 48 subjects having intestinal obstruction within the age range of 18-87 years. The diagnosis was made based on hematologic parameters, radiologic parameters, physical examination, and clinical history of the subjects. Results: Most common complication seen in 14.58% (n=7) study subjects, followed by the surgical site infection seen in 10.41% (n=5) study subjects. Respiratory tract infection was seen in 8.33% (n=4) of study subjects. The least common reported complication was faecal fistula seen in 4.16% (n=2) of study subjects. On assessing the mortality rate of the present study, it was seen that 12.5% (n=6) subjects died following

surgical management of acute abdominal distension, whereas, 87.5% (n=42) subjects survived and were cured Conclusion: The present study concludes that the most common reason behind intestinal obstruction was postoperative adhesion which can be accurately diagnosed with operative, radiological, and clinical assessment. Significant mortality is associated with undiagnosed malignancy cases which are seen as an emergency in subjects with intestinal obstruction. Timely management and early diagnosis are associated with good prognosis, whereas, delayed prognosis, increased age, and strangulation is associated with poor outcomes.

***Keywords*---**Bowel Obstruction, Mortality**,** Morbidity, Intestinal Obstruction, Tachycardia.

Introduction

Obstruction of the bowel is one of the most common problems faced by general surgeons in their practice and is the most common cause of the intra-abdominal problem. The reasons associated with these obstructions are biochemical disturbances correlated to adhesion, neoplasms, and/or hernia. Obstruction of either the large intestine or small intestine remains the major cause of mortality and morbidity.[1]

Nearly 10-16% of all the surgical admissions are done for acute abdominal complaints manifesting as good appearance of the presenting subject with only mild distension and discomfort of the abdomen to hypovolemic shock and/or septic shock. This condition is considered an emergency surgical procedure.[2]

The mortality associated with acute obstruction of the intestine is reducing with the advancement and increased understanding of its pathophysiology.[3] With better knowledge of the intensive care unit, development of antibiotics with better efficacy, correction of electrolytes and fluids, and advanced diagnostic techniques, the mortality has been limited to elder subjects with associated comorbidities and delayed diagnosis. These comorbidities include respiratory diseases, cardiac diseases, and/or diabetes mellitus.[4] Hence, the present study was conducted to assess the etiology, presenting features, management, morbidity, and mortality of acute bowel obstruction. Also, the present study was conducted to influence the various factors including socioeconomic status, diet, gender, and age on an acute bowel obstruction.

Materials and Methods

The present study was conducted to assess the etiology, presenting features, management, morbidity, and mortality of acute bowel obstruction. Also, the present study was conducted to influence the various factors including socioeconomic status, diet, gender, and age on an acute bowel obstruction. The study included subjects from the age range of 18-87 years with a mean age of 43.6±6.78 years. Children were excluded from the study. The subjects were included based on hematologic parameters, radiologic parameters, physical

examination, and clinical history of the subjects.

Subjects who were managed conservatively for subacute intestinal obstruction were also excluded. The subjects with acute intestinal obstruction managed with the surgical intervention were included to assess the pathology behind an intestinal obstruction to identify outcomes, pathology, findings, presentation, hematologic, and radiologic findings. After final inclusion and admission, clinical data were recorded. The final diagnosis was reached from clinical features and was confirmed with radiologic and hematologic findings.

Following steps were followed in the present study including history recording, physical examination, laboratory tests, radiographic assessment, surgical intervention, and follow-up.

After the admission of the patient, clinical data were recorded according to the Proforma. The diagnosis was mainly based on clinical examination and often supported by hematological and radiological examinations.

Following the surgery, improvement in general condition and decrease in abdominal distension was seen in all the study subjects in subjects with adhesion. Conservative treatment was done for subjects who had decreased pain and improved bowel movements. These subjects were excluded from the study. Subjects with the persistence of symptoms and signs for acute abdominal distension were planned for the surgery. The surgical intervention carried out were strangulated obstruction repair, anastomosis of intestinal gangrene, caecopexy for intussusception, reduction of adhesion, and abandoran release. The specimen was collected for histopathologic examination wherever needed.

Following surgery, all subjects were monitored carefully at different times of hourly or four hourly differences, based on the toxaemia and general condition of the subject. Antibiotics, intravenous fluids, and tube aspiration were given to all the subjects. Any complication encountered was noted and treated appropriately. The follow-up postoperatively was done for 6 months. Few subjects did not turn up for the follow-up visits. The results were formed based on the following parameters: causative factors, age, gender, examination results, symptoms, operative findings, investigations, operative procedures, operative findings, and/or any complications encountered.

Results

The present prospective clinical study was conducted to assess the etiology, presenting features, management, morbidity, and mortality of acute bowel obstruction. Also, the present study was conducted to influence the various factors including socioeconomic status, diet, gender, and age on an acute bowel obstruction. The study included subjects from the age range of 18-87 years with a mean age of 43.6±6.78 years. The demographic characteristics of the study subjects are listed in Table 1. It was seen that the highest number of subjects were within the age of 51-60 years with 27.08% (n=13) subjects followed by 25% (n=12) subjects in the age range of 41-50 years, and least subjects in >80 years of age with 4.16% (n=2) subjects. There were 72.91% (n=35) males and 27.08%

(n=13) females in the present study. Majority of the subjects reported with abdominal pain in 87.5% (n=42) subjects followed by peristalsis in 79.16% (n=38) study subjects, vomiting in 75% (n=36) subjects, tachycardia in 72.91% (n=35) subjects, and abdominal distension in 68.75% (n=33) subjects. The least common symptom was constipation seen in 58.33% (n=28) of study subjects.

On assessing the etiology behind the intestinal distention in the study subjects, it was seen that the most common cause was postoperative adhesion seen in 27.08% (n=13) study subjects followed by malignancy seen in 22.91% (n=11) study subjects, obstructed hernia in 16.66% (n=8) study subjects, band and volvulus each in 10.41% (n=5) study subjects, and TB abdomen in 8.33% (n=4) study subjects. The least common etiologic factor seen was intussusception and mesenteric ischemia each seen in 2.08% (n=1) of study subjects as depicted in Table 2.

The present study also assessed the complications seen in the study subjects following surgical intervention for acute abdominal distension. It was seen that sepsis was the most common complication seen in 14.58% (n=7) study subjects, followed by the surgical site infection seen in 10.41% (n=5) study subjects. Respiratory tract infection was seen in 8.33% (n=4) of study subjects. The least common reported complication was fecal fistula seen in 4.16% (n=2) of study subjects. On assessing the mortality rate of the present study, it was seen that 12.5% (n=6) of subjects died following surgical management of acute abdominal distension, whereas, 87.5% (n=42) subjects survived and were cured (Table 3). The reason for the mortality in the subjects was respiratory tract infection and septic shock.

Discussion

The present prospective clinical study was conducted to assess the etiology, presenting features, management, morbidity, and mortality of acute bowel obstruction. Also, the present study was conducted to influence the various factors including socioeconomic status, diet, gender, and age on an acute bowel obstruction. The study included subjects from the age range of 18-87 years with a mean age of 43.6±6.78 years. It was seen that the highest number of subjects were within the age of 51-60 years with 27.08% (n=13) subjects followed by 25% (n=12) subjects in the age range of 41-50 years, and least subjects in >80 years of age with 4.16% (n=2) subjects. There were 72.91% (n=35) males and 27.08% (n=13) females in the present study. Majority of the subjects reported with abdominal pain in 87.5% (n=42) subjects followed by peristalsis in 79.16% (n=38) study subjects, vomiting in 75% (n=36) subjects, tachycardia in 72.91% (n=35) subjects, and abdominal distension in 68.75% (n=33) subjects. The least common symptom was constipation seen in 58.33% (n=28) of study subjects. These demographics were comparable to the demographics assessed in the studies by Haridimos M ET al[5] in 2007 and Richard LD Lake ET al[6] in 2010 wherein their respective study authors assessed similar demographics.

The present study also assessed the etiology behind the intestinal distention in the study subjects, it was seen that the most common cause was postoperative adhesion seen in 27.08% (n=13) study subjects followed by malignancy seen in

22.91% (n=11) study subjects, obstructed hernia in 16.66% (n=8) study subjects, band and volvulus each in 10.41% (n=5) study subjects, and TB abdomen in 8.33% (n=4) study subjects. The least common etiologic factor seen was intussusception and mesenteric ischemia each seen in 2.08% (n=1) of study subjects. These results were consistent with the results of Robert MB erne et al[7] in 2008 and Branco BC et al[8] in 2010 where similar etiologic factors were seen associated with acute abdominal distension by authors in their studies.

On assessing the complications seen in the study subjects following surgical intervention for acute abdominal distension. It was seen that sepsis was the most common complication seen in 14.58% (n=7) study subjects, followed by the surgical site infection seen in 10.41% (n=5) study subjects. Respiratory tract infection was seen in 8.33% (n=4) of study subjects. The least common reported complication was faecal fistula seen in 4.16% (n=2) of study subjects. On assessing the mortality rate of the present study, it was seen that 12.5% (n=6) of subjects died following surgical management of acute abdominal distension, whereas, 87.5% (n=42) subjects survived and were cured. The reason for the mortality in the subjects was respiratory tract infection and septic shock. These findings were in agreement with the results of Ten Broek RPG et al[9] in 2018 and Jaffe T et al[10] in 2015 where authors showed comparable death rates and complications in their study subjects.

Conclusion

Within its limitations, the present study concludes that acute abdominal obstruction is a surgical emergency where success is largely dependent on accurate and early diagnosis with timely treatment. Radiographic and clinical features play a vital role in achieving success in treated cases. The most common cause behind obstruction was postoperative adhesion. High mortality is associated with undiagnosed malignancy cases. Delayed diagnosis can result in strangulation associated with poor outcomes. However, the present study had a few limitations including a small sample size, short monitoring period, and geographical area biases. Hence, more longitudinal studies with larger sample size and longer monitoring period will help reach a definitive conclusion.

References

1. Gore RM, Silvers RI, Thakrar KH, et al. Bowel obstruction. Radiol Clin N Am. 2015;53:1225–40.
2. Batke M, Cappell MS. Adynamic ileus and acute colonic pseudo-obstruction. Med Clin North Am. 2008;92:649–70.
3. Frago R, Ramirez E, Millan M, Kreisler E, del Valle E, Biondo S. Current management of acute malignant large bowel obstruction: a systematic review. Am J Surg. 2014;207:127–38.
4. Taylor MR, Lalani N. Adult small bowel obstruction. Acad Emerg Med. 2013;20:528–44.
5. Haridimos Markogiannakis, Evangelos Messaris, Dimitrios Dardamanis, Nikolaos Pararas, Dimitries Tzerzemelis, Panagiotis Giannopoulos et al. Acute mechanical obstruction: Clinical presentation, aetiology, management and outcome. World J Gastroenterol. 2007;13:432-7.

6. Richard LD Rake, Wayne Vogl A, Adam WM Mitchell. Abdomen. 2nd ed.Chapter 4.In: Gray's Anatomy for students. Philadelphia: Churchill Livingstone Elsevier, 2010, 300p.
7. Robert MB Erne. Gastrointestinal regulation and motility.5th ed.Chapter 31.In:Physiology, Robert MB erne, Mathew N Levy, Bruce MK oeppen, Bruce AS tanton, eds. Mos by Publication, 2008, 539p.
8. Branco BC, Barmparas G, Schnuriger B, Inaba K, Chan LS, Demetriades D. Systematic review and meta-analysis of the diagnostic and therapeutic role of water-soluble contrast agent in adhesive small bowel obstruction. Br J Surg. 2010;97:470–8.
9. Ten Broek RP, Issa Y, van Santbrink EJ, et al. Burden of adhesions in abdominal and pelvic surgery: systematic review and met-analysis. BMJ. 2013;347:5588.
10. Jaffe T, Thompson WM. Large-bowel obstruction in the adult: classic radiographic and CT findings, etiology, and mimics. Radiology. 2015;275:651–63.
11. Suryasa, I. W., Rodríguez-Gámez, M., & Koldoris, T. (2021). Get vaccinated when it is your turn and follow the local guidelines. *International Journal of Health Sciences*, *5*(3), x-xv. https://doi.org/10.53730/ijhs.v5n3.2938

Tables

	Characteristics	**Percentage (%)**	**Number (n)**
Age Distribution	18-30	10.41	5
	31-40	14.58	7
	41-50	25	12
	51-60	27.08	13
	61-70	16.66	8
	71-80	6.25	3
	>80	4.16	2
Gender	Males	72.91	35
	Females	27.08	13
Disease signs and symptoms	Constipation	58.33	28
	Abdominal distension	68.75	33
	Vomiting	75	36
	Abdominal Pain	87.5	42
	Tachycardia	72.91	35
	Peristalsis	79.16	38

Table 1: Demographic and disease characteristics of the study subjects

Aetiology	Percentage (%)	Number (n)
Mesenteric ischemia	2.08	1
Intussusception	2.08	1
Malignancy	22.91	11
TB abdomen	8.33	4
Volvulus	10.41	5
Obstructed Hernia	16.66	8
Band	10.41	5
Postoperative adhesion	27.08	13

Table 2: Aetiology of the acute abdominal distension in the study subjects

Parameter	Percentage (%)	Number (n)
Complications		
Fecal Fistula	4.16	2
Respiratory tract infection	8.33	4
Sepsis	14.58	7
Surgical site infection	10.41	5
Mortality (Death)	12.5	6
Cured	87.5	42

Table 3: Complications and mortality in the study subjects