e-ISSN: 0975-1556, p-ISSN:2820-2643

Available online on www.ijpcr.com

International Journal of Pharmaceutical and Clinical Research 2023; 15(4); 1693-1703

Original Research Article

To Study the Pathogenesis, Clinical Presentation and Management of Patients with Colorectal Emergencies Presenting as Intestinal Obstruction

Minati Mohapatra[1], Srikanta Panda[2], Nitya Nutan Misra[3], Lamture Yeshwant R[4]

[1]Associate Professor, Physiology, FM Medical College, Balasore
[2]Professor, Surgery, BBMCH, Balangir
[3]Mch Resident, Surgical Oncology, AHPGIC, Cuttack
[4]Professor, Surgery Department, FM Medical College, Balasore

Received: 26-01-2023 / Revised: 30-02-2023 / Accepted: 20-03-2023
Corresponding author: Dr Lamture Yeshwant R.
Conflict of interest: Nil

Abstract

Background: The recurrent cause is malignancies followed by volvulus, trauma, infection and other mechanical etiologies, in the order of frequency. Over the years, a definite changing trend has been observed in colorectal pathology regarding causes, mode of presentation, treatment and prognosis. This study aims to study clinical features, management, complications and prognostic factors affecting the outcome of colorectal emergencies and to study the nature and biology of disease in future.

Methods: This was a prospective observational study in SCB Medical College and Hospital from October 2019 to October 2021. **Inclusion criteria:** Patients (18 years+) presenting with acute abdominal pain, distension, obstipation, bleeding per rectum, with signs of peritonitis admitted in an emergency. **Exclusion criteria:** Pathology localised to the small bowel and upper GI tract are excluded.

Results: On analysing the comorbid factors, as expected, Diabetes, hypertension and anaemia were the predominant comorbid factor. On the evaluation of patients, most patients predominantly present with obstruction (malignancy contributes 60%, volvulus 36%, paralytic ileus 4%). Elevated total count indicative of peritonitis was seen in almost 70% of patients, while evidence of pre-renal failure, indicated by elevated urea levels, was seen in more than 80% of patients. Around 45 per cent of the patients had electrolyte abnormalities. Malignancy had the highest mortality rate,60 %, and volvulus is the next common cause of death, accounting for 35% each.

Conclusion: A good resection of the tumour at the appropriate time and with reduced co-morbidity, there is a good prognosis it is carried out by good extensive early pre-operative care.

Keywords: Colorectal Emergency, Intestinal Obstruction, Malignancy.

Introduction

A colorectal emergency is a common problem seen in developing countries. In frequency, the recurrent cause is malignancies followed by volvulus, trauma, infection, and other mechanical etiologies. Over the years, a definite changing trend has

been observed in colorectal pathology regarding causes, mode of presentation, treatment and prognosis [1]. Despite the availability of modern diagnostic facilities for early detection of lesions and advances in treatment regimens, this condition is still associated with high mortality and unavoidable morbidity. In the presence of the advanced anaesthesia of today and tremendous improvement in resuscitative measures, every patient diagnosed to have a colorectal emergency is universally recommended to be treated surgically in most cases and conservatively in some patients. The purpose of the operative protocol is to correct the pathology while avoiding any serious accidents, adopt a surgical procedure associated with minimal complications, give curative resection, and improve the survival rate. This study has been undertaken to contribute to the improvement in the knowledge of this disease. This study aims to study clinical features, management, complications and prognostic factors affecting the outcome of colorectal emergencies and to study the nature and biology of disease in future.

Materials and Methods

This was a prospective observational study in SCB Medical College and Hospital from October 2019 to October 2021.

Selection of patients:

A. **Sampling Method:** Purposive.
B. **Inclusion Criteria:** Age more than 18 years. Patients presenting with acute abdominal pain, distension, obstipation, and bleeding per rectum, with signs of peritonitis admitted to the emergency department after imaging and emergency laparotomy, with pathology being localised to the large bowel, are studied.
C. **Exclusion Criteria:** Pathology localised to the small bowel and upper GI tract are excluded. Elective colorectal surgeries are not taken.

Data collection

Patients are subjected to detailed history taking and clinical examination. Patients presented with acute abdomen in the emergency ward in the general surgery department satisfying the inclusion and exclusion criteria are taken into the study. Detailed history and clinical examination are done. Baseline investigations and pre-operative imaging (x-ray, ultrasonogram, contrast CT) are done, and pathology is localised to the colorectal region. Findings during the emergency laparotomy are recorded. The disease region and performance status of the patient are noted. The pathogenesis of the colorectal emergency leading to an acute abdomen is indicated. The patients are followed up postoperatively. The various parameters affecting the recovery of the patient and the nature of the disease, its severity, and its outcome are studied. The appropriate procedure favouring the prognosis of the patient in emergencies is studied. The post-operative morbidity and mortality of the patients undergoing the emergency procedure are recorded. The age group of patients, their clinical presentation and pathogenesis in different age groups causing obstruction, perforation and peritonitis necessitating the emergency laparotomy are also studied. The decision regarding performing the primary procedure in an emergency as a lifesaving procedure is also analysed. Patients presenting with pseudo colonic obstruction without mechanical cause were also studied. Data were collected by a pre-tested structured questionnaire. Data were collected from all the respondents by direct interview after getting informed written consent from them or their legal guardians.

Ethical Consideration

All the patients/ legal guardians explained the study and the investigative and operative procedures with their merits and demerits, expected results, and possible complications. If he/she agreed, then the case had been selected for this study. The study did not involve any additional investigation or any significant risk. It did not cause an economic burden to the patients. The institutional review board approved the study before the commencement of data collection. Informed consent was taken from each patient/guardian. Data were collected using by approved data collection form.

Data Analysis

Data analysis was done both manually and by using the computer. Calculated data were arranged systemically, and presented in various tables and figures and statistical analysis was made to evaluate the objectives of this study.

Results

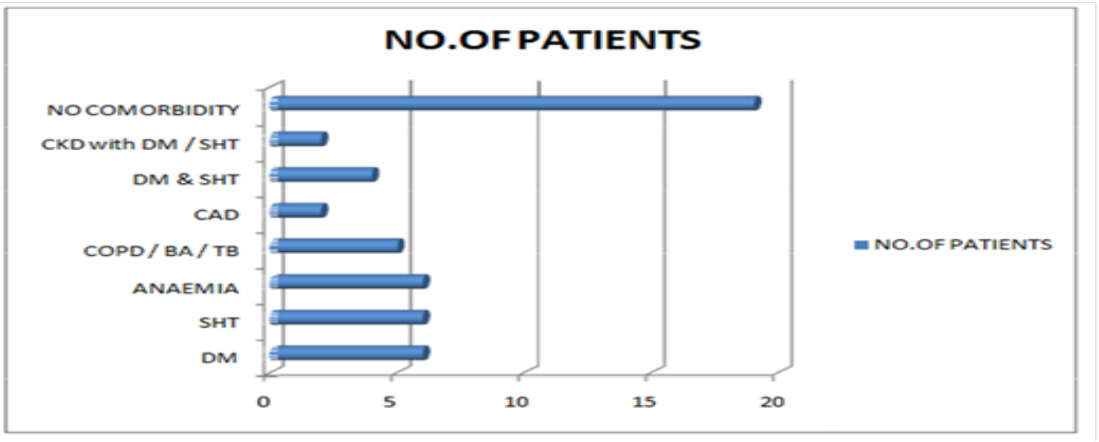

Figure 1: of Patients & Comorbidity

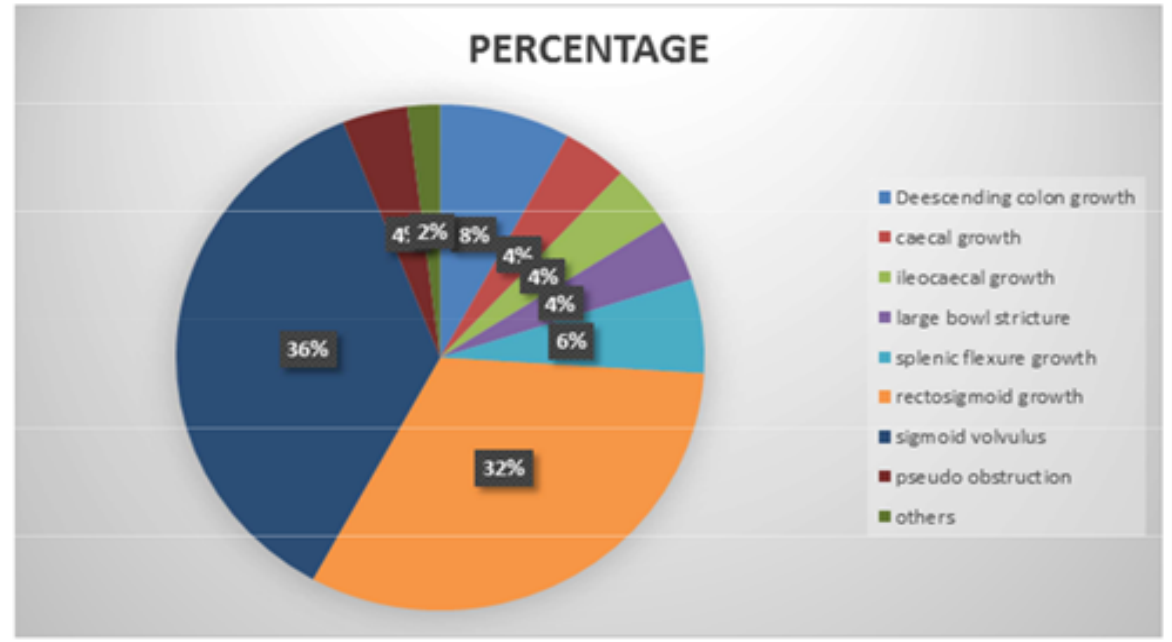

Figure 2: Diagnosis of Patients Presenting as Colorectal Emergency.

Table 1: Regions Involved in Various Pathology

Region Involved	No Of Patients	Percentage
Caecum	4	8%
Ascending colon	1	2%
Transverse colon	1	2%
Splenic flexure colon	3	6%
Descending colon	6	12%
Sigmoid colon	25	50%
Rectosigmoid region	4	8%
Rectum	5	10%
Others (Whole bowel)	2	4%
TOTAL	50	100%

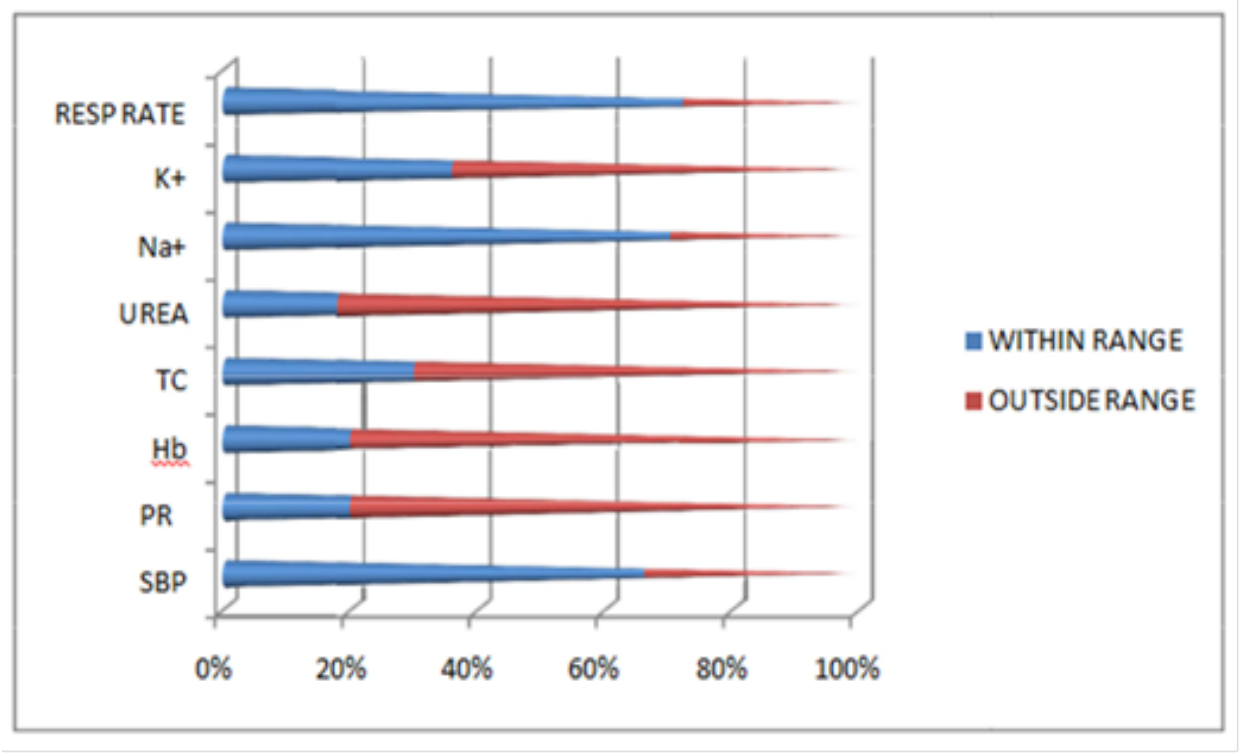

Figure 3: Analysis of Vital Parameters In Patient Group

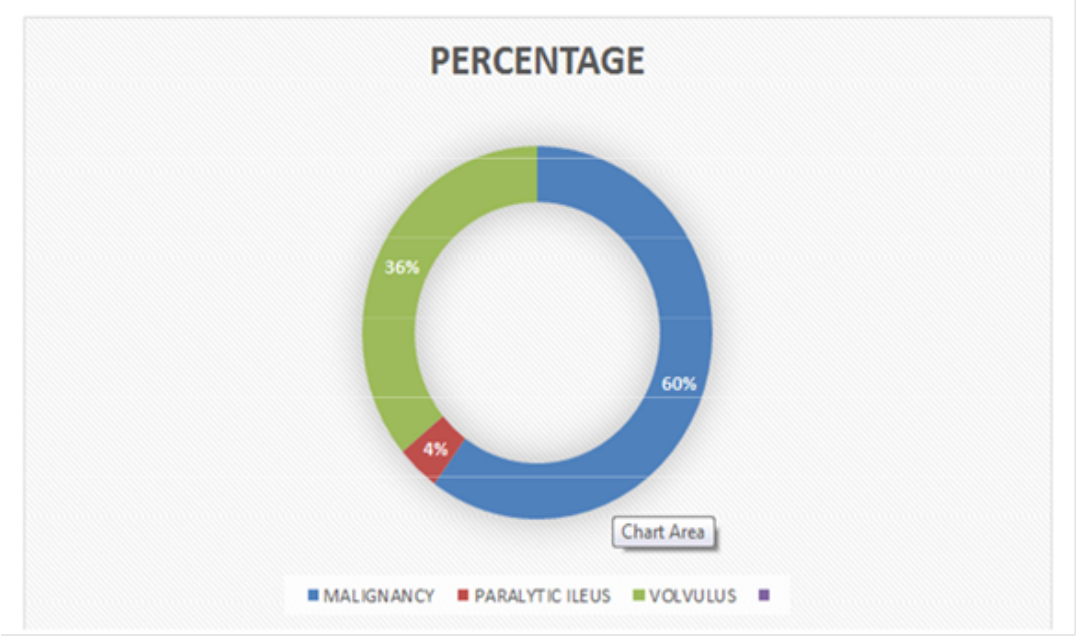

Figure 4: Distribution of Causative Factors

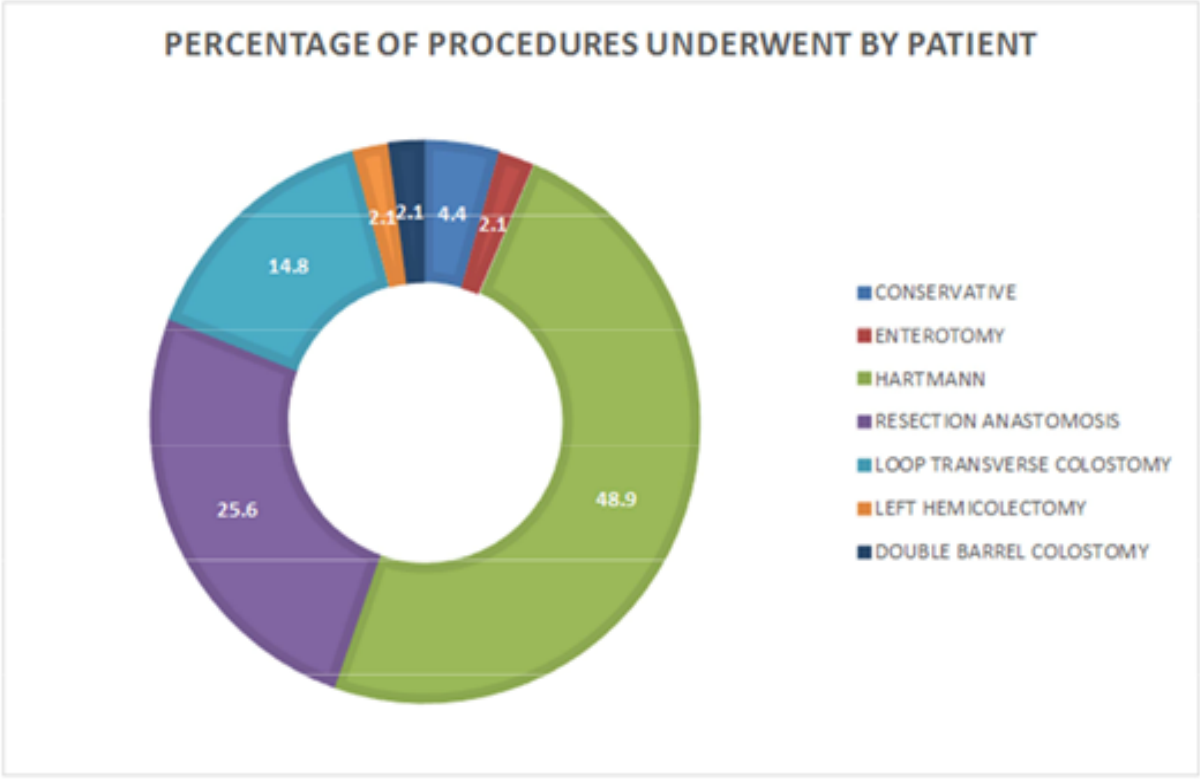

Figure 5: distribution of procedured underwent by patients

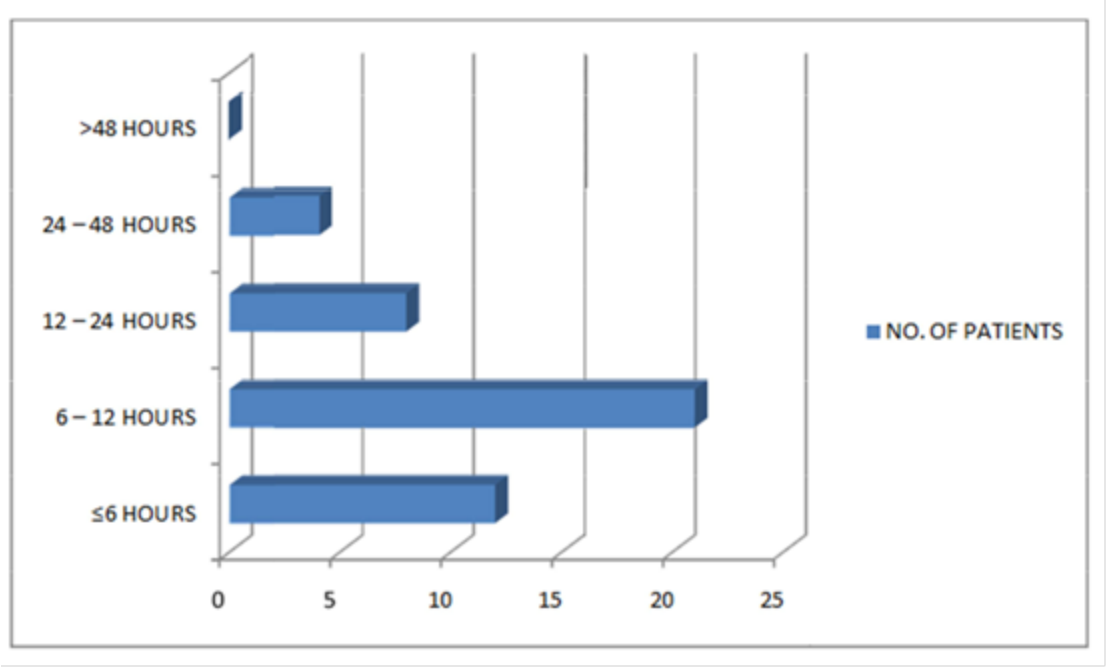

Figure 6: Distribution of Lag Period

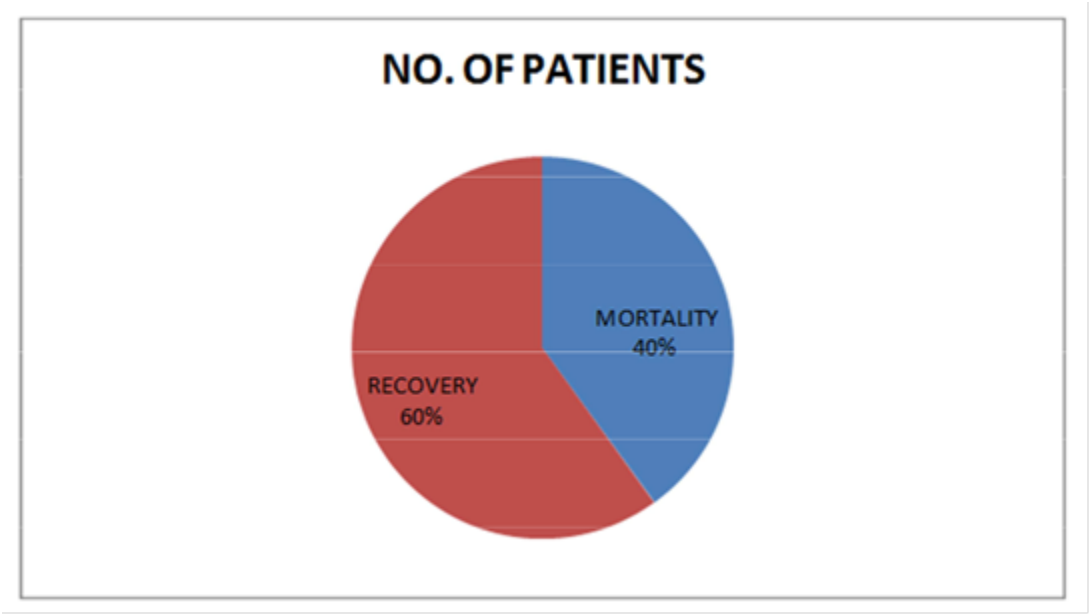

Figure 7: Outcome of Patient

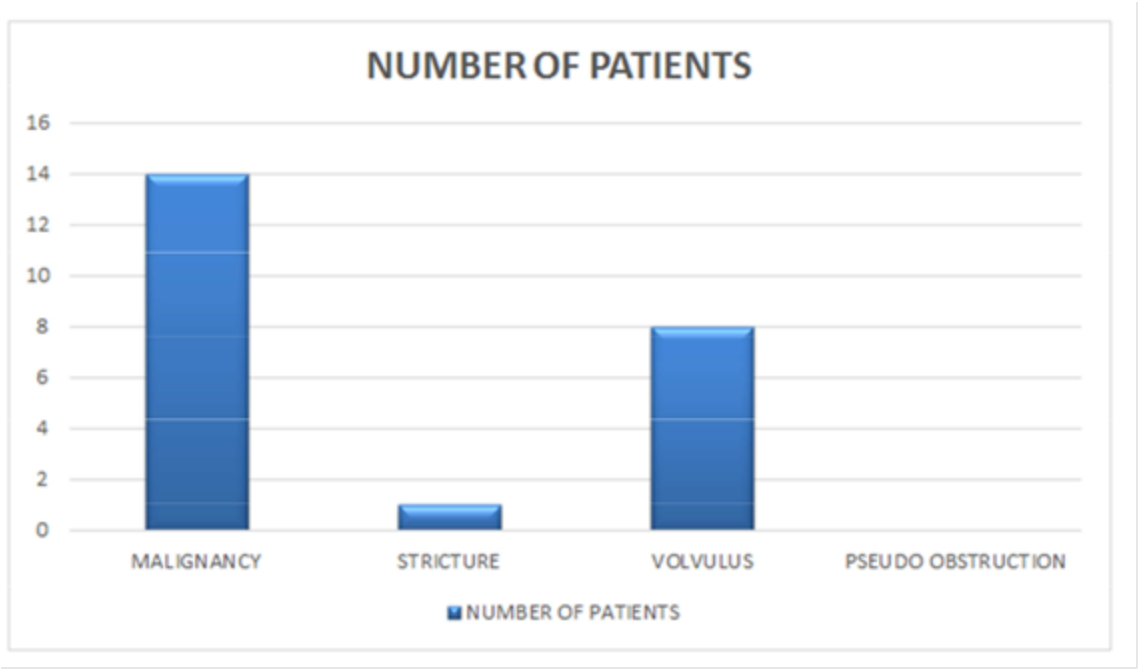

Figure 8: Diagnosis & Mortality

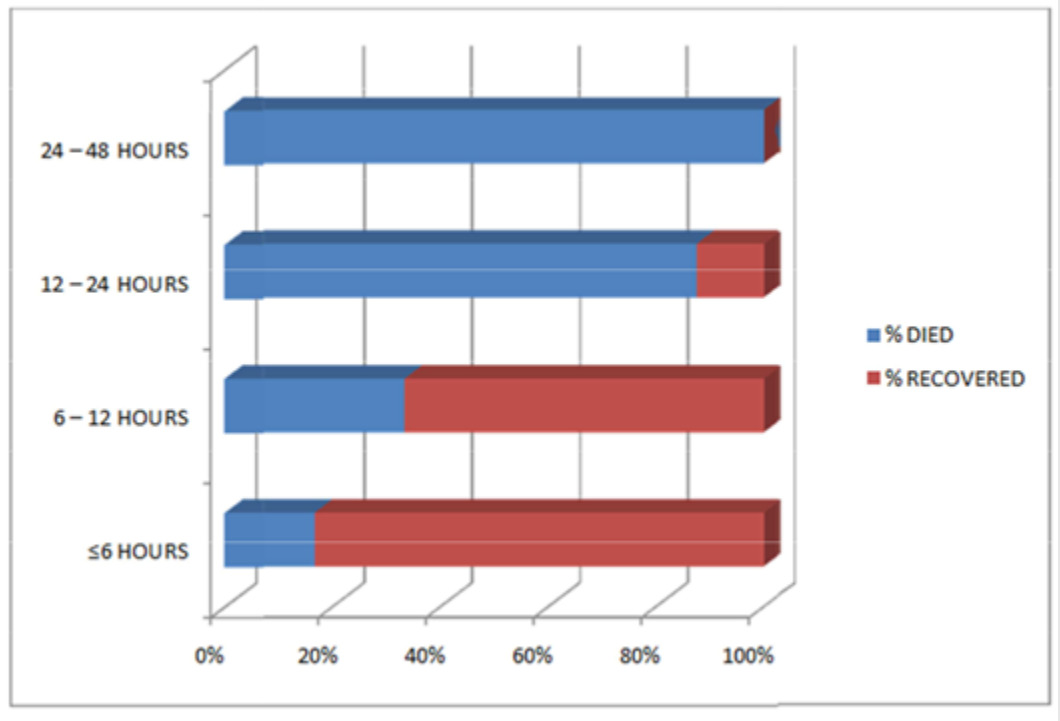

Figure 9: Lag Period & Mortality

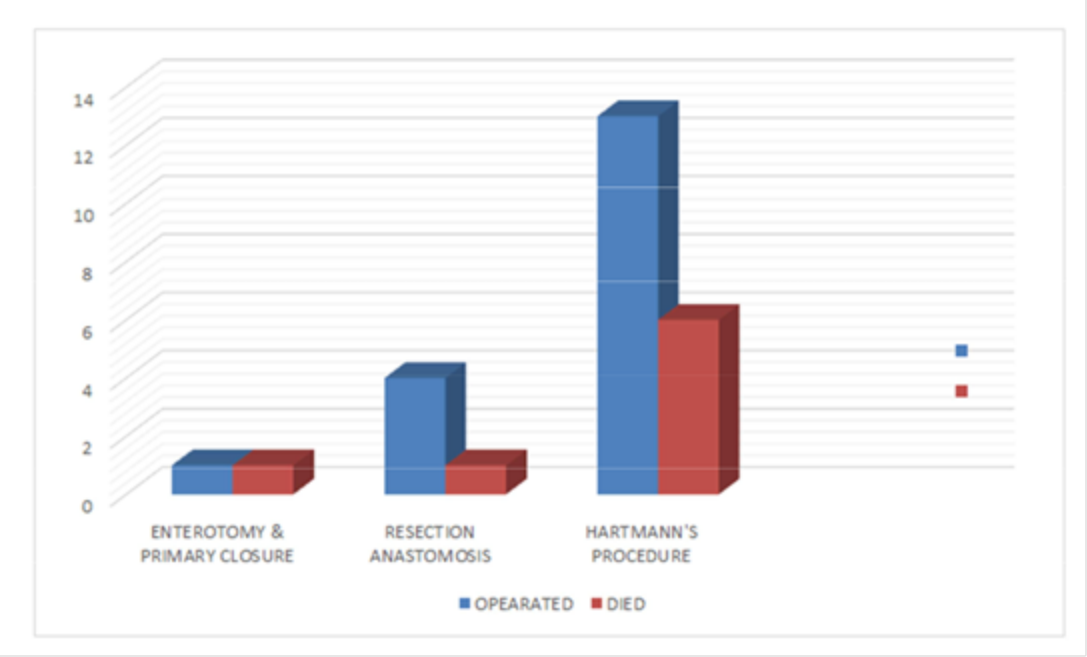

Figure 10: Procedure & Mortality in Sigmoid Volvulus Patient

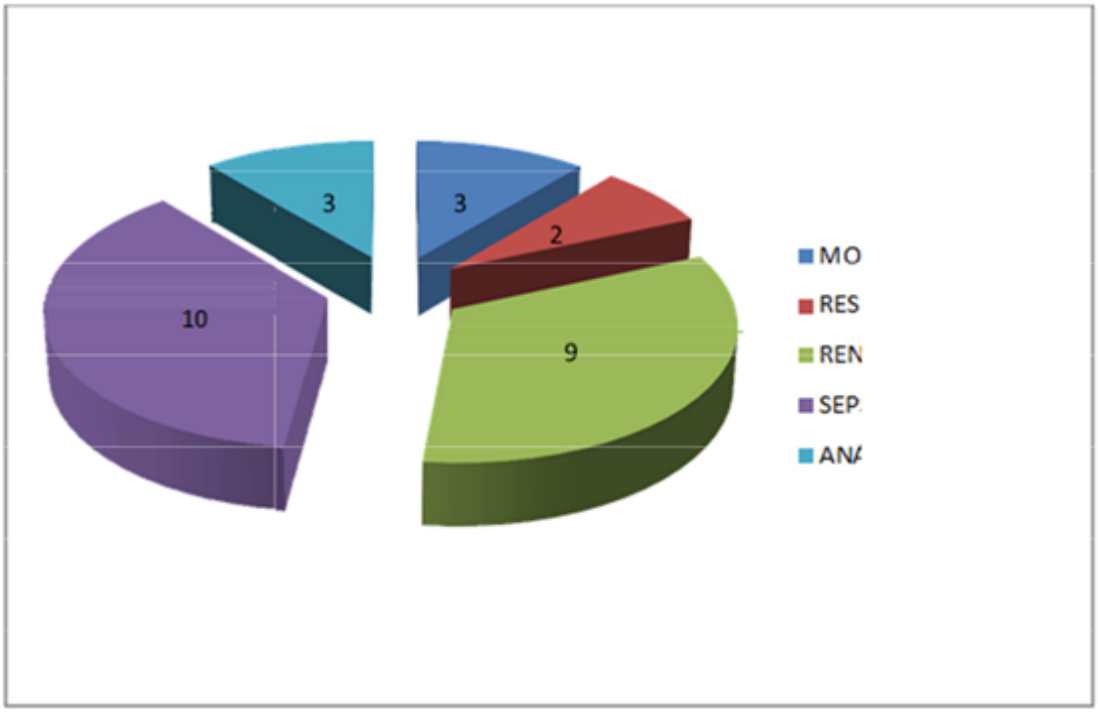

Figure 11: Complications Faced Postoperatively

MO = Multiple Organ Dysfunction Syndrome
RES = Respiratory Complications
REN = Renal Dysfunction
SEP = Sepsis
ANA = Anastamotic Leak

Discussion

This observational study was conducted to determine the pathological and prognostic factors in patients undergoing emergency laparotomies for colorectal emergencies and the associated morbidity and mortality. Fifty patients fulfilling the inclusion criteria from the Surgery Department of SCB medical college and Hospital, Cuttack, from 0ctober 2019 to October 2021 were selected.

The age of 50 patients ranged from 18-80 years. The patients were nearly equally distributed among all the age groups, with slightly more preponderance in people over 60. The male-to-female ratio was~2:1. So, so it can be assumed that males are the predominantly involved group.

On analysing the comorbid factors, as expected, Diabetes, hypertension and anaemia were the predominant comorbid factor, contributing to ~ 35% of total patients. Renal disease, and coronary artery disease involved in 4% of patients each, On the evaluation of patients, most patients predominantly present with obstruction (malignancy contributes 60%, volvulus 36%, paralytic ileus 4%). Of all pathology sigmoid region contributes >50% of patients, and mostly volvulus is the cause of 36%, and the tumour contributes 14%.

An analysis of the vital parameters when the patient presented to the emergency department showed that, as expected, more than 80% of patients. had tachycardia. In comparison, nearly 34% per cent of the patients had systemic hypotension [2]. Elevated total count indicative of peritonitis was seen in almost 70% of patients, while evidence of pre-renal failure, indicated by elevated urea levels, was seen in more than 80% of patients. Around 45 per cent of the patients had electrolyte abnormalities. Nearly 28% of patients presented with tachypnoea. More than 60% of patients belonged to SIRS criteria.

With regards to the lag period between the onset of symptoms and the time of surgery, twenty-six percent of the patients had surgery within 6 hours, while 48% per cent of patients were operated on within 6-to-12-hour, eighteen per cent were operated on between 12 to 24 hours and only 9 per cent of the patients were operated on the second day. None of the patients was operated beyond the second day. More significantly, many patients were operated on within 24 hours of the onset of symptoms.

Regarding the procedures performed, two patients(4%) who were diagnosed with pseudo-obstruction were managed conservatively; Hartmann's procedure was the most commonly performed procedure almost in 50% of the patients for pathology in the rectosigmoid region due to both tumour and volvulus, resection and anastomosis done in 25% of the patient, loop transverse colostomy done in 15% of the patient, left hemicolectomy and double barrel colostomy done in one patient each.

Regarding the patient outcome, 40% succumbed to the disease, whereas 60% improved following surgery. Malignancy had the highest mortality rate accounting for approximately 60 %, probably due to the late presentation and improper pre-operative nutritional status. Volvulus is the next common cause of death, accounting for 35% each. No deaths occurred in patients managed conservatively [3].

Analysing death with the lag period, it could be seen that patients who were taken to surgery within 6 hours (only 16%) had less mortality when compared to patients who were brought to surgery after 48 hours who had a 100% mortality rate [4] On analysing the patients with sigmoid volvulus, patients who underwent Hartmann's had higher mortality when compared to patients who underwent resection and anastomosis [5].

On looking into the post-operative complications that the patient developed, significant difficulties encountered are sepsis which manifested in the form of superficial wound infection, deep wound infection and septicaemia, which lead to renal dysfunction, anastomotic leak, respiratory complications and multi-organ dysfunction syndrome. [6] Of all the patients from the biopsy were collected, it proved to be adenocarcinoma.

Conclusion

The various etiologies and the presentation mode in patients admitted to the emergency department for colorectal emergencies were studied. The most specific disease, the most typical expression, and the most familiar region involved were studied. The most typical procedure performed is Hartmann's procedure, and its relation with the cause and its morbidity and mortality were analysed and compared with various techniques of surgeries, including resection and primary anastomosis studied [7],

The most familiar pathology is malignancy and its most typical presentation is obstruction the histopathological study is adenocarcinoma, and most of the patients have ulcero proliferative variety, involving rectosigmoid region and accounts for the increased incidence in mortality, one of the reasons being a late presentation to hospital.

The factors affecting post-op morbidity and mortality were studied, and pre-operative nutritional status and lag period are the main factors predicting improvement and survival [8]. In short, the overall morbidity and mortality due to hartmanns procedure are more or less equal to resection and primary anastomosis.

Obstructions in the large bowel are the most common presentations in the emergency department, and pathology is due to malignancies and followed by volvulus in our country, like foreign countries [9] And the incidence of volvulus in our country is higher than that in Western and African [10].

The infection in large bowel is significantly less than in small bowel infection. In the modern era, in spite of good improvements in medical technologies and advanced levels of management in all modes of control, including surgery, chemotherapy and radiation, the nature and biology of carcinoma are changed to early progressive disease [11]. A good resection of the tumour at the appropriate time and with reduced co-morbidity, there is a good prognosis it is carried out by good extensive early pre-operative care.

Ethical Approval: The study was approved by the Institutional Ethics Committee

References

1. Kiran K Maddu, Pardeep Mittal, Chesnal Dey Arepalli, Waqas Shuaib, Anuj Tewari, Faisal Khosa. Colorectal emergencies and related complications: a comprehensive imaging review-noninfectious and noninflammatory emergencies of colon. AJR Am J Roentgenol. 2014;203(6):1217-29.
2. Pierre Charbonnet, Pascal Gervaz, Axel Andres, Pascal Bucher, Béatrice Konrad, Philippe Morel. Results of emergency Hartmann's operation for obstructive or perforated left-sided colorectal cancer. World J Surg Oncol. 2008:23; 6:90.
3. V M Guts. Tumours of the large intestine in emergency abdominal surgery. Vestn Khir Im I I Grek. 1970 Dec;105(12):38-42.
4. Ker-Kan Tan, Choon-Seng Chong, Richard Sim. Management of acute sigmoid volvulus: an institution's experience over 9 years. World J Surg. 2010 Aug;34(8):1943-8
5. Zheng Lou, En-Da Yu, Wei Zhang, Rong-Gui Meng, Li-QiangHao, Chuan-Gang Fu. Appropriate treatment of acute sigmoid volvulus in the emergency

setting. World J Gastroenterol. 2013 Aug 14; 19(30): 4979–4983
6. Sacid Coban, Mehmet Yilmaz, Alpaslan Terzi, Fahrettin Yildiz, Dincer Ozgor, Cengiz Ara, Saim Yologlu, Vedat Kirimlioglu. Resection and primary anastomosis with or without modified blow-hole colostomy for sigmoid volvulus. World J Gastroenterol. 2008 Sep 28;14(36):55904
7. M Bruzzi, J H Lefèvre, B Desaint, I Nion-Larmurier, M Bennis, N Chafai, E Tiret, Y Parc. Management of acute sigmoid volvulus: short- and long-term results. Colorectal Dis.2015 Oct;17(10):922-8.
8. J O Larkin, T B Thekiso, R Waldron, K Barry, P W Eustace. Recurrent sigmoid volvulus - early resection may obviate later emergency surgery and reduce morbidity and mortality. Ann R Coll Surg Engl. 2009 Apr;91(3):205-9.
9. A B Kassi, R Lebeau, K S Yenon, E Katche, B Diane, J C Kouassi. Morbidity and mortality of Hartmann's procedure for sigmoid volvulus at the University Hospital of Cocody, Abidjan. West Afr J Med.2011 May-Jun;30(3):169-72.
10. Madison Cuffy, Farshad Abir, Riccardo A Audisio, Walter E Longo. Colorectal cancer presenting as surgical emergency. Surg Oncol. 2004 Aug-Nov;13(2-3):149-57
11. Jayesh Sagar.Colorectal stents for the management of malignant colonic obstructions. Cochrane Database Syst Rev.2011 Nov 9;2011(11): CD007378.