



General Surgery

PROSPECTIVE STUDY ON OUTCOMES OF EMERGENCY RIGHT HEMICOLECTOMY IN A GENERAL SURGICAL UNIT OF A TERTIARY CARE HOSPITAL - A CASE SERIES

Dr Premalatha Lakshmikanth*	Associate Professor, Department Of General Surgery, Kap Vishwanatham Government Medical College And Mahatma Gandhi Memorial Government Hospital, Evr Road, Puthur Tiruchirapalli 620017, India *Corresponding Author
Santhosh Kumar	Assistant Professor, Department Of General Surgery, Kap Vishwanatham Government Medical College And Mahatma Gandhi Memorial Government Hospital, Evr Road, Puthur Tiruchirapalli 620017, India
Ramesh Arumugom	Assistant Professor, Department Of General Surgery, Kap Vishwanatham Government Medical College And Mahatma Gandhi Memorial Government Hospital, Evr Road, Puthur Tiruchirapalli 620017, India
Samuel Joseph Muthamilan	Junior Resident, Department Of General Surgery, Kap Vishwanatham Government Medical College And Mahatma Gandhi Memorial Government Hospital, Evr Road, Puthur Tiruchirapalli 620017, India

ABSTRACT

Introduction: Emergency open right hemicolectomy involves ileocolic resection in an emergency setting without the benefit of preoperative bowel preparation. These operations usually carry a high risk for postoperative complications. However, resection with primary anastomosis remains the standard of care. The aim of our study is to analyze the demographic details, indications, and outcomes of patients undergoing emergency right hemicolectomy in our tertiary care hospital. **Methodology:** A Prospective study conducted on ten cases of emergency right hemicolectomies was done in the General Surgery department, Government Medical College and Mahatma Gandhi Memorial Government Hospital, Tiruchirapalli, Tamil Nadu during the period from September 2020 to September 2022. Clinical history was taken and co-morbid illness was recorded. Radiological investigations like X- rays and Contrast-enhanced computed Tomogram were done for needed cases. Emergency surgery was performed and postoperative clinical outcomes were studied. **Results:** Out of the ten patients, Male to Female ratio was 6:4. The Mean age of the patients was 56 years (Range 16-80). The majority of the procedures were done for acute intestinal obstruction of malignant etiology (n=5;50%). Bowel continuity was primarily restored in 4 patients (n=4;40%). Stoma was done in 4 patients and metastatic liver disease was found in one patient (n=1;10%) with hepatic flexure growth. Surgical site infection was noted in 6 patients (60%). No anastomotic leak was noted. Mortality was found in 4 patients (40%) which was more in the stoma group, mainly due to septic and co-morbid illness like Diabetes mellitus and cardiac disease. **Conclusion:** Most of the patients for whom emergency right Hemicolectomy was done presented with Acute intestinal obstruction with malignant etiology. Blunt injury abdomen with caecal perforation and mesenteric ischemia were other etiological factors. Primary anastomosis following right hemicolectomy proves to be the standard of care even in an emergency setting. Morbidity due to septic complications, length of hospital stay, and mortality were higher in the stoma group because of the associated complications due to their co-morbidities. Mortality in patients with primary anastomosis was due to medical reasons like cardiac complications and not due to procedure per se. Good postoperative care, treatment of concurrent septicemia and co-morbid conditions limit morbidity and mortality to a great extent.

KEYWORDS : Right hemicolectomy, Morbidity, Stoma, primary anastomosis, postoperative complications

INTRODUCTION

Emergency Open right hemicolectomy is a procedure that involves ileocolic resection (removing the cecum, the ascending colon, the hepatic flexure, the first third of the transverse colon, and part of the terminal ileum, along with surrounding fat and lymph nodes) in the emergency setting without the benefit of preoperative bowel preparation. Extended rt hemicolectomy includes the removal of the entire transverse colon along with the splenic flexure. Emergency right hemicolectomy operations usually have a high risk for postoperative complications and mortality, up to 50% and 10% respectively (as compared to 22% and 1% in elective cases respectively) [1]. The determining factors of outcome are various demographic factors, pre-existing malnutrition, high ECOG/ASA score >3, diabetes and another immunocompromised state, duration of surgery, the requirement of blood transfusion, and whether or not bowel continuity is primarily restored [2]. Resection with primary anastomosis remains the standard of care [3]. Even in an emergency surgery setting the prognosis depends on the stage of the disease, the sufficiency of nodal dissection, metastasis, and the requirement for adjuvant therapy (in malignancy). The associated injuries (in trauma) and the presence of fecal peritonitis determine the outcomes of the surgery [4].

This study is conducted to analyze the demographic details, indications, and surgical outcomes in patients undergoing right hemicolectomy in our tertiary care hospital in Trichy.

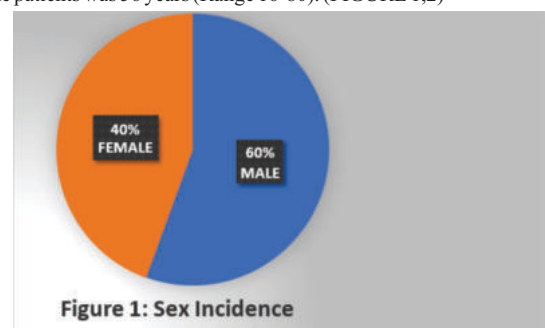
MATERIALS AND METHODS

This study was conducted in the General Surgery department at Mahatma Gandhi Memorial Government Hospital, Tiruchirapalli, Tamil Nadu during the year September 2020 to September 2022. Our

study included ten patients who underwent emergency right hemicolectomy in our surgical unit. Prior approval from the institutional ethical committee was obtained. Demographic details collected. Contrast-enhanced computed Tomograms were done for all cases. Emergency right hemicolectomy was done in all patients either with primary anastomosis or stoma or proximal diversion stoma after the restoration of bowel continuity depending on the general condition of the patient and the presence or absence of sepsis during the time of surgery. Postoperative complications like surgical site infection, wound dehiscence, and anastomotic leak were documented. patients were followed up for a period of 30 days. the outcome of the study was evaluated and analyzed

RESULTS

Out of the ten patients, Male to Female ratio was 6:4. The Mean age of the patients was 56 years (Range 16-80). (FIGURE 1,2)



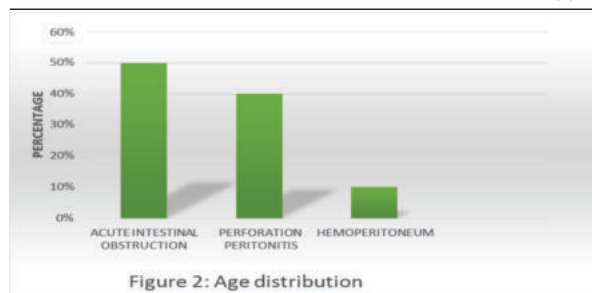


Figure 2: Age distribution

The patient's clinical presentation was of acute intestinal obstruction in 50% of the cases with malignant etiology. In the rest, patients presented as perforation peritonitis or hemoperitoneum with signs of tachycardia and hypotension. (FIGURE 3)

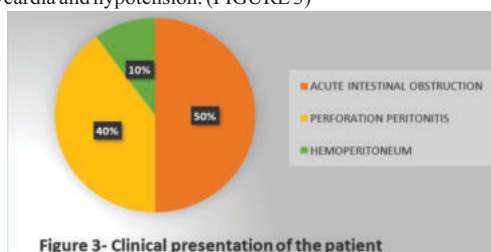


Figure 3- Clinical presentation of the patient

Patients were divided into three groups-(1) Primary anastomosis (end to end, end to side, side to side, and Hand sewn/stapled) (2) Primary split stoma (3) Proximal diversion stoma after the restoration of primary bowel continuity.

The majority of the procedures were done for acute intestinal obstruction (n=5; 50%) for a malignant etiology. For cases of Hepatic flexure growth, an Extended right hemicolectomy was done. The bowel continuity was primarily restored in 50% of the patients (n=5). (TABLE 1)

Table 1- Indications For Right Hemicolectomy

Indication for surgery	Number	Percentage
Malignancy IC junction Caecum	5	50%
Hepatic flexure	2	20%
	2	20%
	1	10%
Benign	3	30%
Ceacal perforation in incisional hernia	2	20%
Mesenteric ischemia	1	10%
Traumatic-Blunt Injury	2	20%
Bull hit (Transverse colon perforation)	1	10%
Self fall	1	10%
Total	10	100%

The surgeries performed were emergency right hemicolectomy with primary anastomosis in 40% of patients. Rest had stoma or primary anastomosis with diversion stoma. (Table 2)

Table 2- Surgeries Performed

Surgery	Number	Percentage
Primary anastomosis	4	40%
Stoma	4	40%
Primary anastomosis with a diversion stoma	2	20%

The range of size of the tumor excised is 4.5-9 cm (in greatest dimension) - All tumors are classified under T3 (AJCC eighth edition). Three (n=3; 30%) of the tumors were moderately differentiated and the remaining two (n=2; 20%) were well differentiated. Most of the tumors involved up to serosa and pericolic issues. One carcinoma of the caecum went on to involve the appendix. The mean number of nodes harvested was 7 (range 5-7). Range of node positivity (0.0 -1.0 ie., N0 to N2a). The average node positivity rate was 0.44. The margins of all the excised tumors were free of tumor invasion. There was no Lymphovascular or perineural invasion in any of the tumors.

Metastatic liver disease was found in one patient (n=1; 10%) with hepatic flexure growth. The morbidity was studied using the Clavien Dindo model. (TABLE 3)

Table 3- Morbidity And Mortality Profile

Factor	Primary anastomosis (4)	Stoma group (6)
Mortality	1(25%)	3(50%)

Wound infection	3(83.25%)	3(50%)
Wound dehiscence	0	0
Postop ileus	2(50%)	2(33.33%)
Anastomotic leak	Nil	Not applicable

Surgical site infection was seen in 6 patients (60%) and post-op ileus in 4 patients (40%). A total of 4 mortalities (40%) were seen and the mortality was attributed to Septicemia and cardiac complications. The average length of postoperative hospital stay was 9 days.

DISCUSSION

In the series of ten cases studied, 50 percent of the procedures (Right hemicolectomy) were done for Acute intestinal obstruction [5]. All cases of Acute intestinal obstruction were found to have Malignant etiology. Four cases presented with perforation peritonitis and one with hemoperitoneum. One was Ceacal perforation in an incisional hernia. One patient had the surgery due to mesenteric ischemia. One for Transverse colon perforation in a traumatic herniation (Table 1). 40 percent of the patients had primary anastomosis irrespective of the etiology, the main determinant factors being the absence of gross contamination, no intraoperative significant fall in BP, and absence of concomitant injuries in cases of trauma [5]. Wound infection was the most common morbidity in both groups and was managed with antibiotics. Mortality was higher in the stoma group (Table 2). Morbidity due to septic complications was higher in the stoma group and the length of hospital stay was also higher because of complications. The same was found in a study done by Teixeira Farinha et al. [1,2]. Ileus was most common in the primary anastomosis group, all of which recovered. There was no anastomotic leak in our cases. The cause of death in the primary anastomosis patient was due to cardiac complications (arrhythmias) [1]. Overall, the most common cause of death was due to Septicemia/septic shock. The average ICU stay was higher in the anastomosis group.

CONCLUSION

Primary anastomosis following Right hemicolectomy proves to be the standard of care [1]. The mortality in the primary anastomosis group was attributed to the co-morbidities and not related to the procedure per se [3]. The high mortality in the stoma group is that the decision to stoma was itself made based on the poor general condition of the patient, severe intraoperative blood loss, need for huge blood transfusion, and high vasopressor requirement which in turn affect the vascularity of the anastomosis if at all performed [1,4]. Several factors including technical difficulties were the deciding factors that depend on the surgeon's judgment on the table [1].

The presence of metastasis does not affect the immediate postoperative survival of the patient [5,7]. An institutional protocol should be formed after analyzing the data with other studies and trials [2,6]. Good postoperative care, the treatment of concurrent septicemia, co-morbid conditions, a margin-free resection, and proper adjuvant therapy can be beneficial in avoiding a stoma that is hard to adjust [8,9,10].

Conflicts Of Interest: There is no conflict of interest

Data Availability

The data used for this work are accessible from the corresponding author upon request.

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