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One Stage ILEO-transverse Colostomy Following Right Hemicolectomy-study of 24 cases

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Abstract
Introduction: *Right hemicolectomy is a common procedure for carcinoma of the right colon, ileocecal tuberculosis with stricture, Crohn's disease, GIST tumor of the ileocecal region, traumatic injury of the right colon, and many other causes which are followed by ileo-transverse anastomosis usually accompanied by defunctioning ileostomy to prevent the development of fecal fistula due to anastomotic leakage. This needs carrying an ileostomy bag for at least three months followed by another operation for ileostomy closure.*
Aim of the study: *The aim of the study was to ensure proper mechanicaland bacterial clearance in a one-stage procedure i.e. right hemicolectomy following ileo transverse anastomosis without defunctioning ileostomy is done. This procedure aims to avoid ileostomy bags and avoid another operation after three months i.e. closure of an ileostomy.*
Methods: *This observational study was carried out in indoor patients of 250 Bed Sadar hospital, Sunamganj, and private clinics of Sunamganj district town who needed right hemicolectomy over an extended period of time- from 2008 to 2020.About 24 patients were operated on for various indications listed below. In case of emergency right hemicolectomy where no time for gut preparation as possible, per operative intestinal decompression, was done prior to anastomosis followed by peritoneal toileting. No defunctioning operation was done in any case. Postoperatively the patientsweregiven nothing orally for at least 72 hours along with nasogastric suction, intravenous fluid for parenteral nutrition and appropriate antibiotics and analgesics followed by sips of water depending on clinical condition i.e. bowel sound, bowel movement, a sign of infection, and gradually shifted to oral feeding over a period of two to three days.*
Result: *Postoperative periods of maximum cases were uneventful except for some minor complications in a few cases e.g. wound infection, fever, paralytic ileus, peritonitis, wound dehiscence which was managed by switching to higher antibiotics and regular dressing followed by secondary suture, etc. No anastomotic failure was found in the present study.*
Conclusion: *Right hemicolectomy with ileo transverse anastomosis in single-stage without defunctioning ileostomy is found safe procedure in this study. Further studies are encouraged to confirm the result.*
Keywords:----------, ----------,

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I. Introduction

There are many situations when right hemicolectomy is needed which involve removal of the caecum, ascending colon, right colic flexure, a proximal third of the transverse colon, and last part of the terminal ileum (about thirty centimeters) along with fat and lymph nodes i.e. portion of gut supplied by the ileocolic and right branch of middle colic arteries. After resection, gut continuity is maintained by anastomosis between the ileum and transverse colon. This anastomosis is defunctioned by diverting gut contents with terminal ileostomy until anastomosis is secure which usually takes about 2-3 months. After this period integrity of the anastomosis is verified by Barium-enema X-ray or distal lipogram before reversal of ileostomy. This needs carrying a colostomy bag externally to collect fecal matter, restriction of diet and activities, and another operation at the end of the period to return to normal bowel continuity. The present study aimed to maintain bowel continuity from the time of operation without any diversion of bowel contents to the exterior so that colostomy/ileostomy

can be avoided. Colonic anastomosis is risky and anastomotic failures are common due to many causes e.g. anatomy of the colonic wall is different from that of the small intestine, vascularity is less in the colon, gut contents in this part of the intestine is less liquid, and bacterial content is high; the anastomotic technique is different, nutritional status of many patients of carcinoma colon is poor and anemia is common. Anastomosis of the small intestine is relatively easier due to its high vascularity, fluidity of bowel content, less bacterial content of the gut in this part, and availability of time-tested two-layer anastomotic technique-inner through and through and outer Lembert's suture and anastomotic failure is very much rare than in colonic anastomosis. In the case of ileocolic anastomosis, anastomosis is between terminal ilium and colon which is less easy and less safe than ileo-ileal anastomosis but easier and safer than colo-colic anastomosis.

II. Objective

General Objective

- To ensure proper mechanical and bacterial clearance in a one-stage procedure

Specific Objectives

- To avoid ileostomy bags and avoid another operation after three months

III. Methods

This observational study was carried out in admitted patients of 250 Bed District Sadar Hospital, Sunamganj, and private clinics of Sunamganj town who needed right hemicolectomy for various indications over a prolonged period of time from 2008 upto 2020. All patients irrespective of age, sex, ethnicity, and religion were included in this study. Patients were explained about the operation needed, informed written consent was taken and probable complications (anastomotic leakage and peritonitis) and advantages (not carrying a colostomy bag and early return to normal diet and activities) were explained.

A total of 31 patients of different indications were enrolled in this study. Seven patients with carcinoma of the right colon were excluded from this study who presented late and the disease was advanced and inoperable for whom palliative ileo transverse anastomosis was made without hemicolectomy. Finally, 24 patients were included in the study.

Inclusion Criteria

- Patients who needed right hemicolectomy for various indications
- Patients who had given consent to participate in the study.

Exclusion Criteria

- Mentally ill.
- Unable to answer the criteria question.
- Exclude those affected with other chronic diseases etc.

IV. Results

The age range of patients was from 2 years upto 77 years. Out of them, 71% were male and 29% were female. 5% were vegetarian and 95% were nonvegetarian. 11 patients suffered from carcinoma of the caecum and ascending colon, 2 patients suffered fromvolvulus of ileocaecal, 3 patients suffered from typhoid ulcer perforation of the extreme terminal part of the ilium, 6 patients suffered from ileocecal tuberculosis with severe stenosis and 3 patients had traumatic rupture or penetrating injury of ascending colon. Emergency patients were resuscitated, dehydration was corrected with appropriate fluid infusion, and anemia was corrected by blood transfusion. Antibiotic prophylaxis was started pre-operatively. Nasogastric suction was started before an operation, the large gut was evacuated with enema simplex on the morning of the operative day. After the operation patients were given nothing to eat for at least 72 hours. After checking bowel sounds, oral feeding with clean water was started from the 4^{th} postoperative day in the maximum patients and gradually shifted to liquid and semi-solid foods over an average of 3 days depending on clinical condition and response to oral feeding. 4 patients had a delay in the return of bowel sounds when oral feeding was also delayed. 3 patients needed a postoperative blood transfusion to correct anemia and keep hemoglobin levels upto acceptable normal value for operation patients i.e. above 10 gm/dl

Table 1: Age distribution of patients

Age of patients	Number of patients	Percentage
0-5 years	2	8
6-20 years	5	20
20-50 years	10	42

Above 50 years	7	30

Table 2: Sex distribution of patients

Sex	Number of patients	Percentage
Male	17	71
Female	7	29

Table 3: Indications of operation

Causes	Number of patients	Percentage
Traumatic perforation	5	20%
Inflammation (typhoid ulcer perforation)	2	8%
Obstruction (volvulus and tuberculous stricture)	6	24%
Neoplastic (carcinoma and GIST tumor)	11	48%

Table 4: Success rate

Number of patients operated	Number of patients cured	Percentage
24	24	100%

Table 5: Recurrence

Indication	Total operated	Recurrence	Percentage
Traumatic	5	0	0%
Inflammatory	2	0	0%
Obstructive	6	0	0%
Neoplastic	11	2	18.18%

V. Discussion

Open right hemicolectomy is the standard surgical treatment for malignant neoplasms of the right colon; the effectiveness of other treatments is measured by comparing with this gold standard technique. Reybord in 1832 recorded his experiences with the treatment of cancers of the colon and reported the first successful resection and anastomosis of the bowel for carcinoma. Kohler performed a second successful resection and anastomosis. Paul and Mikulicz performed exteriorization-resection of carcinoma colon and modified Paul Mikiliczileocolostomy operation by A.S. Gervin et al. Murray JA, et al compared the results of colostomy versus anastomosis after colonic resection in trauma. AM Kariakin et al made an analysis of the nearest and long-term results of treatment of 139 patients subjected to right-sided hemicolectomy with different variants of intertransverse anastomosis. Best results were obtained after end-to-end entero colostomy.Regarding the indications for right hemicolectomy, the causes vary according to the age of the patients. In the early age group of patients, obstruction due to volvulus and malrotation were the common causes. In the young age group traumas (blunt and penetrating) were the common causes. In the middle age group,ileocecal tuberculosis and inflammatory bowel diseases were the common causes and in the elderly patients, malignancy was the common cause of obstruction of the colon which needed excision and anastomosis.Regarding the techniques of anastomosis standard two-layered suturing technique was adopted for anastomosis between terminal ileum and transverse colon--inner through and through and outer seromuscular (Lembart) stitches were made instead of single layer Cushing (no penetration of lumen) or Connell (penetration of lumen) sutures because here anastomosis was between small intestine with high vascularity and large intestine with low vascularity. Interrupted stitches were made with absorbable long-lasting suture material (Dexon or Vicryl) which takes about 90 days to be absorbed by that time anastomosis becomes secure. In the case of carcinoma colon after successful excision and anastomosis, it is rational to follow adjuvant chemotherapy to prevent recurrence irrespective of the stage of the disease. All cases of carcinoma colon in this study were advised adjuvant chemotherapy after successful right hemicolectomy. But all patients didn't receive chemotherapy due to financial causes which may be the cause of recurrence in the patients in this study which could be avoided if standard adjuvant chemotherapy could be provided. Right hemicolectomy was done in case of ileocecal tuberculosis if subacute intestinal obstruction persisted after completion of anti-tubercular chemotherapy in proper dose and duration.

Limitations of The Study

The study was conducted in a single hospital with a small sample size. So, the results may not represent the whole community.

VI. Conclusion

Right hemicolectomy with ileo transverse anastomosis in one stage without defunctioning ileostomy is found safe in this study. This procedure helps to avoid colostomy bag and dietary restrictions for at least 3 months and obviates another operation at the end of this period to return to preoperative state i.e. closure of an ileostomy. More studies are encouraged to support this finding

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Conflict of interest: None declared

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

RECOMMENDATION

The

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