PROTOCOL OF A THESIS FOR PARTIAL FULFILMENT OF MD DEGREE IN GENERAL SURGERY

Title of the Protocol: Primary Anastomosis After Left Colectomy in Emergency Cases: Clinical Trial

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NCT number: IRB 00006373
Approval of the study: 11/2/2024

Faculty of medicine
Ain shams university
2024

What is already known on this subject? AND What does this study add?

Colorectal emergencies are among the most frequent in the field of abdominal surgery [1]. Colon perforation can cause severe sepsis, with subsequent multiorgan dysfunction, but colonic intestinal occlusions or hemorrhages are also clinical scenarios that should not be underestimated, as they might lead to life-threatening conditions for the patient [2]. The principal emergencies related to colorectal diseases are intestinal obstruction, hemorrhage, and perforation. Intestinal obstruction is the most frequent in the literature [4]

Treatment options for emergency cases with left colon pathology are diverse and controversial. Conventionally, primary resection with end stoma formation has been highly preferred to treat emergency left-sided colon presented in an emergency setting[5].Although the operative approach with primary resection with end stoma is considered the safest option due to the absence of anastomotic complications[4], reported cases of primary resection and anastomosis without lavage have appeared in western literature[6]. outcomes of primary resection and anastomosis have been reported to be comparable to those of Hartman Procedure [7,8].

Primary resection and anastomosis for left-sided colonic emergencies is currently gaining acceptance even in the elderly. This is in sharp contrast to the traditional concept of multistage refunctioning colostomy and resection [3,4] However, in some reported series, on-table antegrade irrigation was performed. While decompression may be desirable, there is some evidence that cleaning the colon of fecal matter does not ensure anastomotic integrity [6,9]

The aim of this study is to know the results of primary anastomosis after left colectomy in emergency cases and corresponding to the including criteria regarding early post operative complications as surgical site infection, ileus, incidence of leakage, restoration of bowel movement and hospital stay and late complication as rate of readmission within one month from the time of intervention.

1. INTRODUCTION/ REVIEW

According to the latest global cancer burden data released by the International Agency for Research on Cancer of the World Health Organization in 2020, incidence of colorectal cancer ranks third in terms of incidence among all cancers, accounting for approximately 10% of new cancer cases globally. Moreover, it has escalated to the second leading cause of cancer-related deaths worldwide [1]. Obstruction is one of the most common complications of colorectal cancer. It also constitutes a significant percentage of emergency department admissions [2].

Treatment options for left-sided obstructive colon cancer are diverse and controversial. Conventionally, primary tumor resection with end stoma formation has been highly preferred to treat emergency left-sided colon presented in an emergency setting[5].Although the operative approach with primary tumor resection with end stoma is considered the safest option due to the absence of anastomotic complications[4], the two-stage operation is complex and may significantly reduce patient quality of life, diverting stoma is another operative procedure for damage control in acute left-sided colonic emergency . The formation of a diverting stoma is followed by the second-stage operation of primary tumor resection with or without colostomy closure. Stoma closure can take place at a third stage. [6]Other Reported cases of primary resection and anastomosis without lavage have appeared in Western literature[6] .

Different techniques can be used to perform colonic and rectal anastomosis, namely handsewn, stapled, or compression. The handsewn and stapled techniques are the most commonly used, although associated with the idea that the introduction of foreign materials can injure the intestinal tissue and trigger an inflammatory response [5]. Despite handsewn anastomosis being a traditional technique, stapled anastomosis has become very attractive due to its ease implementation. By its side, compression anastomosis involves the use of devices, such as clips and rings, to perform an end to-end sutureless anastomosis [5].

2. AIM/ OBJECTIVES

The aim of this study is to know the results of primary anastomosis after left colectomy in emergency cases regarding early post operative complications as surgical site infection, ileus, incidence of leakage, restoration of bowel movement and hospital stay and rate of readmission within one month from the time of intervention.

3. METHODOLOGY:

- **Type of Study:** one arm clinical trial following the SPIRIT guidelines
- **Study Setting** This study will be conducted at Ain Shams University Hospitals. Approval of the Ethical Committee and written informed consent from all participants will be obtained.
    - Study period: Our study will be conducted over a period of 12monthes, starting from the date of approval of the protocol by the faculty and the university committee.
    - Study Population

Inclusion Criteria:

1. patient presented to emergency department with Obstructed left colon.
2. Patients age from 18 years old to 80 years old.
3. decision of laparotomy is taken.
4. the intraoperative conditions are favorable to anastomosis (Good vascularity, no sever sepsis, no marked tissue edema, no thickened peritoneum).
5. patient accepted to share in the study.

Exclusion Criteria:

1. Severe diffuse peritonitis (peritoneal thickening, thickened bowel loop, severe Tissue edema and pyogenic membrane)
2. Marked Decreased tissue vascularity due to distension.
3. Irresectable mass
4. Rectal mass
5. Patient who refusing the study.

- **Sampling Method:** convenience sample (according to Inclusion criteria)
- **Sample Size**: 37 patients.
- **Ethical Considerations**

Informed consent: Informed consent from patients who are invited to participate in the research.

Confidentiality: All patients' data is confidential, and they will not be mentioned by name in any published paper.

Right to refuse or withdraw: Patients have the right to refuse joining the research or withdraw at any time without affecting their chances to receive the traditional therapy at any time.

- **Study Interventions**

1. History taking
2. Full examination
3. CBC, Serum Creatinine, Liver enzymes, PT PTT, Virology, ABG, Serum Albumin
4. Ryle in obstructed cases
5. Pelviabdominal ultrasonography
6. Abdominal x ray, pelviabdominal computed tomography
7. Iv fluid
8. Preoperative antibiotic
9. Midline exploration (laparotomy) to the patients who were diagnosed with left colon pathology.
10. Peritoneal lavage
11. Assessment of the peritoneal sepsis, bowel vascularity, bowel edema, bowel distension then resection of diseased part (sigmoid and left colon) and stapled primary anastomosis (stapled using circular stapler 31 or 33) or hand sewn using vicryl 3/0 with second reinforcement interrupted suture using vicryl 3/0).

- **Statistical Analysis**: all data will be recorded, entered, and analyzed cohort study following the SPIRIT guidelines.

4-Referances

1.International Agency for Research on Cancer. Latest global cancer data: cancer burden rises to 19.3 million new cases and 10.0 million cancers. deaths in 2020. https://www.iarc.fr/fr/news-events/latest-global-cancer-data-cancer-burden-risesto19-3-million-new-cases-and-10-0-million-cancer-deaths-in-2020. Accessed 16 Dec 2020.

2.Baer C, Menon R, Bastawrous S and Bastawrous A. Emergency presentations of colorectal cancer. Surg Clin North Am. 2017; 97:529–45.

3. Naraynsingh V and Ariynanayagam DC. Obstructed left colon: one-stage surgery in a developing country. J. R. Coll. Surg. Edinb. 2019; 35: 360 − 1.

4. Poon RTP, Law WL, Chu KW and Wong J. Emergency resection and primary anastomosis for left sided obstructing colorectal carcinoma in the elderly. Br. J. Surg. 2018; 85: 1539 − 42.

5. Neutzling CB, Lustosa SA, Proenca IM, da Silva EM and Matos D (2012) Stapled versus handsewn methods for colorectal anastomosis surgery.

6. Irving AD and Scrimgeour D. Mechanical bowel preparation for colonic resection and anastomosis. Br. J. Surg. 2017; 74: 580 − 1.

7.Banerjee S, Leather AJ, Rennie JA, Samano N, Gonzalez JG, et al. Feasibility, and morbidity of reversal of Hartmann's. Color Dis. 2015; 7:454–459.

8.Dudley HAF, Radcliffe AG and Mcgweehan D. Intraoperative irrigation of the colon to permit primary anastomosis Br. J. Surg. 2019; 67: 80 − 1.

9.Carty NJ and Ravichandran D. The management of malignant large bowel obstruction. Recent Adv. Surg. 2018; 19: 1 – 8.

Research Guidelines

According to EQUATOR Network
(Enhancing the Quality and Transparency Of health Research)

Type of Research (9)	Guidelines
Study Protocol Clinical Trials	SPIRIT
Systematic Review/Meta-analysis	PRISMA
Observational Study	STROBE
Cohort Study	STROCSS
Diagnostic/Prognostic Study	STARD
Case Report	CARE
Clinical Practice Guidelines	AGREE RIGHT
Quality Improvement	SQUIRE 2.0
Animal Studies	ARRIVE

SPIRIT = Standard Protocol Items: Recommendations for Interventional Trials

PRISMA-P = Preferred Reporting Items for Systematic Reviews and Meta-Analyses Protocols

PRISMA = Preferred Reporting Items for Systematic Reviews and Meta-Analyses

STROBE = Strengthening the Reporting of Observational Studies in Epidemiology

STROCSS = Strengthening the Reporting of Cohort Studies in Surgery

STARD = Standards for Reporting Diagnostic accuracy studies

CARE = Case Reports Guidelines

AGREE = Appraisal of Guidelines for REsearch & Evaluation

RIGHT = Reporting Items for Practice Guidelines in Healthcare

SQUIRE 2.0 = Standardsfor QUalityImprovement Reporting Excellence ARRIVE = Animal Research: Reporting of In Vivo Experiments

SPIRIT
STANDARD PROTOCOL ITEMS: RECOMMENDATIONS FOR INTERVENTIONAL TRIALS

SPIRIT 2013 Checklist: Recommended items to address in a clinical trial protocol and related documents*

Section/item	Item No	Item Description
Administrative information		
Title	1	Descriptive title identifying the study design, population, interventions, and, if applicable, trial acronym
Trial registration	2a	Trial identifier and registry name. If not yet registered, name of intended registry
	2b	All items from the World Health Organization Trial Registration Data Set
Protocol version	3	Date and version identifier
Funding	4	Sources and types of financial, material, and other support
Roles and responsibilities	5a	Names, affiliations, and roles of protocol contributors
	5b	Name and contact information for the trial sponsor
	5c	Role of study sponsor and funders, if any, in study design; collection, management, analysis, and interpretation of data; writing of the report; and the decision to submit the report for publication, including whether they will have ultimate authority over any of these activities
	5d	Composition, roles, and responsibilities of the coordinating centre, steering committee, endpoint adjudication committee, data management team, and other individuals or groups overseeing the trial, if applicable (see Item 21a for data monitoring committee)

Introduction

Background and undertaking the trial, including summary of relevant studies (published and unpublished) examining benefits and harms for each intervention	6a	Description of research question and justification for rationale
	6b	Explanation for choice of comparators
Objectives	7	Specific objectives or hypotheses
Trial design	8	Description of trial design including type of trial (eg, parallel group, crossover, factorial, single group), allocation ratio, and framework (eg, superiority, equivalence, noninferiority, exploratory)

Methods: Participants, interventions, and outcomes

Study setting	9	Description of study settings (eg, community clinic, academic hospital) and list of countries where data will be collected. Reference to where list of study sites can be obtained
Eligibility criteria	10	Inclusion and exclusion criteria for participants. If applicable, eligibility criteria for study centres and individuals who will perform the interventions (eg, surgeons, psychotherapists)
Interventions	11a	Interventions for each group with sufficient detail to allow replication, including how and when they will be administered
	11b	Criteria for discontinuing or modifying allocated interventions for a given trial participant (eg, drug dose change in response to harms, participant request, or improving/worsening disease)
	11c	Strategies to improve adherence to intervention protocols, and any procedures for monitoring adherence (eg, drug tablet return, laboratory tests)
	11d	Relevant concomitant care and interventions that are permitted or prohibited during the trial

Allocation:

Sequence	16a	Method of generating the allocation sequence (eg, generation computergenerated random numbers), and list of any factors for stratification. To reduce predictability of a random sequence, details of any planned restriction (eg, blocking) should be provided in a separate document that is unavailable to those who enrol participants or assign interventions

Outcomes	12	Primary, secondary, and other outcomes, including the specific measurement variable (eg, systolic blood pressure), analysis metric (eg, change from baseline, final value, time to event), method of aggregation (eg, median, proportion), and time point for each outcome. Explanation of the clinical relevance of chosen efficacy and harm outcomes is strongly recommended
Participant timeline	13	Time schedule of enrolment, interventions (including any runins and washouts), assessments, and visits for participants. A schematic diagram is highly recommended (see Figure)
Sample size	14	Estimated number of participants needed to achieve study objectives and how it was determined, including clinical and statistical assumptions supporting any sample size calculations
Recruitment	15	Strategies for achieving adequate participant enrolment to reach target sample size

Methods: Assignment of interventions (for controlled trials)

Allocation	16b	Mechanism of implementing the allocation sequence (eg, concealment central telephone; sequentially numbered, opaque, sealed mechanism envelopes), describing any steps to conceal the sequence until interventions are assigned
Implementation	16c	Who will generate the allocation sequence, who will enrol participants, and who will assign participants to interventions
Blinding (masking)	17a	Who will be blinded after assignment to interventions (eg, trial participants, care providers, outcome assessors, data analysts), and how
	17b	If blinded, circumstances under which unblinding is permissible, and procedure for revealing a participant's allocated intervention during the trial

Methods: Data collection, management, and analysis

Data collection methods 18a Plans for assessment and collection of outcome, baseline, and other trial data, including any related processes to promote data quality (eg, duplicate measurements, training of assessors) and a description of study instruments (eg, questionnaires, laboratory tests) along with their reliability and validity, if known. Reference to where data collection forms can be found, if not in the protocol

18b Plans to promote participant retention and complete followup, including list of

any outcome data to be collected for participants who discontinue or deviate from intervention protocols

Data 19 Plans for data entry, coding, security, and storage, including any management related processes to promote data quality (eg, double data entry; range checks for data values). Reference to where details of data management procedures can be found, if not in the protocol

Statistical methods 20a Statistical methods for analysing primary and secondary outcomes. Reference to where other details of the statistical analysis plan can be found, if not in the protocol

20b Methods for any additional analyses (eg, subgroup and adjusted analyses)

20c Definition of analysis population relating to protocol nonadherence (eg, as randomised analysis), and any statistical methods to handle missing data (eg, multiple imputation)

Methods: Monitoring

Data monitoring 21a Composition of data monitoring committee (DMC); summary of its role and reporting structure; statement of whether it is independent from the sponsor and competing interests; and reference to where further details about its charter can be found, if not in the protocol. Alternatively, an explanation of why a DMC is not needed

21b Description of any interim analyses and stopping guidelines, including who will have access to these interim results and make the final decision to terminate the trial

Harms 22 Plans for collecting, assessing, reporting, and managing solicited and spontaneously reported adverse events and other unintended effects of trial interventions or trial conduct

Auditing 23 Frequency and procedures for auditing trial conduct, if any, and whether the process will be independent from investigators and the sponsor

Ethics and dissemination

Research ethics 24 Plans for seeking research ethics committee/institutional approval review board (REC/IRB) approval

Protocol 25 Plans for communicating important protocol modifications amendments (eg, changes to eligibility criteria, outcomes, analyses) to relevant parties (eg, investigators, REC/IRBs, trial

		participants, trial registries, journals, regulators)
Consent or assent	26a	Who will obtain informed consent or assent from potential trial participants or authorised surrogates, and how (see Item 32)
	26b	Additional consent provisions for collection and use of participant data and biological specimens in ancillary studies, if applicable
Confidentiality	27	How personal information about potential and enrolled participants will be collected, shared, and maintained in order to protect confidentiality before, during, and after the trial
Declaration of interests	28	Financial and other competing interests for principal investigators for the overall trial and each study site
Access to data	29	Statement of who will have access to the final trial dataset, and disclosure of contractual agreements that limit such access for investigators
Ancillary and post-trial care	30	Provisions, if any, for ancillary and post-trial care, and for post-trial compensation to those who suffer harm from trial participation
Dissemination policy	31a	Plans for investigators and sponsor to communicate trial results to participants, healthcare professionals, the public, and other relevant groups (eg, via publication, reporting in results databases, or other data sharing arrangements), including any publication restrictions
	31b	Authorship eligibility guidelines and any intended use of professional writers
	31c	Plans, if any, for granting public access to the full protocol, participantlevel dataset, and statistical code

Appendices

Informed consent materials	32	Model consent form and other related documentation given to participants and authorised surrogates
Biological specimens	33	Plans for collection, laboratory evaluation, and storage of specimens for genetic or molecular analysis in the current trial and for future use in ancillary studies, if applicable

*It is strongly recommended that this checklist be read in conjunction with the SPIRIT 2013 Explanation & Elaboration for important clarification on the items. Amendments to the protocol should be tracked and dated. The SPIRIT checklist is copyrighted by the SPIRIT Group under the Creative Commons "Attribution-NonCommercial-NoDerivs 3.0 Unported" license.

Informed consent form for patients who are invited to participate in the research

Research title:

Primary Anastomosis After Left Colectomy in Emergency cases.

Introduction and aim of the work:

According to the latest global cancer burden data released by the International Agency for Research on Cancer of the World Health Organization in 2020, incidence of colorectal cancer ranks third in terms of incidence among all cancers, accounting for approximately 10% of new cancer cases globally. Moreover, it has escalated to the second leading cause of cancer-related deaths worldwide. Obstruction is one of the most common complications of colorectal cancer. It also constitutes a significant percentage of emergency department admissions.

Treatment options for left-sided obstructive colon cancer are diverse and controversial. Conventionally, primary tumor resection with end stoma formation has been highly preferred to treat emergency left-sided colon presented in an emergency setting].Although the operative approach with primary tumor resection with end stoma is considered the safest option due to the absence of anastomotic complications], the two-stage operation is complex and may significantly reduce patient quality of life, diverting stoma is another operative procedure for damage control in acute left-sided colonic emergency . The formation of a diverting stoma is followed by the second-stage operation of primary tumor resection with or without colostomy closure. Stoma closure can take place at a third stage. Other Reported cases of primary resection and anastomosis without lavage have appeared in Western literature.

Different techniques can be used to perform colonic and rectal anastomosis, namely handsewn, stapled, or compression. The handsewn and stapled techniques are the most used, although associated with the idea that the introduction of foreign materials can injure the intestinal tissue and trigger an inflammatory response .

Despite handsewn anastomosis being a traditional technique, stapled anastomosis has become very attractive due to its ease implementation. By its side, compression anastomosis involves the use of devices, such as clips and rings, to perform an end to-end sutureless anastomosis.

The aim of this study is to know the results of primary anastomosis after left colectomy in emergency cases regarding early post operative complications as surgical site infection, ileus, incidence of leakage, restoration of bowel movement and hospital stay and rate of readmission within one month from the time of intervention.

Place of work:

This study will be conducted at (General surgery department), Ain Shams University Hospitals.

Number and selection of participants:

- 37 Patients
- **Study Population:**
- *Inclusion criteria*:

1. patient presented to emergency department with Obstructed left colon.
2. Patients age from 18 years old to 80 years old.
3. decision of laparotomy is taken.
4. the intraoperative conditions are favorable to anastomosis (Good vascularity, no sever sepsis, no marked tissue edema, no thickened peritoneum).
5. patient accepted to share in the study.

Exclusion Criteria:

6. Severe diffuse peritonitis (peritoneal thickening, thickened bowel loop, severe Tissue edema and pyogenic membrane)
7. Marked Decreased tissue vascularity due to distension.
8. Irresectable mass
9. Rectal mass
10. Patient who refusing the study.

Plan of work:

- Patients will be selected according to previously discussed inclusion and exclusion criteria.
- Informed consent will be taken from the patients to participate in the study.

Benefits Expected from the study:

Improvement of patient general condition in one stage surgery instead of multiple stage surgery and avoid colostomy and its complication.
Improvement the patient quality of life

Conducting the consent:

- Personal interview with explanation of the study and its benefits.

Risks and complications:

Complication of general anesthesia or other surgical intervention

Confidentiality:

You will deal in complete confidentiality, and no one has right to read your patient medical information except the main researcher. After the research is complete, you will be informed regarding your patient's research results and further information regarding your patient's health status.

Right to refuse or withdraw:

You have the right to withdraw at any point of the study without any excuses or negative consequences.

Contact information:

Phone number**: Asmaa Ali Zaki**
Main operator**: 01021699220**
Main supervisor**: Prof. Dr/Tarek Yousef**

Certificate of consent:

I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about the procedure and any question that I ask to have been answered with satisfaction.

I consent voluntarily to participate in this study and understand that I have the right to withdraw from the study at any time without, in any way, affecting my medical care.

- Name of the patient:
- Signature of legal guardian:
- Or participant:
- Identify number or fingerprint:
- Date:

I have accurately read or witnessed the accurate reading of the consent to the potential participant. The individual has had the opportunity to ask questions. I confirm that the individual has given consent freely.

- Name of the researcher:
- Signature of the researcher: ● Date:

This proposal has been reviewed and approved by Ethical Committee of Scientific research, which is a committee whose task is to make sure that research participants are protected from harm.

If you wish to find more about Ethical Committee of Scientific research, contact:

- Name:
- Address:
- Telephone number: