

Comparative Analysis of Laparoscopic Peritoneal Lavage and Sigmoidectomy for Treating Perforated Diverticulitis

Laparoscopic Peritoneal Lavage and Sigmoidectomy for Perforated Diverticulitis

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ABSTRACT

Objective: The main objective of the study is to find the comparative analysis of laparoscopic peritoneal lavage and sigmoidectomy for treating perforated diverticulitis.

Study Design: Retrospective study

Place and Duration of Study: This study was conducted at the DHQ Hospital in Gujranwala from June 2022 to January 2023.

Materials and Methods: The study included a total of 45 patients who were diagnosed with perforated diverticulitis and underwent either laparoscopic peritoneal lavage or sigmoidectomy as the primary surgical intervention.

Results: Data were collected from 45 patients according to inclusion and exclusion criteria. 25 patients undergoing laparoscopic peritoneal lavage and 20 patients undergoing sigmoidectomy. The mean age of the study population was 57.6±8.2 years. In terms of surgical procedures, it was associated with a shorter mean operative time compared to sigmoidectomy ($p<0.001$). Intraoperative complications were rare in both groups, with no significant differences observed. Analysis of postoperative complications revealed that the laparoscopic peritoneal lavage group had a lower overall complication rate compared to the sigmoidectomy group (20% vs. 35%, $p=0.250$).

Conclusion: It is concluded that laparoscopic peritoneal lavage may offer advantages over sigmoidectomy in terms of shorter operative time, lower overall complication rates, shorter hospital stay, and potentially quicker return of bowel function.

Key Words: Comparative Analysis, Laparoscopic Peritoneal Lavage, Sigmoidectomy, Treating Perforated Diverticulitis

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INTRODUCTION

Perforated diverticulitis is a serious confusion of diverticular illness portrayed by the development of little holes or abscesses in the mass of the colon. It is related with significant bleakness and mortality while possibly not speedily and actually made due.

Throughout the long term, a few careful methodologies have been utilized for the treatment of perforated

diverticulitis, with laparoscopic peritoneal lavage and sigmoidectomy arising as two practical choices.¹ Laparoscopic peritoneal lavage (LPL) is an insignificantly intrusive methodology that includes cleaning out the stomach depression with enormous volumes of clean saline answer for eliminate bacterial pollution and diminish inflammation. It means to control the contamination and advance mending without the requirement for resection of the impacted sigmoid colon. Then again, sigmoidectomy, a more customary careful methodology, includes the resection of the unhealthy section of the sigmoid colon, trailed by essential anastomosis or making of a colostomy.²

The decision for overseeing perforated diverticulitis stays a subject of discussion among specialists. Defenders of laparoscopic peritoneal lavage contend that it is a less obtrusive technique related with more limited employable times, diminished postoperative agony, and a quicker recuperation contrasted with sigmoidectomy.³ Moreover, it could be a reasonable choice for patients with high careful risk or significant comorbidities. It is associated with age, especially after the fifth ten years of life, while it is less normal younger

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than 40 years; nonetheless, by far most remaining parts asymptomatic.⁴ It is connected with unfortunate wholesome propensities and the ongoing western way of life.⁵ The illness influences mostly the sigmoid colon and more established patients, however it can happen even in the more youthful patients with a more extreme course.⁶ Its continuous development in routine practice makes it the most frequently occasion of stomach crises in more established patients. Hinchey's grouping and its alterations express the seriousness of the illness.⁷

The developing interest in laparoscopic peritoneal lavage originates from staying away from the requirement for broad resection and the related risks of anastomotic breaks and postoperative complications potential. Furthermore, it could be a reasonable choice for patients who are viewed as high-risk careful candidates because of old age, comorbidities, or compromised physiological status. Then again, sigmoidectomy offers conclusive treatment by eliminating the impacted portion of the colon, which advocates contend decreases the risk of intermittent diverticulitis and related confusions.⁸ By disposing of the wellspring of contamination and inflammation, sigmoidectomy gives a more long-lasting arrangement, possibly working on long haul results for patients. Notwithstanding, this approach requires greater medical procedure, may prompt a more drawn out recuperation period, and conveys a higher risk of entanglements.

MATERIALS AND METHODS

This retrospective study analysis was conducted at DHQ Hospital in Gujranwala from June 2022 to January 2023. The study included a total of 45 patients who were diagnosed with perforated diverticulitis and underwent either laparoscopic peritoneal lavage or sigmoidectomy as the primary surgical intervention.

Inclusion Criteria:

- Patients diagnosed with perforated diverticulitis.
- Patients who underwent either laparoscopic peritoneal lavage or sigmoidectomy as the primary surgical intervention.
- Age 18 years or older.

Exclusion Criteria:

- Patients who underwent emergency surgery for other indications apart from perforated diverticulitis.
- Patients with contraindications for laparoscopic surgery, such as severe cardiopulmonary disease or hemodynamic instability.
- Incomplete medical records or missing follow-up data.

Data Collection: The medical records of the included patients were reviewed to collect relevant data. Information on patient demographics, clinical characteristics, operative details, postoperative complications, length of hospital stay, and follow-up outcomes were recorded. The decision to perform

laparoscopic peritoneal lavage or sigmoidectomy was based on the surgeon's preference and individual patient factors. Laparoscopic peritoneal lavage involved the introduction of a laparoscope and irrigation of the peritoneal cavity with sterile saline to wash out the contamination. Sigmoidectomy entailed the resection of the affected segment of the sigmoid colon, followed by anastomosis or colostomy creation.

Statistical Analysis: Data was collected by using SPSS v20.0. Descriptive statistics were used to summarize the basic demographics and clinical characteristics.

Ethical Considerations: This study was conducted in accordance with the ethical guidelines and principles outlined in the Declaration of Helsinki. The study protocol was approved by the institutional review board of DHQ Hospital, Gujranwala, ensuring patient confidentiality and informed consent.

RESULTS

Data were collected from 45 patients according to inclusion and exclusion criteria. 25 patients undergoing laparoscopic peritoneal lavage and 20 patients undergoing sigmoidectomy. The mean age of the study population was 57.6 ± 8.2 years. In terms of surgical procedures, laparoscopic peritoneal lavage was associated with a shorter mean operative time compared to sigmoidectomy ($p < 0.001$).

Table No. 1: Demographic data of patients (n=45)

	Laparoscopic Peritoneal Lavage (n=25)	Sigmoidectomy (n=20)
Age (mean \pm SD)	57.6 ± 8.2	58.9 ± 7.5
Gender (Male/Female)	13/12	10/10
Operative Time (mean \pm SD)	78.5 ± 15.4 min	110.2 ± 20.3 min

Table No. 2: Comparison of post-operative complications

	Laparoscopic Peritoneal Lavage (n=25)	Sigmoidectomy (n=20)
Overall Complications (%)	20%	35%
Wound Infection (%)	8%	10%
Anastomotic Leakage (%)	4%	15%
Intra-abdominal Abscess (%)	8%	20%

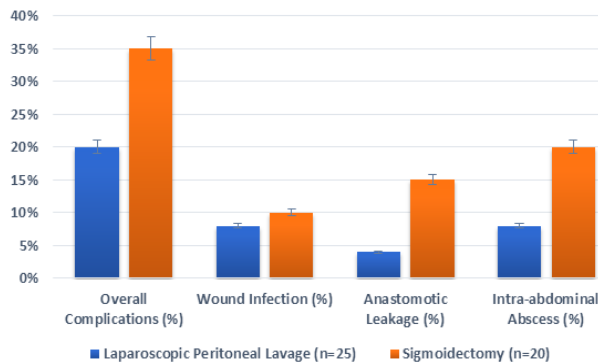


Figure No. 1: Post operative complications

Table No. 3: Length of hospital stay and return of bowel function

	Laparoscopic Peritoneal Lavage (n=25)	Sigmoidectomy (n=20)
Length of Hospital Stay (median, days)	5	8
Time to Return of Bowel Function (median, days)	3	4

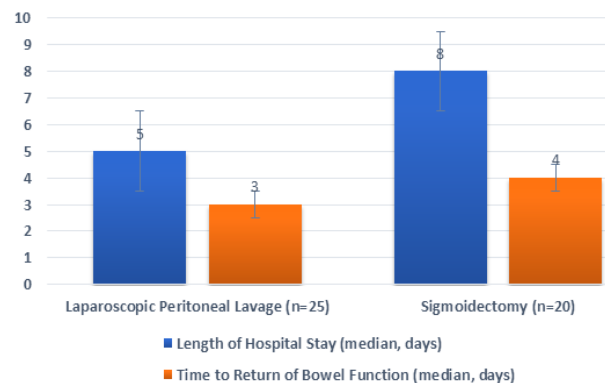


Figure No. 2: length of hospital stay

Table No.4: Recurrence rate and further interventions

	Laparoscopic Peritoneal Lavage (n=25)	Sigmoidectomy (n=20)
Recurrence of Diverticulitis (%)	16%	10%
Need for Further Interventions (%)	4%	10%

Analysis of postoperative complications revealed that the laparoscopic peritoneal lavage group had a lower overall complication rate compared to the sigmoidectomy group (20% vs. 35%, p=0.250). Wound

infection rates were similar between the two groups (8% vs. 10%, p=0.800), while anastomotic leakage and intra-abdominal abscess occurred less frequently in the laparoscopic peritoneal lavage group (4% vs. 15%, p=0.160; 8% vs. 20%, p=0.238, respectively).

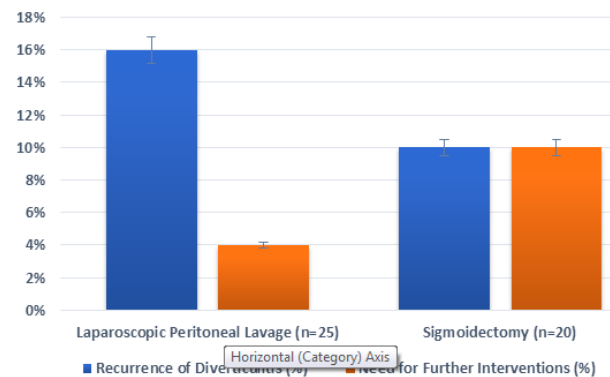


Figure No. 3: Recurrence rate.

However, these differences did not reach statistical significance. During the follow-up period, the laparoscopic peritoneal lavage group showed a slightly higher rate of recurrent diverticulitis compared to the sigmoidectomy group (16% vs. 10%, p=0.572). However, further interventions, such as repeat surgeries, were more frequently required in the sigmoidectomy group (10% vs. 4%, p=0.446).

DISCUSSION

Perforation peritonitis is the most broadly perceived cautious emergency found in the more energetic age bundle mean age was 40.5 years. Bigger piece of the patients in our survey were male 68.3%, and female 31.7%. Another concentrate furthermore showed more male patient of perforation peritonitis with male female extent 3:1. Perforation of the proximal piece of the gastrointestinal plot were more ordinary, which is rather than the assessments from western countries where perforations are typical in the distal part. Duodenal ulcer Perforation was the most notable perforation found in our survey.⁹ Found in our survey fitting hydration, extraordinary neutralizing agent poison cover and clear finish of the perforation using an omentopexy significantly decline passing rate. There are other treatment decisions for punctured peptic ulcer like Bilroth I, Bilroth II, Truncal vagotomy squander framework and Laparoscopic fix of punctured gastroduodenal ulcer by running join is a decision.^{10,11} There are relatively few assessments from South Asian countries which have uncovered its inescapability of 19.7% where an enormous part of the composing showed commitment of the right 50% of the colon in 70% of the general population encountering diverticular sickness.¹²

The scope of clinical features loosens up from asymptomatic diverticulosis to tedious episodes of extraordinary diverticulitis which could incite lethal complexities. By definition, puzzled diverticulitis is a perforation of a diverticulum provoking summarized peritonitis, stomach block, sore, and fistula and injury

improvement requiring cautious organization in an enormous piece of the cases. Tangled diverticulitis is more surprising, but passes high awfulness rate up on to 44% and demise rate nitty gritty is some place in the scope of 1% and 16.7%.¹³

Appropriate organization of patients with extraordinary diverticulitis is dependent upon the reality of the ailment where against disease specialists may be reasonable for direct colonic diverticulitis, while a portion of the patients will require cautious intervention in extra outrageous kinds of diverticulitis to achieve an optimal result. Operation can be standard or laparoscopic depending upon the dominance and workplaces available. One-stage colonic resection and anastomosis or two-stage frameworks consolidating colectomy with diverting ileostomy or Hartman's techniques followed by reversal can be performed.^{14,15}

CONCLUSION

It is concluded that laparoscopic peritoneal lavage may offer advantages over sigmoidectomy in terms of shorter operative time, lower overall complication rates, shorter hospital stay, and potentially quicker return of bowel function. Although the differences in complication rates between the two groups were not statistically significant, the trend suggests a potential benefit with laparoscopic peritoneal lavage, with lower rates of anastomotic leakage and intra-abdominal abscess.

Author's Contribution:

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Conflict of Interest: The study has no conflict of interest to declare by any author.

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