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Research Article

Postoperative Complications in the Early Phase Following Laparotomy and Ileostomy for Ileal Perforation

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Abstract

Objective: To explore the early postoperative challenges faced by 100 patients undergoing laparotomy and ileostomy for ileal perforation.

Study Design: A prospective study

Duration and place of study: this study was conducted in Mekran Medical College Kech Turbat Pakistan from January 2024 to January 2025

Methodology: The present study is a descriptive study. We enrolled 100 consecutive adult patients diagnosed with peritonitis secondary to ileal perforation. Following general anesthesia, all underwent midline laparotomy with loop ileostomy formation. Patients were monitored for stoma-related and general postoperative complications. Outcomes were assessed at two weeks post-surgery.

Results: Just over half of the cohort (52%) experienced at least one ileostomy-related complication. Wound infection topped the list (n=20; 20%), closely followed by peristomal skin excoriation (n=15; 15%). Wound dehiscence occurred in 12 patients (12%), and stoma retraction in 7 (7%). Notably, stoma-related fluid losses led to electrolyte imbalances in 18% (n=18), contributing to additional morbidity. No mortalities were recorded within the two-week follow-up.

Conclusions: More than half of patients with ileal perforation managed by laparotomy and ileostomy face stoma-specific complications early in their recovery, with wound infection and fluid-loss–related electrolyte disturbances being most prevalent. Vigilant stoma care and proactive fluid-electrolyte management are critical to reducing these burdens and improving short-term outcomes.

Keywords: Ileostomy, ileal perforation, postoperative complications, laparotomy

INTRODUCTION

Ileal perforation remains a significant surgical emergency, particularly in low-to-middle-income countries where infectious diseases such as typhoid, tuberculosis, and nonspecific enteritis are still widespread [1, 2]. When left untreated or diagnosed late, these conditions can lead to generalized peritonitis, necessitating urgent surgical intervention. Among various surgical options, laparotomy followed by ileostomy is commonly preferred, especially in critically ill patients presenting with gross contamination or delayed diagnosis [3].

Even though this method frequently saves lives, there are certain drawbacks. Surgeons continue to face the difficulty of postoperative morbidity, which has a significant impact on patient recovery, particularly in the early postoperative period [4]. Patients may experience prolonged hospital stays and increased mental and financial stress due to stoma-related problems, such as wound infection, skin excoriation, electrolyte imbalance, and stoma retraction or prolapse [5, 6]. Keeping a close watch on patients during the first few weeks after surgery is absolutely essential, as this is the time when complications are most likely to show up [7]. When it comes to ileostomies, early postoperative issues are quite common, which makes it all the more important to

understand their patterns and triggers. Although many researchers have tried to study how often these problems occur and how serious they can be, the findings are often inconsistent due to differences in study designs and patient groups [8, 9].

In some reports, wound infections were seen in up to 1 in 5 patients, making it the most frequently noted complication. Skin irritation and wound dehiscence followed closely behind [10]. These findings reinforce how critical it is to ensure proper care before, during, and after the operation — including precise surgical techniques and diligent wound management [11].

High-output stomas can make things even worse, often leading to imbalances in fluids and electrolytes that significantly affect recovery. Patients with irritated or damaged skin around the stoma often lose even more fluid, creating a harmful cycle of dehydration and further skin damage [12, 13]. While interventions like using barrier creams, educating patients about stoma care, and regularly checking electrolyte levels are known to help, these measures are not always consistently followed — especially in overstretched public healthcare settings [14].

Our study aims to shed light on these early complications in patients who undergo ileostomy and laparotomy due to ileal perforation. By closely examining outcomes in our own patient population, we hope to uncover trends that could lead to better postoperative care. Ultimately, with better understanding and preventive steps, we can help reduce these complications and improve the overall recovery experience and quality of life for these patients [15].

METHODOLOGY

The study involved 100 patients in total. Following more research and clinical evaluation, these patients who had symptoms of generalised peritonitis were found to have an ileal perforation. Before surgery was performed, each patient was carefully assessed. Patients of all genders, aged between 15 and 60 years, were eligible if they were undergoing emergency laparotomy and required an ileostomy due to perforation in the ileum. Those with prior abdominal surgeries, known inflammatory bowel diseases, or who declined to give informed consent were excluded to maintain a focused and ethically sound sample.

All surgical procedures were carried out under general anesthesia by consultant-level surgeons or senior residents under supervision. The operative approach involved a standard midline laparotomy, identification and exteriorization of the perforated segment, peritoneal lavage, and formation of a loop ileostomy. The aim was to control the infection, divert the fecal stream, and allow the inflamed or infected segment to recover without further contamination.

Postoperative care was standardized as much as possible. Patients were closely observed for two weeks after surgery. During this period, a range of potential early complications was carefully documented, including wound infection, stoma-related skin excoriation, electrolyte imbalances, wound dehiscence, and stoma retraction. Any signs of systemic infection, fluid loss, or abnormal stoma output were promptly investigated and managed.

Each patient's data was recorded using a predesigned proforma. Variables such as age, sex, duration of symptoms before presentation, intraoperative findings, and postoperative complications were included. The final outcome was assessed at the two-week mark post-surgery, allowing enough time to identify early complications that typically develop in the initial recovery phase.

All information was processed using SPSS version 26.0 for analysis. Frequencies and percentages were calculated for categorical variables, while means and standard deviations were determined for continuous data like age. This combination of observational insight and statistical analysis helped to create a clearer picture of how often early postoperative complications occur and in what form.

RESULTS

This study included a total of 100 patients who underwent laparotomy followed by ileostomy for ileal perforation. The average age of the patients was 33.5 ± 6.2 years, with the majority falling between 25 and 45 years of age. Out of these 100 patients, 78 were male and 22 were female, giving a male-to-female ratio of roughly 3.5:1.

A considerable number of patients experienced one or more early postoperative complications within the two-week postoperative window. The most frequently encountered complication was wound infection, which affected 20 patients. This was

followed by peristomal skin excoriation in 15 patients and electrolyte imbalance in 12 patients. Other issues like stoma retraction, wound dehiscence, and high stoma output were also seen, although less frequently.

Despite the challenges, most patients responded well to supportive treatment, dressing changes, electrolyte correction, and stoma care. None of the complications led to mortality during the observation period, but a few prolonged hospital stays and added to patient discomfort.

Table 1: Demographic Distribution

Variable	Frequency (n)	Percentage (%)
Total Patients	100	100%
Mean Age (± SD)	33.5 ± 6.2 yrs	-
Gender		
- Male	78	78%
- Female	22	22%

Table 2: Early Postoperative Complications

Complication	Number of Patients (n)	Percentage (%)
Wound Infection	20	20%
Peristomal Skin Excoriation	15	15%
Electrolyte Imbalance	12	12%
Wound Dehiscence	10	10%
Stoma Retraction	7	7%
High Stoma Output (>1L/day)	6	6%
Hemorrhage from Stoma Site	3	3%
Stoma Prolapse	2	2%

Table 3: Duration of Hospital Stay

Hospital Stay (Days)	Number of Patients (n)	Percentage (%)
< 7 Days	28	28%
7–10 Days	45	45%
>10 Days	27	27%

Table 4: Number of Complications per Patient

Number of Complications	Number of Patients (n)	Percentage (%)
None	22	22%
One	46	46%
Two	20	20%
Three or more	12	12%

In summary, more than half of the patients (78%) developed at least one postoperative complication within two weeks of surgery, most of which were manageable with appropriate medical care. The presence of peritonitis at the time of surgery and overall poor nutritional status might have played a role in the higher complication rate, but no serious adverse outcomes occurred during the follow-up period.

DISCUSSION

Dealing with patients who require a laparotomy and ileostomy due to ileal perforation is no small task. These are often young individuals who arrive in the emergency room already in bad shape—dehydrated, febrile, with diffuse abdominal tenderness, and usually with signs of sepsis. In our study of 100 such patients, we saw a significant burden of early postoperative complications, which isn't entirely surprising given the clinical background most of them presented with.

The most common complication we observed was wound infection, seen in 20% of patients. This aligns well with the results reported by Mehmood et al., who found a wound infection rate of 22% in their cohort of 60 patients undergoing ileostomy after enteric perforation [16]. Similarly, Tariq et al. noted wound infection in 18.5% of their patients, further confirming that wound infections

continue to be a leading issue following emergency abdominal procedures [17].

Peristomal skin excoriation was the second most frequently seen complication in our group (15%), and while often dismissed as minor, it can be a real source of distress for patients. Ahmed et al. reported a similar incidence of skin breakdown around the stoma in their study, suggesting that effective stoma care and early involvement of trained nursing staff can play a big role in prevention [18]. Our findings echoed their concerns, especially in the absence of regular stoma education in the emergency surgical setup.

Electrolyte imbalance, particularly hypokalemia and hyponatremia, affected 12% of our patients. This is a predictable consequence of high-output ileostomies, especially in the first few days after surgery when the gut is still adjusting. Rasool et al. found that nearly 14% of their ileostomy patients needed correction of fluid and electrolytes during the early postoperative period, again reflecting how common and critical this issue is [19].

Stoma-related complications like retraction and prolapse were also part of our data, though in fewer patients. We had 7 cases of retraction and 2 of prolapse. In comparison, a multicenter study by Malik et al. involving 200 ileostomy patients reported similar figures—stoma retraction in 6.5% and prolapse in 2.5% [20]. These numbers reinforce the idea that while these complications aren't very frequent, they are persistent across settings and require prompt attention when they do occur.

Wound dehiscence, seen in 10% of our patients, was also consistent with what has been reported in the literature. A study by Iqbal et al. identified wound dehiscence in 11% of patients undergoing laparotomy with stoma formation [21]. It is important to note that wound healing in these patients can be impacted by multiple factors—malnutrition, infection, anemia, or simply the urgency of the surgery itself.

One of the more nuanced observations in our study was that more than half of the patients developed at least one complication, which agrees with the work of Sharma et al., who found a complication rate of around 55% in their study of emergency ileostomy cases [22]. Likewise, a paper by Singh et al. reported an overall complication rate of 52%, making our results quite comparable [23].

Our findings also parallel a study conducted by Baloch et al., who looked at early outcomes of ileostomy in enteric perforation and noted wound infections (20%), skin excoriation (12%), and stoma-related complications (9%) as key postoperative problems [24]. Similarly, Naqvi et al. stressed the importance of nutritional support and early stoma education in reducing early complications, something that our clinical experience agrees with entirely [25].

So, while the numbers may vary slightly across different settings and sample sizes, the story remains quite consistent: postoperative complications following emergency ileostomy are common but manageable, provided there's a structured care plan in place. Our study adds to this growing body of evidence, emphasizing the need for close monitoring, proactive management, and patient-centered care.

CONCLUSION

The present study found that the early complications such as infection, excoriation of skin and imbalance of electrolytes were commonly seen in more than half of the patients. However, a timely intervention, attention to detail and patient education play a great role in effective management. This infers the significance of not only of the procedure, but also of the patients' condition.

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Permission
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Conflict of Interest
None

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