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## Prospective Evaluation of Early Post-operative Complications Following Ileostomy: A Single-Centre Observational Study

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**Keywords***Stoma, complications, ileostomy, skin excoriation.***ABSTRACT**

**Introduction:** A stoma is a surgically created opening that connects a part of the body cavity (intestine or urinary system) to the outside. The aim of present study was to study postoperative complications following ileostomy. **Materials and Methods:** This prospective observational study was conducted on patients presenting to Dayanand medical college and hospital, Ludhiana who underwent ileostomy and experienced ileostomy related complications during the period of January 2020 to June 2021. A total 67 patients were included in the study. **Results:** Majority of individuals are male, accounting for 70.1% of the total sample. The most common issues were excoriation (13.4%) and redness (7.5%). At the 1-month follow-up, excoriation was the most prevalent complication (55.2%), followed by redness (7.5%) and stoma retraction (7.5%). By 2 months, excoriation remained the most common problem (47.8%), with other issues like high output stoma (23.9%) and redness (13.4%) also observed. The most common patients requiring ileostomy were the patients with perforation peritonitis secondary to enteric perforation and the commonest were the middle-aged group and the most common complication observed was Skin excoriation. **Conclusion:** The construction of intestinal stoma (ileostomy) accompanies many complications ranging from minor which can be managed conservatively to major which may require exploration. Most common complication observed was skin excoriation and efforts should be made to reduce its occurrence. It's a collaborative effort of the surgeon, enterostomal therapist and patient itself to reduce the morbidity.

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Small bowel stomas (ileostomies) are commonly created as an emergency procedure in patients with bowel perforation, where performing an anastomosis carries a risk of leak; or in patients with bowel obstruction, where there may be a need to protect downstream anastomosis; or as an elective procedure such as in inflammatory bowel disease, familial adenomatous polyposis, radiation enteritis, fecal incontinence, malignancy etc.

**INTRODUCTION:**

A stoma is a surgically created opening that connects a part of the body cavity (intestine or urinary system) to the outside. The word 'stoma' comes from the Greek word which means mouth. Fecal diversion is still a viable treatment option for a variety of gastrointestinal and abdominal problems<sup>1</sup>.

Ileostomy placement can be permanent or temporary. A number of factors are considered when decision is to be made about whether to go straight for primary perforation repair or to go for repair of perforation with proximal stoma formation. These factors include the patient's age, general health, the period between beginning of symptoms and surgery, peritoneal cavity contamination, the number of perforations, unhealthy bowel etc. When primary bowel restoration carries a

risk of anastomotic leak or the development of a fecal fistula, an ileostomy is performed to lower complication rates and allow the patient to get through the acute crisis.

Stoma formation is unfortunately associated with a high incidence of morbidity. When performed appropriately, a patient's quality of life can be improved significantly. Patients with a well-functioning ileostomy are expected to live a normal life with hardly any limits to their lifestyle. When a patient's stoma causes difficulties, the effects on his or her physical and emotional health can be irreversible. The associated morbidity and overall function of an ileostomy are determined by various factors like the ileostomy indication, whether it was made electively or as an emergency.

**MATERIAL AND METHODS:**

Cases with Ileostomy related complications in the department of Surgery, Dayanand Medical College and Hospital, Ludhiana over a period of 1½years, was studied and analyzed statistically.

**Source of Data:**

The study was conducted on patients with ileostomy admitted to the “Department of Surgery, DMC Hospital, Ludhiana” during the period of January 2020 – June 2021

**Inclusion Criteria:**

All Patients were checked for various complications post ileostomy formation during their hospital stay and at the follow ups till the stoma closure Patient undergoing ileostomy as emergency or elective procedure in the department of surgery

**Exclusion Criteria:**

Patients with any other stoma other than ileostomy

**Method of collection:**

All patients presenting to Dayanand Medical College and Hospital requiring ileostomy as an emergency or an elective procedure were included from January 2020 to June 2021. Post ileostomy, these patients were observed for stoma related complications during the hospital stay and at follow up (after 1st month and 2nd month/ till the stoma closure whichever earlier). Records of all the patients were kept in the study proforma and photographs were taken. Patients were observed for stoma related complications.

**Study outcome:**

To study various complications encountered in patients undergoing ileostomy

**Statistical analysis:**

Data was described in terms of range; mean ±standard deviation (± SD), frequencies (number of cases) and relative frequencies (percentages) as appropriate. All

statistical calculations were done using (Statistical Package for the Social Science) SPSS 21version (SPSS Inc., Chicago, IL, USA) statistical program for Microsoft Windows.

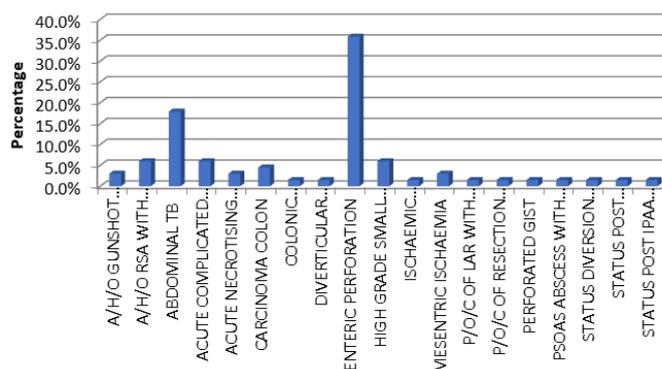
**RESULTS:**

A hospital-based prospective observational study was conducted at Dayanand Medical College and Hospital, Ludhiana, involving 134 patients who underwent ileostomy and developed complications. Majority of individuals fall within the 51-70 years age range, comprising 41.8% of the total sample. Majority of individuals are male, accounting for 70.1% of the total sample. In contrast, female individuals represent 29.9% of the cases. In total, there are 134 cases, with a significantly higher proportion of males compared to females. Demographic Parameter of Patients was given in Table 1.

**Table 1: Demographic Parameter of patients**

Parameters	N	Minimum	Maximum	Mean	SD
Age	134	14.00	86.00	47.55	18.61
Pre operative hb	134	8.10	15.80	11.53	1.60
Pre operative tlc	134	5.00	24.20	11.32	3.82
Preop platelets	134	118.00	457.00	229.67	84.02
Urea	134	10.00	59.00	24.22	8.36
Creatinine	134	0.40	1.57	1.07	0.22
Sodium	134	130.00	148.00	137.59	3.59
Potassium	134	3.00	4.92	3.91	0.36
Chloride	134	90.00	111.00	99.95	5.26
Serum ALBUMIN	134	2.80	4.20	3.53	0.36
Serum .BILIRUBIN	134	0.26	1.70	1.09	0.18

The primary etiology of cases in the sample is diverse, with the most common cause being enteric perforation, which accounts for 35.8% of the cases. The details etiology has given in Figure 1.



**Figure 1: Etiology of cases**

Out of the 134 patients included in the study, 116 patients (86.6%) underwent ileostomy as an emergency procedure, while 18 patients (13.4%) had the procedure

performed electively. Majority of patients underwent loop ileostomy, with 118 cases (88.1%). End ileostomy was performed in 10 cases (7.5%), and double barrel ileostomy in 6 cases (4.5%). In total, there were 134 ileostomies performed across the sample, with loop ileostomy being the most common procedure.

#### Follow up:

**Table 2: Complication**

Complications during the hospital stay	No. of cases	Percentage
None	106	79.1%
Excoriation	18	13.4%
Redness	10	7.5%
Complications On Followup 1st Month		
None	24	17.9%
Excoriation	74	55.2%
Excoriation, redness	14	10.4%
Redness	10	7.5%
Retracted	10	7.5%
Parastomal hernia	2	1.5%
Complications On Follow Up 2nd Month		
None	10	7.5%
Excoriation	64	47.8%
Excoriation, High output stoma	32	23.9%
Excoriation, redness	18	13.4%
Excoriation, redness, Prolapse	2	1.5%
High output stoma	2	1.5%
Redness	6	4.5%
Total	134	100.0%

The study on 134 patients who underwent ileostomy found that most patients (79.1%) had no complications during their hospital stay. The most common issues were **excoriation** (13.4%) and **redness** (7.5%). At the **1-month follow-up**, excoriation was the most prevalent complication (55.2%), followed by redness (7.5%) and stoma retraction (7.5%). By **2 months**, excoriation remained the most common problem (47.8%), with other issues like high output stoma (23.9%) and redness (13.4%) also observed. (Table 1)

#### DISCUSSION:

A prospective observational study was performed on 134 patients who underwent ileostomy formation from January 2020 to June 2021, in the department of Surgery, Dayanand Medical College and Hospital Ludhiana. In the Present study, majority of individuals fall within the 51-70 years age range, comprising 41.8% of the total sample.

This finding is consistent with the study by **Chaudhary et al.**<sup>2</sup>, who observed the highest number of patients in the **31-40 years** age group, with a mean age of **34 years**.

Most of the patients were males (70.1%) with male: female ratio being 2.3:1. Chaudhary et al in his study observed 64% patients were males and 36% patients were females.<sup>2</sup>

the most common being **enteric perforation**, which accounts for 35.8% of the cases, followed by abdominal tuberculosis (TB) at 17.9%. Acute complicated appendicitis, A/H/O RSA with blunt trauma abdomen, and high-grade small bowel obstruction each contribute 6.0% to the total cases.

Study conducted by Chaudhary et al [38] also found enteric fever, abdominal tuberculosis and trauma as primary etiologies in 63.8 %, 17% and 12.8% patients respectively.

58 patients (86.6%) had ileostomy as an emergency procedure while only 9 had it as a planned procedure (13.4 %). Zidda M et al <sup>3</sup> and Sushil Mittal et al<sup>4</sup> also observed that in developing countries, such as ours, ileostomy was frequently performed as an emergency procedure.

#### Type of ileostomy:

Majority of patients underwent loop ileostomy, with 118 cases (88.1%). End ileostomy was performed in 10 cases (7.5%), and double barrel ileostomy in 6 cases (4.5%). In total, there were 134 ileostomies performed across the sample, with loop ileostomy being the most common procedure.

It was seen that rate of loop ileostomy was more in patients with enteric perforation. This can be explained by the fact that as in developing countries like ours, the presentation to hospital is usually late with fully blown peritonitis and septicemia. In such cases, primary repair of perforation carries high risk of morbidity and mortality thus leading to more ostomy formation. Tariq Farooq et al observed in his study that, exteriorization of perforation as loop in cases of enteric ileal perforation yielded the best result in decreasing the rate of morbidity and mortality.<sup>5</sup>

#### Complications:

The most common issues were **excoriation** (13.4%) and **redness** (7.5%). At the **1-month follow-up**, excoriation was the most prevalent complication (55.2%), followed by redness (7.5%) and stoma retraction (7.5%). By **2 months**, excoriation remained the most common problem (47.8%), with other issues like high output stoma (23.9%) and redness (13.4%) also observed.

Study conducted by Persson E et al also showed similar results with an incidence of 73% in his patients.<sup>6</sup>

Another common complication observed was High output stoma. In our study this complication was observed in 10 patients (14.9%) during the hospital stay. Study conducted by Saini et al <sup>7</sup> in and Jonkers et al <sup>8</sup> showed incidence of this complication in 22.5% and 25% patients respectively.

Stoma prolapse was another complication observed in our study with the incidence of 11.9%(n=8) after 1 month and 1.5%(n=1) after 2 months of follow up. Robertson et al<sup>9</sup> observed this incidence as 11% in his study. Stoma prolapse is usually a late complication and can be seen in both loop as well as end ileostomies.

Parastomal hernia is often a late complication. The frequency of hernia was lower in our study and only 1 patient developed this problem. Krishnamurty et al<sup>10</sup> observed in his study that the incidence varied from 1.8 to 28.3% for end ileostomies and 0 to 6.2% for loop ileostomies.

Stoma Stenosis was observed in only 1 patient (1.5%) in our study which was managed conservatively. Parmar et al<sup>11</sup> reported the incidence of this complication in 2% patients. It usually occurs as a result of technical error when either the skin or the fascia is left too tight at the time of surgery. This may even lead to necrosis of the stoma due to compromised blood supply, thus requiring re-exploration. procedure; patient characteristics such as BMI and associated comorbidities.

The consequences of these complications can range from minor inconvenience to life-threatening situations. It is the collaborative approach that is most important, involving doctors, stoma therapists and patient education all playing vital roles. Even with the best approach, a few difficulties are unavoidable which manifest themselves as early and late complications. Stoma problems can have a considerable impact on a patient's quality of life and sense of well-being while also putting a strain on the health-care system. The surgeon must have a thorough awareness of stoma problems and how to treat them. Detail-oriented attention during stoma formation, especially for permanent stomas, can help decrease the morbidity associated with this procedure.

Despite the large number of ileostomies performed worldwide, there is a dearth of data on their complications in the literature. Keeping this in mind, the current study is being designed with the goal of prospectively recording the complications associated with ileostomy formation and determining which ones are the most common.

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