

# Mortality and Morbidity after Colostomy Reversal Among Patients admitted in Surgical Department

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## ABSTRACT

**Objective:** To investigate the mortality and complications related with the temporary colostomy reversal.

**Study Design:** Prospective trail.

**Place and duration:** In the Surgical Unit-II of Jinnah Post graduate medical centre Karachi Pakistan. for one-year duration from May 2020 to May 2021.

**Methodology:** All patients with temporary colostomy who underwent reversal colostomy 3 months and above after primary injury were included in the study, distal bowel examination was done with sigmoidoscopy and Barium study. Preparation of the bowel was carried out with a solution of ORS and one gram of sodium pico-sulfate liquified in one litter of water. The colostomy repair was done in double layers with Vicryl 3/0 suture. All postoperative mortality and complications are studied.

**Results:** A total of 116 patients underwent colostomy reversal within 3 years out of which male were 92 (79.3%) and female were 24 (20.7%), majority were aged between 21–40 years were 74(63.8%) patients. Colostomy was performed in 102 (87.9%) patients with primary colonic Injury and in 14(12.1%) for non-trauma Colonic pathology. 12 patients who underwent reversal of colostomy has developed complication. As a result, the morbidity is 10.3%. One patient expired so the mortality in this study is 0.86%.

**Conclusion:** Colostomy Reversal is safe Surgical Procedure with low mortality and morbidity.

**Key words:** Colon, Colostomy closure, Mortality, Complications

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## INTRODUCTION

There are several types of colostomies: transverse loop colostomy, sigmoid colostomy, the injured intestine exteriorization as a colostomy, and Hartmann's operation; rectal stump closure and end colostomy [1,2]. Temporary colostomy is a surgical tool to divert feces from a distant anastomosis of the intestinal tract because of an injury that is unsuitable for primary repair of the disease [3,4]. The early presentation brings real benefits and saves lives [5,6]. The morbidity and mortality of returning colostomy

are negligible<sup>7</sup>. The solitary disadvantage is that the patient needs a 2nd hospitalization and surgery under general anaesthesia<sup>8</sup>. The goal of this research is to assess our experience and identify mortality rate and complications that may transpire because of the reversal of colostomy.

## METHODS

This prospective cohort study was held in Surgical Unit-II of Jinnah Post graduate medical centre Karachi Pakistan. for one-year duration from May 2020 to May 2021. Patients with temporary colostomy were admitted via OPD the 1-3 days before surgery. The distal bowel barium analysis was performed in all patients prior to

surgery, except where the injured colon exteriorization was completed. Patients undergoing distal anastomosis or colon repair underwent sigmoidoscopy. Patients were given a clear liquid diet the day before surgery. Preparation of the bowel was carried out with a solution of ORS and one gram of sodium pico-sulfate liquified in one liter of water and assessment of serum electrolytes were done. Twelve hours prior to surgery; per rectal, Kleen enema was given. Reversal of the loop colostomy was performed intraperitoneally in two layers with Vicryl 3/0 sutures. The reverse of the Hartman procedure was done via midline incision. The causes, type and site of

temporary colostomy were investigated. Their time when the colostomy was performed, and the reversal time was recorded. All postoperative complications and if any mortality occur from colostomy return were assessed.

## RESULTS

A total of 116 patients underwent colostomy return within 3 years. Most patients were male 92 (79.3%) and 24 (20.7%) were females in and who aged between 21-40 years were 74(63.8%) patients (Table 1).

**Table 1: Shows the distribution of patients according to the age.**

Age	Number of Patient	Percentage
<10 Year	0	0%
11-20 Years	14	12.10%
21-30 Years	42	36.20%
31-40 Years	32	27.60%
41-50 Years	10	8.60%
51-60 Years	6	5.20%
>60 Years	12	10.30%

Colostomy was performed in 102 (87.9%) with primary colonic trauma and in 14 non-trauma patients (12.1%). In the case of trauma, 89 (76.7%) caused by gunshot

injuries and 09 (7.8%) suffered blunt trauma to the abdomen (Table 2).

**Table 2: Shows the causes for colostomy performed.**

Traumatic Causes	102 (87.9%)
Penetrating Injury	
Gunshot	89
Stab wounds	04
Blunt Trauma	
Road traffic Accidents	3
Fall	3
Foreign body in Rectum	3
Non-Traumatic	14 (12.1%)
Anal Stenosis	3
Multiple Fistulae in Ano	1
Rectovaginal Fistulae	1
Carcinoma Descending & Sigmoid Colon	06
Angiodysplasia of Rectum	2
Mesenteric Ischemia of Descending & Sigmoid Colon	01

Most non-traumatic cases are due to colon cancer (5.2%). Colostomy is in 52% of the descending and sigmoid colon, 21% of the ascending colon and 27% of the

transverse colon. The utmost communal colostomy type in 99 cases (84.7%) was the Loop colostomy (Table 3).

Loop Colostomy	99(85.3%)
Double-barrel Colostomy	04 (3.4%)

Colostomy + Mucous Fistula	06 (5.2%)
Hartman's Procedure	7 (6.1%)

Most colostomy reversals were made in about three to six months (78.4%) (Table 4). Nineteen complications occur in total 12 patients who underwent reversal of colostomy. As a result, the morbidity is 10.3%. 8 patients had an infection of the skin wound, which was treated by the stitch's removal; Antibiotics were administered rendering to the report of sensitivity. After cleaning the wound, a secondary suturing was completed. The abdominal complications occur were eight in number. Case of one anastomotic leakage were re-exteriorized were again as a colostomy. In two cases, postoperative intestinal obstruction developed, studied by Gastrograffin follow through, and obstruction of the distal end resulting from a band obstructing the small intestine loop was repaired and the patient was cured.

The pelvic abscess was noted in one patient which responded to aspiration under U/S control. One patient with a wound infection established an incisional hernia which had to be repaired subsequently. One patient develops abdominal cramps and prolonged paralytic ileus in 2 patients. This was achieved by correcting electrolyte imbalance and giving analgesics. A 65-year-old diabetic man, 3 months later, developed peritonitis after reversal of the gunshot abdomen done with sigmoid colostomy, the examination revealed a leakage at the anastomotic site and again re-exteriorized. He had a heart attack after surgery and not recovered by the treatment and expired in the intensive care unit. One patient expired so the mortality in this study is 0.86% (Table 5).

**Table 4: Timing of reversal.**

Less than 3 months	16 (13.8%)
3 - 6 months	91 (78.4%)
More than 6 months	9 (7.8%)

**Table 5: Shows the Morbidity occurs in patients.**

Primary Mortality	
Wound infection	8
Intra-Abdominal Anastomotic Leak	1
Intraabdominal Abscess	2
Intestinal Obstruction	2
Incisional Hernia	1
Prolonged Paralytic Ileus	2
Colicky Abdominal Pain	1
Others	2
Urinary Tract Infection	
Respiratory Tract Infection	1
Deep Venous Thrombosis	1

**DISCUSSION**

Colostomy is performed for traumatic and non-traumatic etiology [7-10]. Most temporary colostomies were performed on young men after penetrating colonic lesions due to the firearm injury. The return of colostomy is an optional phenomenon; The patient was hospitalized 1-3 days before surgery. The case is prepared before surgery by chemical and mechanical methods. Preoperative barium enema and sigmoidoscopy are performed before admission to the hospital to confirm distant pathologies such as pre-regression stenosis and discharge, if necessary. Many factors contribute to the incidence of patients with reversible colostomy [11,12]. These include the surgeon's experience, bowel

preparation, operating time, surgical technique, and colostomy site. The time to return a colostomy is a controversial issue among surgeons. Some advocate the same admission colostomy closure (SACC) as the usual late colostomy closure (CDCC) in selected patients, while others argue that a closed colostomy has a lower complication rate after at least 90 days because the patient has enough time to recover from a catabolic process caused by trauma or a primary illness [13,14]. The patient prefers to close early, as this reduces the cost of the colostomy apparatus and the discomfort associated with the stomach [15]. The advantage of early intervention is that the passage of the formed stool can widen the anastomosis slightly and prevent the

formation of tightness. The return of the colostomy is delayed because it takes time to stabilize the swelling, inflammation, and obstruction. Tissue planes are easier to find during dissection and do not pose a greater risk of colon damage as most surgeons know. It is best to delay the return of the colostomy by 3 months [16,17]. The results show that colostomies that are closed after at least 3 months have a lower complication rate. The stoma is usually closed with 3/0 vicryl in two layers, the first continuous and the second discontinuous. The stoma was successfully reversed using intermittent single-layer sutures [18,19]. A colostomy wound is a potentially infected wound. Traditionally the skin stitches are intermittently closed with internal peritoneum drainage. One study shows that colostomies closed with undrained sutures in the subcutaneous tissue do not increase the incidence of wound infections and have better cosmetic results [20,21]. The complication of loop colostomies at the time of closure appears to follow the division of the stomach and the reversal of Hartmann. The mortality incidence after colostomy is between 10% and 38% [22].

Complications included minor complications such as wound infection, urinary tract infection, intestinal obstruction, respiratory infection, and serious complications such as myocardial infarction, leakage, intestinal obstruction, and cut hernias. In our study, morbidity from colostomy closure ranged from 0% to 5%, mortality rate <1%, and the only patient who died after surgery was because of cardiac ischemia and was not associated with return of lesions.

### CONCLUSION

In this study, the most common indication for a colostomy was found to be penetrating abdominal injuries by the firearm. Loop colostomies are the most common type of colostomy performed. Colostomy reversal is a safe procedure with low morbidity and mortality.

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