

# Outcome of Stapled Closure of Loop Ileostomy

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## ABSTRACT

*Objective* To find out the frequency of complications after stapled loop ileostomy closure.

*Study design* Descriptive case series.

*Place & Duration of study* Surgical Unit-1 Ward 3, Jinnah Postgraduate Medical Centre Karachi, from September 2015 to August 2017.

*Methodology* All patients, above 12 year of age, who underwent loop ileostomy due to tuberculosis, typhoid perforation and trauma were included in the study. Distal loopogram was done in all patients. Stapled anastomosis was performed. Postoperative complications were recorded in a form.

*Results* A total of 114 patients were included in this study. There were 48 (42.1%) females and 56 (49.1%) males. Anastomotic leakage occurred in 2 (1.75%) patients, paralytic ileus in 12 (10.5%), surgical site wound infection in 15 (13.1%) and haemorrhage in 1 (0.87%) patient.

*Conclusion* Stapled loop ileostomy closure was successful in majority of patients with minimal complications rate.

*Key words* Loop ileostomy, Stapled anastomosis, Anastomotic leakage.

## INTRODUCTION:

A loop ileostomy is made for temporary fecal diversion and closed after some period of time.<sup>1</sup> Loop Ileostomy is associated with 21-70% complication rate.<sup>2</sup> Loop ileostomy affects the quality of life and it should be therefore, closed as early as possible. Loop ileostomy closure may give rise to number of complications. Many studies have shown a varying frequency of complications after stoma closure.<sup>3</sup> Reported complication rates of such stoma creation and closure is between 5.7%- 69%.<sup>4</sup>

Surgical site infection and other complications are reported with both the techniques, namely staples

and sutures, however it is widely accepted that staples result in decreased operating time. This is not found in controlled studies. NICE guidelines of 2008, based upon 11 randomized controlled trials in 8 different surgery types, found no evidence of a difference between the two methods of closure in rates of surgical site infection.<sup>5</sup> The rationale of this study was to assess if the outcome of stapled loop ileostomy closure was better than hand sewn loop ileostomy closure, which is still controversial in the literature.

## METHODOLOGY:

This was a descriptive case series conducted in Department of General Surgery ward 3 Jinnah Postgraduate Medical Centre (JPMC) Karachi from September 2016 to August 2017. Patients of loop ileostomy closure were included. Loop ileostomy in these patients was performed due to ileal perforation as a complication of typhoid fever, tuberculous ileal perforation and trauma. All loop ileostomy reversal patients were admitted through OPD after complete treatment of diseases like tuberculosis and typhoid.

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Baseline investigations like chest x- ray, ECG and distal loopogram were performed and anaesthesia fitness taken. In patients with history of trauma and typhoid perforation, loop ileostomy closure was done after three months. For closure of loop ileostomy linear GIA stapler 80mm size, for side to side anastomosis, was used. Postoperative complications like ileostomy leakage, haemorrhage, intestinal obstruction enterocutaneous fistula, paralytic ileus or stenosis, surgical site infections, were noted. Exploratory laparotomy was done in cases with complications like anastomotic leakage and ileostomy was made again. After discharge patients were followed up to three months in the OPD to find out late complications. Descriptive statistics were used to present data which was recorded on SPSS version 20.

**RESULTS:**

A total of 114 patients underwent ileostomy reversal. There were 48 (42.1%) female and 56 (49.1%) male patients. Average age of patients was 26 year. Out of total, 51 (44.7%) patients had loop ileostomy due to typhoid ileal perforation 43 (37.7%) due to tuberculous ileal perforation and 20 (17.5%) due to trauma.

Various complications occurred in 30 (26.3%) patients. Leakage of anastomosis occurred in two (1.75%) patients of which one (0.87%) patient had tuberculous ileal perforation and one (0.87%) patient was of typhoid ileal perforation. Re exploration and ileostomy was made in these two patients. Paralytic ileus occurred in 12 (10.5%) patients of whom eleven patients had loop ileostomy due to tuberculous ileal perforation and in one patient with trauma. All patients were treated conservatively and improved. Details are given in table I.

**DISCUSSION:**

Anastomotic leakage after intestinal anastomosis is the most dreaded complication. Reported incidence of leakage varies in literature.<sup>6</sup> In one study it was 2.7%. Mostly leakage occurs on 7<sup>th</sup> postoperative day and CT scan is found superior investigations in identifying this complication.<sup>7</sup> Patients of anastomotic leakage classically develop agonizing pain, tachycardia, high grade fever and

rigid abdomen accompanied by haemodynamically instability. In these cases urgent return to operating room for peritoneal washout is done and requires faecal diversion. Mortality rate in such condition is reported as 10-15%.<sup>8</sup>

In some patients only symptoms are low grade fever, and prolonged ileus that makes the diagnosis of anastomotic leakage difficult. A patient in this study developed leakage on 7<sup>th</sup> postoperative day. Laparotomy and diversion was done. Another patient was discharged and he developed leakage after 12 days. Re exploration and diversion was done in that patient. Incidence of leakage of anastomosis in this study was 1.75% (n=2). This is low as compared to other studies in literature.

Stapled brand can also affect the anastomotic leakage as leakage with Covidein staples was high as compared to Ethicon staples that may be the cause of low leakage.<sup>8</sup> Other risk factors like site of anastomosis like in colon, age of patient and co morbidity also effect the leakage. Our patients were mostly young adult that may be the reason for good result.

Paralytic ileus is also common complication after ileostomy reversal. Surgical technique of ileostomy reversal, end to end anastomosis without resection, is significantly associated with paralytic ileus.<sup>9</sup> Postoperative complication of up to 40% with ileostomy closure has been reported.<sup>9</sup> In this study paralytic ileus mostly occurred in patients with tuberculosis. There were lot bowel loop adhesions and dissection was extensive. This rate is still lower than other study.<sup>8</sup> This lower rate was due to side to side anastomosis. All patients responded well to the conservative management with fluids and electrolytes replacement.

Patients who underwent stapled anastomosis had low complication rate as with hand sewn closure of ileostomy.<sup>8</sup> Our study also showed less complications because we used linear cutter 80mm -3mm stapler which has widest lumen. Side to side anastomosis less commonly effect the blood supply of gut as compared to end to end hand sewn anastomosis.

<b>Total Patients (n)</b>	<b>Patients with complication n (%)</b>	<b>Anastomotic leakage n (%)</b>	<b>Paralytic ileus n (%)</b>	<b>Hemorrhage of ileostomy n (%)</b>	<b>Surgical Site Wound Infection n (%)</b>
114	30 (26.3%)	2 (1.75%)	12 (10.5%)	1 (0.87%)	15 (13.1%)

Surgical wound infection following ileostomy closure is frequently reported. With the use of staples for skin closure, infection rate of 13% and with interrupted suture closure, infection rate of 15% has been reported.<sup>7</sup> in this study skin infection rate was 13.5% (n=12) as found in other studies. To avoid infection recent study revealed that purse string closure of wound has less rate of wound infection as compared to staples skin closure and interrupted stitches.<sup>8</sup>

One patient developed bleeding from wound site and was re explored. In this case bleeding from mesentery was found. Delay in ileostomy closure is also a risk factor for increased postoperative ileostomy closure complications.<sup>8</sup> In this study more than six months delay occurred because of tuberculosis of intestine as treatment takes long time. Complications were common in patients whose ileostomy was made due to tuberculous intestine.

Intestinal obstruction and faecal fistula formation were not seen in this study. Intestinal obstruction occurred when lumen is narrow. In this study we did side to side anastomosis after resection of the gut. This may be the reason for this observation. Stenosis of lumen as late presentation was also not seen.

#### CONCLUSIONS:

The stapler loop ileostomy closure has less complications rate. It is therefore recommended as a routine procedure.

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#### Author's Contributions:

Bushra Kiran Naeem: Manuscript writing, study design and data collection.

Mazhar Iqbal: Final approval, references and results. Muhammad Iqbal Khan:: Supervision of data collection and conclusion.

Sughra Perveen: Review and discussion writing

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