

Analysis of Stoma Closure and Its Complications and Management**Kumar Shubham¹, Sudhir Kumar², Khurshed Alam³, Ashok Kumar⁴, Sunil Kumar Ranjan⁵**¹Senior Resident, Department of General Surgery, Govt. Medical College and Hospital, Bettiah, West Champaran, Bihar.²Senior Resident, Department of General Surgery, Govt. Medical College and Hospital, Bettiah, West Champaran, Bihar.³Assistant Professor, Department of General Surgery, Govt. Medical College and Hospital, Bettiah, West Champaran, Bihar.⁴Assistant Professor, Department of General Surgery, Govt. Medical College and Hospital, Bettiah, West Champaran, Bihar.⁵Associate Professor and HOD, Department of General Surgery, Govt. Medical College and Hospital, Bettiah, West Champaran, Bihar.

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Abstract**Background:** A stoma is a surgically externalization of the colon or ileum to the front of the abdominal wall. The most common causes of fecal stomas include acute abdominal trauma, carcinoma, and inflammatory bowel disease. A person with a stoma may experience both physical and psychological distress. In accumulation, complications during stoma are very common.**Methods:** The study, which was held August 2025 to January 2026 at the Department of General Surgery, GMCH, Bettiah, West Champaran, Bihar, involved fifty patients. All patients who had stoma closure and satisfied the inclusion criteria made up the study population. Patients of all ages who underwent stoma closure for a non-malignant condition were included in the study. Stoma closure for patients undergoing surgery for cancer, inflammatory bowel disease, or tuberculosis was not included by the study. This study group had a variety of issues, complications with different treatments, and complications with different stoma closure intervals.**Results:** There were less postoperative linked to early stoma closure and intraoperative application of the direct stoma closure technique. By using subcutaneous drain implantation, we can reduce the risk of wound infection and dehiscence.**Conclusion:** Postoperative problems can be utilizing the appropriate technique and closing the stoma at the appropriate time.**Keywords:** Ileostomy, Colostomy, Stoma Closure, Stoma Closure Complications.**DOI:** 10.25258/ijcpr.18.6.52This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.**Introduction**

A stoma is a surgically externalization of the colon or ileum to the front surface of the abdominal wall. Acute abdominal trauma, cancer, and inflammatory bowel diseases including diverticulitis are the most common causes of fecal stomas.[1]

The main purpose of a stoma is decompression or diversion by eliminating any feces, pee, or intestinal effluent. Because they may be either temporary or permanent stomas, they are classified based on necessity. The management of problems that after stoma closure is the focus of our investigation. Difficulties after stoma closure are

caused by a variety of reasons, including the patient's nutritional status, the interval between stoma closures, the kind of stoma closure, etc.[2] Usually, complications are divided into two categories: those that develop within 30 days of the stoma closing and those that develop later, after 30 days. A person with a stoma may experience both physical and psychological distress.[3] In accumulation, complications during stoma are very common. This study will look at complications after stoma closure.

Stoma issues and might differ significantly depending on the socioeconomic or environmental features of different countries or areas. The symptoms of stoma formation, stoma problems, stoma closure challenges, and management strategies are not well studied. The study looks at several challenges that come up following stoma closure and then uses observation-based techniques to try to lessen these consequences.

Material and Methods

From August 2025 January 2026, the Department of General Surgery at the Govt. Medical College and Hospital in Bettiah, West Champaran, Bihar, undertook this clinical prospective observational study. The sample was gathered in accordance with the requirements for inclusion. The study population consisted of all patients who had stoma closure and met the inclusion criteria.

The study covered patients of all ages who had stoma closure for non-malignant conditions.

Patients who underwent surgery for cancer, TB, or inflammatory bowel diseases were not included in the stoma closure study. Patients are chosen in accordance the inclusion criteria (a total sample size of 50). Age, sex, socioeconomic level, reasons of stoma formation, stoma closure time, anastomotic technique, comorbidities, and length of follow-up surveillance following surgery. Standard tests such as loopograms, total protein, S. albumin, and complete hemograms were recorded. Stoma closure was accomplished surgically either by direct stoma closure or by excision and anastomosis. Patients were monitored for stoma complications for 30 days. Frequency and percentage were used to analyze descriptive data.

Results

Our analysis of 50 individuals had undergone stoma closure surgery revealed that the greatest number of patients (n=25) belonged to the 26–50 age range. A total of 25 individuals (50%) between the ages of 26 and 50 had their stomas closed. (Table 1)

Table 1: Age wise distribution of study population

Age (years)	No. of cases	Percentage
<25	11	22%
26-50	25	50%
51-100	14	28%
Mean age (years) = 41.28		

Eight (16%) of in our study were female, and 42 (82%) were male. The population's overall postoperative complication rate is detailed in Table 2.

Table 2: Sex wise distribution of study population

Sex	No. of cases	Percentage
Male	42	84%
Female	8	16%

Of the 50 patients in 24 (48%) had post-operative problems, while 26 (52%) did not. Table 3 describes the various types of problems observed in the study.

Table 3: Total number of populations having post-operative complication (n=50)

Complications	No. of cases	Percentage
Postoperative	24	48%
No Complication	26	52%

Obstruction (41.66%), wound infection wound dehiscence (25%), and the absence of an anastomotic leak following stoma closure were the most frequent problems noted. Table 4 describes post-operative complications in various stoma closure techniques.

Table 4: Post-operative complications noted in study population (n=50)

Complications	No. of cases	Percentage
Obstruction	10	41.66%
Wound infection	8	33.33%
Wound dehiscence	6	25.0%
Post stoma closure anastomotic leak	0	0

Of the fifty twenty-six (52%) received direct stoma closure, while twenty-four (48%) underwent resection and anastomosis. In my study, there were more post-operative problems with resection and anastomosis (a total of 15) versus direct stoma

closure (eight). Obstruction (6), wound infection (4), and wound dehiscence (5) were the most common post-operative complications after stoma closure with resection and anastomosis, while obstruction (4), wound infection (4), and wound

dehiscence (1) were the most common post-operative issues following direct stoma closure.

Table 5 describes the time interval between prior surgery and stoma closure.

Table 5: Post-operative complications noted in study participants depending on type of surgery (n=50)

Type of surgery	Complications			
	Obstruction	Wound infection	Wound dehiscence	Post stoma closure anastomotic leak
Resection and anastomosis	6	4	5	0
Direct stoma closure	4	4	1	0

The highest number of closures our survey was 25 (or 50%). Table 6,7 describes post-operative complications in various interval periods of stoma closure.

Table 6: Interval to stoma closure

Interval to stoma closure (days)	No. of cases	Percentage
31-40	25	50%
41-50	12	24%
51-60	6	12%
61-70	2	4%
>70 days	5	10%
Median time for closure : 46.64 days		

Table 7: Post-operative complications in study population depending upon interval to stoma closure (n=50)

Interval to stoma closure (days)	No. of closure	Obstruction	Wound infection	Wound dehiscence	Post stoma closure anastomotic leak	Percentage of complications
31-40	25	3	4	2	0	36%
41-50	12	2	1	3	0	50%
51-60	6	2	2	0	0	66%
61-70	2	1	0	1	0	100%
>70 days	5	2	1	0	0	60%

Table 8 describes how to manage Of the 24 patients with post-operative complications, 18 (75%) had conservative treatment, while 6 (25%) received surgical treatment. Table 9 illustrates the number of patients with and without drain installation. In our

investigation of 50 patients, the incidence of wound infection (N=2) (4%) and wound dehiscence (N=2) (4%) was lower in those with subcutaneous drain than in those without it (N=6) (12%) and (N=4) (8%).

Table 8: Post-operative complication management in study population (n=50)

Management of Complications	Number
Conservative Management	18
Surgical Management	6

Table 9: Study output in population with drain placement (n=50)

Parameters	Wound Infection n(%)	Wound dehiscence n(%)	No surgical site complications n(%)
With drain	2 (4%)	2 (4%)	19 (38%)
Without drain	6 (12%)	4 (8%)	17 (34%)

Discussion

Our analysis of 50 individuals had undergone stoma closure surgery revealed that the greatest number of patients (n=25) belonged to the 26–50 age range. A total of 25 individuals (50%) between the ages of 26 and 50 had their stomas closed. My study's mean age was 41.28 years, but Poskus et al.'s investigation revealed a mean age of 61.5 years.[4] Pokory et al.'s study revealed a mean age of 56 years.[5] Orlado Baba Yllan et al.'s study revealed a mean age of 46 years.[6]

Rodrigues Oliva Perez revealed a mean age of 56.[7] Asadullah Khan et al.'s study revealed a mean age of 41.5 years.[8] The 50 patients in this study were divided into male and female groups based on their sex. There were 42 (82%) male patients and 8 (16%) female patients in our study. Male: 64.4%, Female: 35.6%, according to Eligijus et al.[4] Male-58% and female-42% were recorded by HeruigPokory et al. [5] Male-56% and female-44% were reported by Paula et al.[9] Male: 58%, female: 42, according to Rubio Perez et al.[7]

Of the 50 patients in 24 (48%) had post-operative problems, while 26 (52%) did not. According to Eligijus et al., the overall complications rate was 18.2%. [4] Pokory et al. reported a total complication rate of 20%. [5] Rodrigo et al. reported a total complication rate of 17.2%. [7] In our investigation of stoma closure, the most frequent problems were obstruction (41.66%), wound infection (33.33%), wound dehiscence (25%), and no patient had an anastomotic leak following stoma closure. Eligijus et al. found an overall complication rate of 18.2%, with bowel obstruction accounting for 6.8%, wound infection for 3%, and anastomotic leak for 2.3%. 18.3% of wound infections and 15% of intestinal obstructions were found in the Kaidar et al. investigation. According to the Asadullah study, there were 8% wound infections, 6% wound dehiscence, 5% blockage, and 1% anastomotic leaks. 13% of obstruction and 13% of wound infection were reported by Rubio Perez et al. Numerous research indicate that wound infection is the most frequently reported complication; yet, in our data, it falls under obstruction. [8] According to the de Paula study, 3.1% of wound infections are the most frequent consequence. [9]

Of the fifty twenty-six (52%) received direct stoma closure, while twenty-four (48%) underwent resection and anastomosis. In my study, there were more post-operative problems with resection and anastomosis (a total of 15) versus direct stoma closure (eight). Obstruction (N=6), wound infection (N=4), and wound dehiscence (N=5) were the trend of post-operative complications after stoma closure with resection and anastomosis. In direct stoma closure, post-operative complications were Obstruction (N=4), wound infection (N=4), and wound dehiscence (N=1). According to a research by Mustafa et al., post-operative blockage is more common with resection and anastomosis than with straight stoma closure, with p values of 0.037 and 0.046, respectively. [10]

he median closure time in was 46.64 days, and the largest number of closures occurred in the 31–40 day interval 25 (50%). According to the Eligijus et al. study, the median closure time was four months. [4]

A 90-day stoma interval was reported by Heruig et al. [5] According to Asadullah Khan et al., 29% of stomas closed in more than three months and 71% of stomas closed in less than three months. [8] According to a research by Chow et al., the median stoma closure time is 109 days. [11] There were more difficulties with late stoma closure in the 61–70 day interval (100%) and fewer complications with early stoma closure in the 31–40 day range (36%). The Menahem et al. investigation found that late closure was more problematic. [12] A study by Thirugnanasambandam Nelson et al. found that the

probability of wound infection was 18% for early stoma closure and 36% for late closure. [13] According to the Sala et al. study, there were greater complications (61%) in late closure and fewer complications (33%) in early closure. [14] Of the 24 patients with 18 (75%) were treated conservatively with medication, while 6 (25%) were treated surgically. According to Rodrigo et al., the overall complication rate following stoma closure is 17.2%, of which 14% are treated medically and 3.2% are treated surgically. [7]

In our investigation of the frequency of wound infection (N=2) (4%) and wound dehiscence (N=2) (4%) was lower in those with subcutaneous drain than in those without it (N=6) (12%) and wound dehiscence (N=4) (8%). According to the Phillip et al. study, complications with wound drains were 17.1%, whereas those without were 28.9%. [15] According to a research by Lauscher et al., patients with drains had 14% of wound infections, while patients without drains had 17%. According to the Turki et al. study, the incidence of wound infection was higher (26.7%) without a drain and lower (20.6%) with one. [16] According to a research by Takkaki et al., the incidence of wound infection was 14.3% without a drain and 38.6% without one. [17]

Conclusion

Stoma closure patients a number of post-operative problems, including obstruction, wound infection, wound dehiscence, and post-stoma closure anastomotic leak. Early stoma closure was associated with fewer post-operative problems.

Post-operative blockage was less likely when the direct stoma closure approach was used intraoperatively. The subcutaneous drain can be used to lower the risk of wound dehiscence and infection. This technique of closed subcutaneous suction drainage is highly recommended for the prevention of wound infection because it has no drawbacks other than patient discomfort and slight drain site pain in the days after surgery. In individuals with stoma closure, the majority of issues can be treated conservatively with medication rather than surgery.

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