Original Article

A Clinical Study of Intestinal Stomas and Its Complications

Sachin Patil[1], Ikram Fareed[1], Om Pramod Kumar Raja[2], Veluri Lakshmi Sharada[3]

[1]Assistant Professor, Department of General Surgery, Vydehi Institute of medical sciences and research centre, Bengaluru, Karnataka, India. [2]Associate professor, Department of General Surgery, Vydehi Institute of medical sciences and research centre, Bengaluru, Karnataka, India. [3]Post Graduate, Department of General Surgery, Vydehi Institute of Medical Sciences and Research Centre, Bengaluru, Karnataka, India.

Abstract

Background: Intestinal stoma is a very commonly performed procedure with a high rate of complications. This study was undertaken to examine the various complications associated with different types of intestinal stomas and their management. **Material and Methods:** Complications were studied in 50 patients undergoing stoma formation at VIMSRC, BANGALORE, from September 2023 to September 2025. Both elective and emergency procedures were included in the study. Data was collected by following up with the patient postoperatively, either by phone or in person. **Results:** Various complications for each stoma type were studied. Complication rates in emergency and elective stoma formation were investigated. **Conclusion:** Stoma formation is associated with a high complication rate. Loop ileostomy is associated with the highest complication rate. Complications were more common during emergency settings. Local sepsis was the most common complication.

Keywords: Stoma, prolapse, parastomal hernia, excoriation, ileostomies, colostomy.

Received: 19 December 2025 **Revised: 02 January 2026** **Accepted: 22 January 2026** **Published: 13 April 2026**

Introduction

Intestinal stomas are surgically created openings that allow gastrointestinal or urinary contents to drain externally through the abdominal wall. Depending on the underlying pathology and segment of bowel involved, stomas may take the form of colostomies, ileostomies, or, less commonly, jejunostomies.[1] Urinary conduits may also be fashioned using an isolated bowel segment.

Although stoma formation is a well-established life-saving procedure, national reporting systems in India provide limited information regarding their incidence, indications, and long-term outcomes.[2,3] Stomas are commonly employed in situations requiring fecal diversion—such as distal obstruction, perforation, traumatic bowel injury, or after major colorectal resections.

Historically, stoma creation has evolved remarkably over the past two centuries—from rudimentary, unhygienic openings to well-constructed, low-visibility, continent stomas made possible by advances in colorectal surgery, enterostomal therapy, and ostomy care systems.[4] Although these advances have been made, the creation of a stoma still has a significant physiological and psychological burden on patients, especially during the period of postoperative adaptation.[5]

Given the wide diversity of indicators and the unpredictability of postoperative outcomes, it is important to evaluate the type of stoma, its associated complications, and how it can be managed systematically. This research aimed to fill this gap by assessing the range of intestinal stomas constructed at our hospital and the complications encountered in clinical practice.

Objectives

1. To determine and classify the various intestinal stomas that were created among the population under study.
2. To assess the indicators that were used clinically to require the formation of stoma.
3. To record the complications of intestinal stomas and provide their management strategies.

Materials and Methods

This prospective observational study included 50 patients who underwent creation of an intestinal stoma at Vydehi Institute of Medical Sciences and Research Centre, Bengaluru. The study was conducted over 24 months from September 2022 to September 2025.

Patient-related and operative data were obtained from medical records, operation notes, and stoma therapy department documentation. Follow-up assessments were performed either in person or by telephone at weeks 1, 6, and 10 postoperatively.

Inclusion criteria

- Adults (≥18 years) of either sex
- Patients providing written informed consent
- Individuals undergoing elective or emergency surgical procedures resulting in intestinal stoma creation

Exclusion criteria

- Patients are unwilling to provide consent

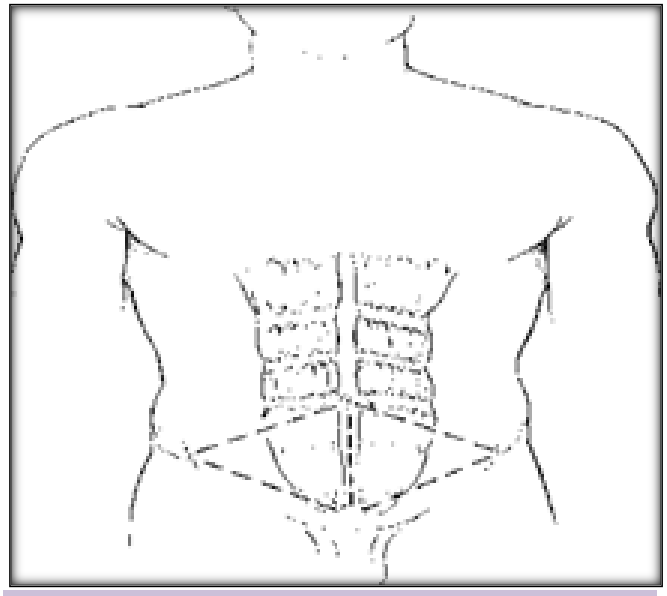
Address for correspondence: Dr. Veluri Lakshmi Sharada, Post Graduate, Department of General Surgery, Vydehi Institute of Medical Sciences and Research Centre, Bengaluru, Karnataka, India
E-mail: lakshmisharada2000@gmail.com

DOI:
10.21276/amit.2026.v13.i1.584

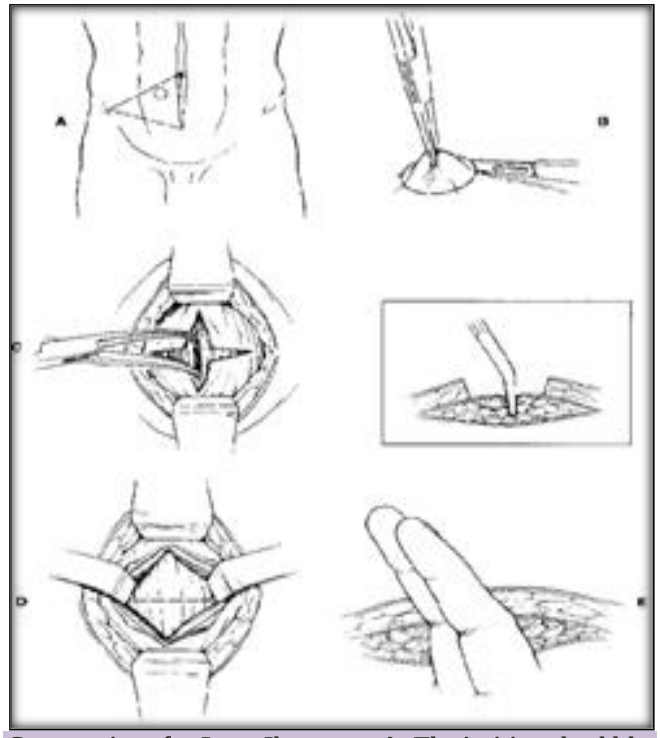
How to cite this article: Patil S, Fareed I, Raja OPK, Sharada VL. A Clinical Study of Intestinal Stomas and Its Complications. Acta Med Int. 2026;13(1):991-994.

- Urinary diversion procedures involving intestinal conduits

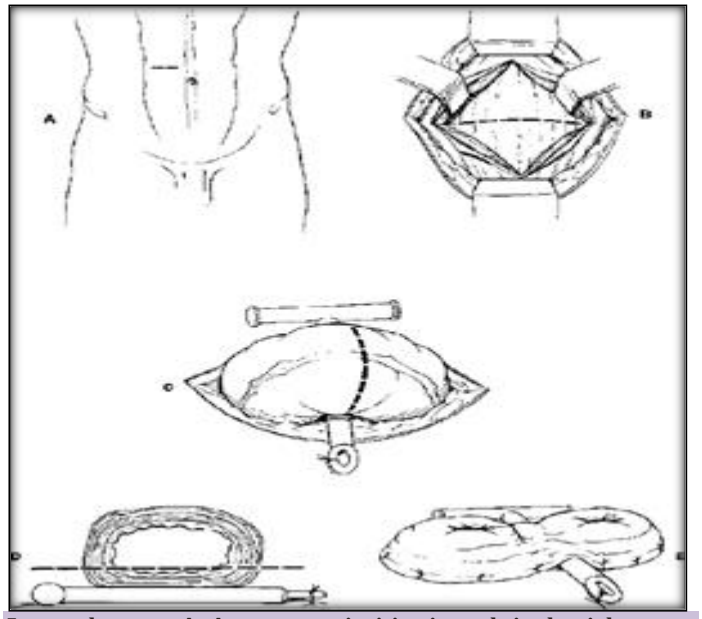
All stoma-related complications were recorded and categorized by timing, stoma type, and underlying disease.



Siting of stoma



Construction of a Loop Ileostomy: A. The incision should be placed within the triangle formed by the anterior superior iliac spine, the umbilicus, and the pubis overlying the rectus sheath. B. A circular skin incision approximately 2 cm in diameter is made. C. A cruciate incision is made in the anterior rectus sheath. A clamp is used to spread the rectus muscle in the direction of its fibers. D. A transverse incision is made in the posterior rectus sheath or the transversalis fascia. E. The opening in the abdominal wall should admit two average-sizefingers.



Loop colostomy. A. A transverse incision is made in the right upper quadrant. B. The rectus muscle is often partially divided to allow for more complete eversion of the stoma. A transverse incision is made in the posterior rectus sheath. C.A supporting rod is placed and then sutured into position. D. The exteriorized loop of colon is opened transversely for about two-thirds of its circumference. E. The loop colostomy is matured primarily with interrupted absorbablesutures.

Results

Skin excoriation

A total of 50 patients were included in the study. The highest representation was from the 31–40-year age group (32%). Males constituted 62% of the study population.

Emergency procedures accounted for the vast majority (98%), with only one elective stoma created during the study period. Perforation peritonitis was the most frequent indication (34%), followed by intestinal obstruction (22%), malignancy (26%), and abdominal trauma (8%).

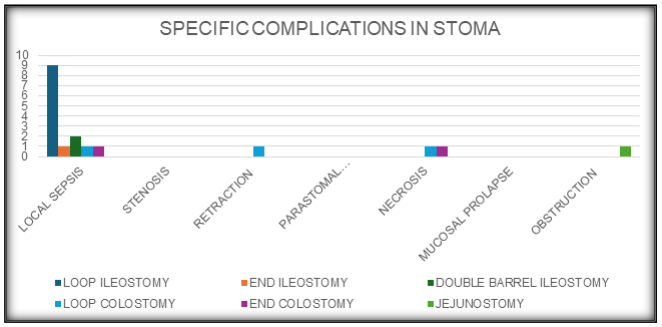
Loop ileostomy was the most commonly constructed stoma type and exhibited the highest rate of postoperative complications. Overall, 18 patients (36%) developed stoma-related complications. Local sepsis was the predominant complication observed. Complication rates were markedly higher in emergency procedures than in elective operations.

Stoma prolapse

Parastomal pyoderma gangrenosum

Table 1: Complication Distribution by Stoma Type

Complications	Local Sepsis	Stenosis	Retraction	Parastomal Hernia	Necrosis	Mucosal Prolapse	Obstruction
Loop Ileostomy	9	0	0	0	0	0	0
End Ileostomy	1	0	0	0	0	0	0
Double Barrel Ileostomy	2	0	0	0	0	0	0
Loop Colostomy	1	0	1	0	1	0	0
End Colostomy	1	0	0	0	1	0	0
Jejunostomy	0	0	0	0	0	0	1



Discussion

The morbidity of postoperative stoma is still a major factor in stoma-related complications. This study found loop ileostomies to have a higher propensity for complications than loop colostomies, whereas a number of published reports show loop ileostomies to be preferable, with a perception of lower complication rates. Various patients, emergencies, and disease severity can cause this variation.

The raising of the stoma was related to much greater morbidity. The given finding is consistent with the prior research, according to which emergency surgery was associated with high overall rates of complication and mortality caused by poor physiology of pre-operation, contamination, and lack of time to mark the stoma site preoperatively.[6,7,8]

Local sepsis became the most prevalent complication, reflecting issues with fecal contamination, high-output ileostomies, and the inability to maintain recognition with appliances.[9,10] Even though the surgical method is one factor, a patient's age, diagnosis, and nutritional conditions greatly affect the outcome, and a surgeon usually cannot influence them.

In summary, this paper highlights the importance of careful surgery, correct stoma placement, early post-surgical surveillance, and patient education as critical to reducing stoma-related morbidity.

Review of Literature

The introduction of an intestinal stoma through surgery has gone a long way during the last 200 years.[11] The earliest recorded history of spontaneously occurring enterocutaneous openings is found in ancient literature, but it was not until the 18th century that stomas were deliberately created with therapeutic intent.[1] The first practices were crude and were accompanied by high morbidity due to a lack of asepsis, inappropriate appliances, and poor knowledge of the physiology of the intestines.[12] With improvements in surgical practice, antibiotic management, and modern ostomy devices, the care of the stoma and patient outcomes have changed.[13]

Stomas have an extensive list of gastrointestinal pathologies,

such as perforation, obstruction, malignancy, trauma, inflammatory bowel disease, and protective diversion as an aftermath of colorectal surgery. The most accepted types are ileostomy and colostomy. The decision can be made based on the location of the disease, whether the patient requires decompression, diversion, or resection, and the patient's overall clinical perspective.[13,14,15]

In the published literature, the occurrence of stoma-related complications is very wide, with rates reported as low as 20 percent and as high as 70 percent.[16,17,18] Some of the early complications are necrosis, ischemia, retraction, mucocutaneous separation, high-output stoma, and bowel obstruction.[19,20] Prolapse, parastomal hernia, stenosis, skin irritation, and psychological distress are common to the late complications. The evidence has always indicated that emergency stoma surgery is connected with increased morbidity related to the unhygienic operation areas, haemodynamic instability, and no indication of the preoperative stoma location.[21,22]

Loop ileostomies, though commonly used as a diversion method, often result in fluid-electrolyte disturbances, high-output states, and peristomal skin problems. Loop colostomies can be associated with prolapse, especially at the outer end. End stomas have their own advantages, which are technically easier, but also have drawbacks, such as retraction and parastomal hernia.[22,23]

Various research articles focus on identifying how preoperative stoma location and postoperative enterostomal therapy minimize complications.[22,23,24] The participation of skilled stoma care personnel has been found to enhance discourse on appliance fitting, reduce skin-related issues, and improve patient integration. The adoption of surgical measures, including stoma removal through the rectus muscle, prevention of skin folds, maintenance of sufficient blood flow, and correction of mucocutaneous fixation, is the key factor for successful long-term results.

Despite the advancement of techniques, stoma-related morbidity has been a clinical problem. According to quality-of-life studies, patients tend to suffer severe effects physically, emotionally, and socially.[1,23,24] Therefore, it is critical to understand the patterns of complications and the practices to implement to prevent and control them, achieving better results.

Conclusion

Creation of intestinal stomas is still a life-saving operation, which has a significant chance of developing postoperative complications, particularly in an emergency. The most robust stomas were loop ileostomies, which had the highest complication rates, and the most common unfavorable outcome was local sepsis. By bolstering preoperative planning as much as possible, maintaining careful operative practice, and providing regular stoma care, these measures can significantly minimize morbidity and enhance patient recovery.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Dinnick T. The origins and evolution of colostomy. Br J Surg. 1934;22:142–153.
2. Paul FT. A method of performing inguinal colostomy with case reports. Br Med J. 1891;2:118.
3. Lund FB. The value of enterostomy in selected cases of peritonitis. JAMA. 1903;41:74–80.
4. Kock NG. The continent ileostomy. Progr Surg. 1973;12:180–201.
5. Tang CL, Yunos A, Leong APK, Seow-Choen F, Goh HS. Early postoperative ileostomy output patterns. Br J Surg. 1998;82:607–608.
6. Ladas SD, Isaacs PE, Murphy GM, Sladen GE. Ileal function in adapted ileostomy patients. Gut. 1986;27:906–912.
7. Hulten L, Kewenter J, Persson E, Ahren C. Vitamin B12 absorption after ileostomy for ulcerative colitis. Scand J Gastroenterol. 1970;5:113–116.
8. Kramer P. Impact of sodium load on ileal excreta in ileostomy patients. J Clin Invest. 1966;45:1710–1718.
9. Soybel DI. Physiologic adaptation following ileal diversion. Surgery. 2001;129:123–127.
10. Huber F-X et al. Renal and adrenal effects following restorative proctocolectomy. Dis Colon Rectum. 1999;42:1318–1324.
11. Pearl RK, Prasad ML, Tan AB. Loop stomas: indications and management. Semin Colon Rectal Surg. 1991;2:2–10.
12. Fazio VW. Complications of intestinal stomas. In: Ferrari BT, Ray JE, Gathright JB, editors. Complications of Colon and Rectal Surgery: Prevention and Management. Philadelphia: Saunders; 1985. p. 227–250.
13. Makela JT, Turku PH, Laitinen ST. Late complications of stomas: a retrospective analysis. Ann Chir Gynaecol. 1997;86:305–310.
14. Allen-Mersh TG, Thomson JPS. Surgical management of colostomy complications. Br J Surg. 1988;75:416–418.
15. Gauderer MW, Izant RJ Jr. Temporary management of colostomy prolapse in children. J Pediatr Surg. 1985;6:20.
16. Abulafi AM, Sherman IW, Fiddian RV. Modified Delorme's procedure for prolapsed colostomy. Br J Surg. 1989;12:76.
17. Carne PW, Robertson GM, Frizelle FA. Parastomal hernia: incidence and management. Br J Surg. 2003;90:784–793.
18. Rubin M, Schoetz D, Matthews J. Comparison of stoma relocation vs fascial repair. Arch Surg. 1994;129:413–419.
19. Cheung MT. Complications of abdominal stomas: analysis of 322 cases. Aust N Z J Surg. 1995;65:808–811.
20. Harris DA, Egbeare D, Jones S, et al. Complications and mortality associated with stoma formation. Ann R Coll Surg Engl. 2005;87:427–431.
21. Bafford AC, Irani JL. Management and complications of stomas. Surg Clin North Am. 2013;93:145–166.
22. Samhouri F, Grodsinsky C. Morbidity and mortality after colostomy closure. Dis Colon Rectum. 1999;22:312–314.
23. Edwards DP et al. Comparative complication rates: transverse colostomy vs loop ileostomy. Br J Surg. 2001;88:360–363.
24. Stothert JC, Brubacher L, Simonowitz DA. Complications of emergency stoma formation. Arch Surg. 1992;117:307–309.