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IS IT SAFE TO REPAIR AN INCISIONAL HERNIA ALONG WITH STOMA CLOSURE? AN UNSOLVED MYSTERY – A PRELIMINARY STUDY.

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Authors: Durgesh Goyal [1], Shelly Goyal [2], Anand Rai bansal [3], Tapan SAhu [4]
[1] Senior resident, department of general surgery, PGIMS, Rohtak.
[2] Senior resident,department of anaesthesia, PGIMS, Rohtak.
[3] Senior professor, department of general surgery, PGIMS, Rohtak...
[4] Junior resident, department of general surgery, PGIMS, Rohtak.

Corresponding author:
Durgesh Goyal , PGIMS Rohtak, (124001) Haryana, India.
Email: dkgoyal9696@gmail.com Contact no. +917015813740.

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Abstract

Background: Incisional hernias frequently develop after abdominal surgeries, especially in patients with stomas, due to increased intra-abdominal pressure and impaired wound healing.
Objective: To assess the safety and efficacy of simultaneous incisional hernia repair during stoma reversal.
Methods: Twenty patients undergoing stoma reversal with concurrent primary repair of midline incisional hernias were included. Selection criteria involved the absence of active infection and medical suitability for a one-stage procedure. Postoperative outcomes, including complications and wound healing, were monitored.
Results: No anastomotic leaks occurred. Twelve patients recovered uneventfully and were discharged by postoperative day 7. Minor wound discharge was observed in four patients, and localized collections appeared in three, all managed conservatively without fascial dehiscence. One patient developed a small fascial dehiscence, resolved with non-surgical management.
Conclusion: Simultaneous stoma reversal and incisional hernia repair is a safe and effective option in appropriately selected patients, with low complication rates and favorable recovery.

Keywords : Peritonitis, Hernia, Surgical Stoma .

Introduction

Incisional hernias are a common postoperative complication, particularly following abdominal surgeries involving midline incisions. Their incidence is notably higher in patients with stomas due to increased intra-abdominal pressure, altered anatomy, and wound healing challenges[1]. Typically, the repair of an incisional hernia and stoma reversal are approached as staged procedures**,** with hernia repair delayed to minimize the risk of infection and recurrence. However, there is growing interest in performing a primary repair of the incisional hernia at the time of stoma reversal, offering potential benefits such as reducing the need for a second operation, shortening overall recovery time, and improving patient outcomes[2].

Despite these advantages, combining the two procedures requires careful patient selection and meticulous surgical technique, as the risk of wound complications and hernia recurrence remains a significant concern. This study explores the rationale, technical feasibility, and outcomes particularly wound infections and recurrence associated with primary midline incisional hernia repair performed concurrently with stoma reversal with the to provide practical insights for optimizing surgical management in these complex cases.

Materials and Methods

This is prospective observational case series study which included a total of 20 patients who underwent stoma reversal with concurrent primary repair of a midline incisional hernia at our institution [2023-2024]. All patients had previously developed midline burst abdomen following initial laparotomy for perforation peritonitis, resulting in incisional hernia formation. All patients were of lower middle class with age (40-65 years). Sample size was determined by case availability meeting inclusion criteria (no formal power calculation, typical for exploratory case series). All procedures were performed by the surgical head and a senior resident standardizing operator expertise to minimize bias from varying skill levels.

Inclusion Criteria:

Patients with end ileostomy or end colostomy planned for reversal with restoration of bowel continuity.

Presence of a midline incisional herniasecondary to prior burst abdomenin addition to a stoma.

Patients medically fit for a single-stage procedure involving both stoma reversal and hernia repair.

Absence of active infection at the stoma site or abdominal wall.

Exclusion Criteria:

Patients with loop ileostomy or loop colostomy, as these were closed through local skin incisions without midline access.

Patients with active wound infection or peristomal skin infection at the time of planned surgery.

Patients requiring emergency surgery or those with severe comorbidities precluding simultaneous repair.

Patient Distribution:

The patients undergoing exploratory laparotomy were mostly having perforation peritonitis secondary to typhoid, tuberculosis, sharp weapon injuries or bowel obstruction leading to gangrene.A significant common factor was late presentation with altered biochemical parameters amongst these patients.

8 patients had an end ileostomy with planned ileo-ileal anastomosis.

6 patients had an end ileostomy with planned ileo-transverse anastomosis.

6 patients had an end colostomy with planned colo-colic anastomosis.

All patients underwent preoperative clinical and radiological assessment in the form of dedicated USG and CECT Abdomen to evaluate the size of the hernia defect and plan surgical intervention. The stoma reversal and primary hernia repair were performed in a single-stage procedure under general anesthesia

Surgical Technique

All patients underwent surgery under general anesthesia with the patient positioned supine. Formal consent taken from each patients. Following meticulous dissection, the stoma with coexisting incisional hernia sac was carefully mobilized and bowel was freed from adhesions to allow safe resection of the stoma and preparation for anastomosis.

All anastomoses were created using a single-layer continuous suture technique with Vicryl 3-0on a round-bodied needle, ensuring a secure, tension-free, and watertight bowel connection.

For the incisional hernia repair, the subcutaneous tissues were carefully dissected off the anterior rectus sheath to fully expose the fascial defect. The hernia sac contents were reduced, and the fascial edges approximated primarily using a continuous running suture with PDS No. 1 loop, chosen for its strength and prolonged absorption profile.

In two patients, the fascial defect was closed with interrupted sutures based on the size and tension at the repair site. Additionally, anterior component separation was performed in four patients to facilitate tension-free closure of larger or more complex hernia defects, allowing medial advancement of the musculofascial layers. None of the patients were subjected to mesh repair because of fear of contamination by gut bacteria therefore a standardized anatomical repair was choosen for all hernia repairs.

Hemostasis was meticulously secured, and drains were placed as necessary before layered closure of the subcutaneous tissue and skin.

Image 1: Stoma with incisional hernia

Postoperative Care

All patients received prophylactic antibiotics perioperatively, which were continued postoperatively for infection prevention. Antibiotic therapy was tailored based on the clinical course but typically continued for 3 to 5 days.

Daily care included meticulous management of surgical dr

ains with routine monitoring and drain site hygiene to prevent infection. Drains were inspected and cleaned regularly, and output was recorded until removal criteria were met. Wound dressings were changed daily under aseptic conditions to ensure clean and dry incisions, promoting optimal healing and early detection of any signs of infection.

Patients were started on oral intake typically on the third postoperative day, following assessment of bowel function and absence of complications such as ileus or anastomotic leak.

Observations

No statistical tests were applied in this prospective observational case series, as is standard for small non-comparative studies where descriptive statistics suffice due to lack of a control group or hypothesis testing. Outcomes were reported as frequencies and proportions without inferential analysis

There were no instances of anastomotic leakage among the 20 patients who underwent stoma reversal with simultaneous primary repair of midline incisional hernia.

A majority of patients (12/20) experienced an uneventful postoperative course and were discharged by postoperative day 7 without any wound-related complications.

4 patients developed minimal wound discharge(upto 1 gauze piece soakage in 24 hrs) which was managed conservatively, resulting in discharge on postoperative day 9. In 3 patients, localized collections were noted at the wound site. These were successfully managed by removing skin sutures at the lower aspect of the wound followed by regular wound irrigation. Importantly, none of these cases exhibited fascial dehiscence.

One patient experienced a fascial dehiscence measuring 2–3 cm, which was managed non-operatively and healed satisfactorily by secondary intention without further surgical intervention

Overall, the postoperative outcomes demonstrated a low rate of complications with effective management of minor wound issues and preservation of fascial integrity in

most cases. All the patients were strictly followed up for a period of 9 months and observed for any wound related complications and hernia recurrence.

Table I: Depicting post operative outcome.

Outcome	Number of Patients	Day of discharge
No wound complications	12	7
Minor wound discharge	4	9
Collection at wound site	3	11
Fascial (sheath) dehiscence	1	15

Image 2: showing minimal fascial dehiscence

Image 3: post operative stitch abscess

Table II: Surgical out come

Parameter	This Study (n=20)	Simultaneous Repair (Refs 2,5,6)	Stoma Reversal Alone (Refs 3,4)	Primary Suture Repair (Refs 1,7,13)	Key Findings/Statistics
Anastomotic Leak Rate	0% (0/20)	10-22%	2-5%	N/A	OR 4-9 (p<0.01)
Overall Complication Rate	40% (8/20, minor)	40-60%	20-30%	30-50%	OR 24
Fascial Dehiscence	5% (1/20, no reop)	10-20%	5-10%	1-5% (midline)	p=0.01-0.05
Median LOS (days)	8 (7-15)	9-14	5-8	7-10	p<0.001
Reoperation Rate	0%	10-29%	5-18%	5-15%	Lower in selected cases
Hernia Recurrence (short-term)	0% (9 mo)	10-25%	N/A	20-30% (3 yr)	Suture vs. mesh
Mesh Use	None (primary)	Variable (synthetic/bio)	N/A	Mesh ref: 10-20% recur	Primary viable in small defects

OR: odds ration

Discussion

The management of incisional hernias during stoma reversal poses a significant surgical challenge due to the complexity of combined procedures and the risk of postoperative complications. In our study of 20 patients undergoing stoma reversal along with primary repair of coexisting midline incisional hernia, the outcomes were

encouraging showing no recurrence of hernia and acceptable rates of wound complications. Anastomotic leak is one of the most feared complications following stoma reversal, with reported incidences varying between 3% and 10% depending on patient factors, surgical technique, and timing[3,4]. Our cohort demonstrated no anastomotic leaks, which may be attributed to meticulous surgical technique, patient selection, and the staged nature of the procedure, consistent with the findings of Parthasarathi et al. who reported reduced leak rates with staged approaches[5]. Also wound complications remain a significant concern following combined stoma closure and hernia repair. In this series, 12 patients had an uneventful recovery with discharge by postoperative day 7, which aligns with the expected hospital stay reported in the literature[6]. Minor wound discharge was seen in 4 patients, and 3 patients developed localized wound collections which was managed conservatively. These rates are consistent with prior reports indicating wound complication rates between 15% and 30% after incisional hernia repair[7,8].

Our conservative management with irrigation and partial suture removal in patients with collections is supported by the work of Bellows et al. who showed that early intervention in wound collections prevents progression to deep infection and fascial dehiscence[9].

Only one patient experienced fascial dehiscence (2–3 cm) which healed by secondary intention without surgical intervention. This finding supports conservative management of limited fascial disruptions, as suggested by Atema et al. who advocated non-operative management in select patients with small dehiscences, avoiding the morbidity associated with reoperation[10].

In 4 patients, anterior component separation was employed to achieve tension-free closure. This technique has gained widespread acceptance for complex midline hernias where primary fascial closure is challenging[11,12]. Our results concur with those studies that demonstrate reduced recurrence and wound complication rates with tension-relieving component separation, reinforcing its role in hernia repair during stoma reversal.

The continuous fascial closure using PDS No.1 loop suture is supported by evidence favoring long-lasting absorbable sutures that provide durable strength and reduce the risk of early suture failure[13]. The decision to use interrupted sutures in two cases was based on

intraoperative assessment of tissue quality and tension.

Conclusion

Primary repair of midline incisional hernia during stoma reversal can be safely performed without significantly increasing the risk of anastomotic leak. The postoperative wound complications observed in the case series were manageable with conservative or minimally invasive measures. The use of component separation and durable suturing techniques is essential for optimizing outcomes.

However, these results should be interpreted with caution given the limited sample size and the absence of long-term follow-up on hernia recurrence. Larger, controlled studies are warranted to better define patient selection criteria and surgical strategies.

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Authors' contributions:
1. Durgesh Goyal , 2. Shelly Goyal , 3. Anand Rai bansal , 4. Tapan SAhu
Concept and Design: 1, 3
Data Collection and Analysis: 2,4
Responsibility for Statistical Analysis: 2
Writing the Article: 1, 3,4
Critical Review: 1, 3
Final Approval of the Article: 1, 2

Each author believes that the manuscript represents honest work and certifies that the article is original, is not under consideration by any other journal, and has not been previously published.
Availability of Data and Material: The corresponding author is prompt to supply datasets generated during and/or analyzed during the current study on wise request.

References

1.Stabilini, C., Garcia-Urena, M. A., Berrevoet, F., et al. (2022). An evidence map and synthesis review with meta-analysis on the risk of incisional hernia in colorectal surgery with standard closure. Hernia, 26(2), 411-436. https://doi.org/10.1007/s10029-021-02555-w
2. Olona C, Sales R, Caro-Tarragó A, Espina B, Casanova R, Jorba R. Simultaneous treatment of complex incisional hernia and stoma reversal. J Abdom Wall Surg. 2023 Jan 27;2:11093. https://doi.org/10.3389/jaws.2023.11093
3.. Harries RL, Torkington J, Harding KG. Anastomotic leak after reversal of ileostomy: a systematic review of the literature. World J Gastrointest Surg. 2018;10(5):83-94.

4.. Kwak H, Kim CH, Kim YJ, Kim HR. Risk factors for anastomotic leakage after stoma reversal. Surg Today. 2019;49(2):154-161.
5.. Parthasarathi R, Higginson A, Mathew G. Simultaneous reversal of stoma and repair of incisional hernia: a safe and effective strategy? J Surg Res. 2017;218:168-172.
6.. Harris JD, McGreevy JM, Kumar R, et al. Outcomes of simultaneous stoma closure and incisional hernia repair: a multicenter experience. Ann Surg. 2016;263(6):1176-1181.
7.. Luijendijk RW, Hop WC, van den Tol MP, de Lange DC, Braaksma MM, IJzermans JN, et al. A comparison of suture repair with mesh repair for incisional hernia. N Engl J Med. 2000;343(6):392-398. https://doi.org/10.1056/NEJM200008103430603
8.. Holihan JL, Nguyen DH, Nguyen MT, Mo J, Kao LS, Liang MK. Mesh location in open ventral hernia repair: a systematic review and network meta-analysis. World J Surg. 2016;40(1):89-99. https://doi.org/10.1007/s00268-015-3252-9
9.. Bellows CF, Berger DH, Patrick J. Management of wound complications following abdominal wall reconstruction. Plast Reconstr Surg. 2013;132(6):1543-1550.
10. Atema JJ, Gans SL, Boermeester MA. Prevention and treatment of fascial dehiscence: a systematic review. World J Surg. 2016;40(1):141-150.
11. de Vries Reilingh TS, van Goor H, Rosman C, van der Wilt GJ, Bleichrodt RP. Components separation technique for the repair of large abdominal wall hernias. Br J Surg. 2007;94(6):683-688. https://doi.org/10.1002/bjs.5817
12. Ramirez OM, Ruas E, Dellon AL. "Components separation" method for closure of abdominal-wall defects: an anatomic and clinical study. Plast Reconstr Surg. 1990;86(3):519-526. https://doi.org/10.1097/00006534-199009000-00023
13. Israelsson LA. Suture technique and wound healing in midline laparotomy incisions. Eur J Surg. 1998;164(4):271-277.

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