Laparostoma – Boon or Bane in non-trauma surgical patients- An observational cohort study

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Introduction

- Open abdomen (OA)or Laparostoma refers to the intentional non-closure of fascial edges following laparotomy, a technique well-established in trauma patients undergoing damage control surgery. However, its role in non-trauma surgical patients remains unclear, with potential benefits counterbalanced by significant complications, including hernia formation, enterocutaneous fistula (ECF), and mortality.
- This study aims to evaluate the outcomes and complications of OA in non-trauma surgical patients.

Material and Methods

- An observational cohort study was conducted over eight years (March 2015–March 2023), involving 54 non-trauma surgical patients managed with OA at a tertiary care center.
- Indications for OA included a burst abdomen, inability to achieve tension-free closure, and other complications such as bowel ischemia and sepsis.
- Key parameters analyzed were the incidence of ventral hernia, ECF formation, temporary abdominal closure technique used, definitive fascial closure rate, and mortality rates. Statistical analysis was performed using repeated measures ANOVA and appropriate statistical tests.

Results

Table 1: Indications for surgery in Elective cases (n=9) prior to open abdomen management

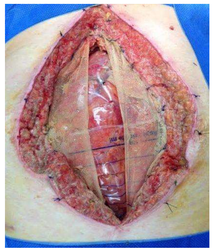
Diagnosis	Number (percentage)
Carcinoma colon	5 (55.55%)
Ileostomy reversal for Double barrel ileostomy	2 (22.22%)
GIST Stomach	1 (11.11%)
LSCS for Post term pregnancy	1 (11.11%)

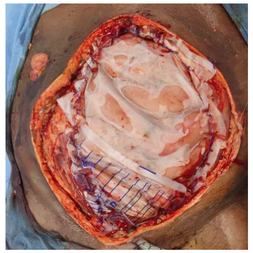
Table 2: Demographic data for open abdomen management (n=54)

Parametre	Elective- n= 9 (16.67%)	Emergency- n= 45 (83.33%)	P value
Age (mean ± SD)	54.2 ± 12.2	42.3 ± 18.2	0.06
Female	2 (22.22%)	13 (28.89%)	0.99
Male	7 (77.78%)	32 (71.11%)	0.16
Mean operations/patient	2.1 ± 1.05	1.8 ± 0.83	0.48
ICU/HDU Stay	7 (0,10)	7 (3,10)	0.5
Hospital stay	28 (21,40)	18 (14,30)	0.11
Definitive closure	1 (11.1 %)	2 (4.4%)	0.42
ECF formation	0 (0%)	3 (6.67%)	0.99
Mortality	1 (11.1%)	15 (33.3%)	0.25

Table 3: Indications for surgery in Emergency cases (n=45) prior to open abdomen management

Diagnosis	Number (percentage)
Perforation peritonitis	17 (37.78%)
Bowel obstruction (malignant)	6 (13.33%)
Bowel obstruction (benign)	12 (26.67%)
Mesenteric ischemia with bowel gangrene	4 (8.89%)
Anastomotic leak	3 (6.67%)
Infected mesh	1 (2.22%)
Strangulated hernia	1 (2.22%)
Deep SSI	1 (2.22%)







Discussion

- OA remains a vital but high-risk intervention in non-trauma surgical patients. While it can prevent life-threatening condition such as abdominal compartment syndrome (ACS).
- However, it is associated with significant risks, including ventral hernia, ECF, and increased mortality rates. The use of VAC therapy and early definitive fascial closure may improve outcomes.
- Future research should focus on optimizing patient selection, reducing complications, and considering the economic impact of OA management in non-trauma patients.

Conclusion

- Laparostoma remains a vital but high-risk intervention in non-trauma surgical patients. While it can prevent life-threatening complications such as abdominal compartment syndrome (ACS), it is associated with significant risks, including ventral hernia, ECF, and high mortality.
- The use of VAC therapy and early definitive fascial closure may improve outcomes. Future research should focus on optimizing patient selection, reducing complications, and considering the economic impact of OA management in non-trauma patients.