



A COMPARATIVE RANDOMIZED STUDY TO EVALUATE THE ROLE OF DRAINS IN ELECTIVE AND EMERGENCY ABDOMINAL SURGERIES

General Surgery

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ABSTRACT

Background: Abdominal drainage following gastrointestinal surgery has often been a matter of contention. Advances in surgical techniques and perioperative patient care have consistently decreased postoperative complication rates.

Aim: To determine the evidence-based value of prophylactic drainage versus non drainage in gastrointestinal surgeries and relative complications and morbidity associated with it.

Material and Methods: A total of 82 patients were included in our study. All patients were divided into two groups- Group A and Group B randomly. Post-operatively patients were monitored and evaluated based on pre-determined outcome measures.

Results: In our study out of 82 patients no significant difference was seen (p value > 0.01) when drain was compared to non drainage in routine surgeries with respect to ileus duration, anastomotic leak, surgical site infection, mortality, etc.

Conclusions: When abdominal drain is routinely put, with its associated consequences, no clinical benefit is derived. Therefore drainage in abdominal surgeries should not be routinely used in all patients however it can be used selectively in specific patients with clear indications.

KEYWORDS

Abdominal drainage, drain, emergency abdominal surgeries

INTRODUCTION

Abdominal drainage following major gastrointestinal surgery has often been a matter of contention. Prophylactic drainage of the peritoneal cavity after gastrointestinal (GI) surgery has been widely practiced since the mid-1800s, with the dictum of **Lawson Tait**, "When in doubt, drain," well known to all surgical trainees as quoted by **MA Memon et al**¹ in his review. As quoted by **Petrowski H et al**², **Sims** was the first who used prophylactic drains after surgery in the last quarter of the 19th century. **Theodor Billroth**³ was convinced that prophylactic drainage of the peritoneal cavity saved many lives after GI surgery.

Generally speaking, the intention is to decompress or drain from the area of surgery.

Usually drains are used to prevent the accumulation of fluid, to prevent accumulation of air, to characterize fluid (for example, early identification of anastomotic leakage or hemorrhage) and to leave a tract for drainage of potential collections, but use of drains also leads to some complications that may be immediate or delayed.

Immediate complications include infection, anastomotic leak and damage to surrounding viscera due to mechanical pressure or suction of drain. Delayed complications include bands or adhesions which may lead to sub-acute intestinal obstruction in future.

Drains may be open or closed. Open drains drain fluid on to a gauze pad or into a stoma bag and leads to increase the risk of infection. Closed drains are formed by tubes draining into a bag or bottle, risk of infection is reduced.

Drains can also be active or passive. Active drains are maintained under negative pressure suction. Passive drains have no negative pressure suction and work according to the differential pressure between body cavities and the exterior.

Generally, drains should be removed once the drainage has stopped or becomes less than about 25 ml/day.

AIM AND OBJECTIVES

- To determine the evidence-based value of prophylactic drainage versus non drainage in routine gastrointestinal (GI) surgery
- to determine relative complications and morbidity with or without use of drains in various abdominal surgeries

MATERIAL AND METHODS

The study was carried out in Surgery department of M.L.N. Medical College and SRN Hospital, Prayagraj on patients with history and clinical examination suggestive of diagnosis for which abdominal surgeries were required.

Inclusion Criteria

- Patients undergoing major abdominal surgeries- emergency or elective.
- Patient relatives must be able to understand and give consent for the study.

Exclusion Criteria

- Previously operated cases who have been admitted with anastomotic leak.
- Patients who absconded without completion of study

A total of 82 patients were included in our study. All patients were divided into two groups- Group A (drain was not put) and Group B (drain placed) randomly prior to completion of the surgery.

Post-operatively, patients of Group A and Group B were monitored and evaluated based on pre-determined outcome measures which were return of bowel function, incidence of anastomotic leak, incidence of surgical site infection, incidence of wound dehiscence, incidence of intra-abdominal collections, incidence of extra abdominal complications such as pulmonary complications, incidence of fever and length of hospital stay.

RESULT

A total of 82 patients were included in our study.

Table-1: Sex Distribution Of Patients In Group A And Group B

	Group A (without drain)	Group B (with drain)	P value
Males	24	25	No statistical difference between two groups ($p=0.82$)
Females	17	16	
Total	41	41	

Table 2: Mean Age Of Patients In Group A And Group B

	No. of patients	Mean $\pm$ SD Age	P value
Group A	41	44.03 $\pm$ 16.05 years	No statistical difference between two groups ($p=0.89$)
Group B	41	43.57 $\pm$ 16.0 years	

The table No 1 and 2 suggest that both the group were similar in comparison.

Table 3: Comparison of Length of hospital stay in Group A and Group B

	No. of patients	Mean±SD Age	P value
Group A	41	8.8±0.92 days	No statistical difference between two groups (p=0.35)
Group B	41	9±1.02 days	

The above table suggests no difference in between the two groups with respect to duration of hospital stay.

Table 4: Comparison of duration of Ileus in group A and group B

	Ileus : ≤ 3 days	Ileus : > 3 days	P value
Group A	34	7	No statistical difference between two groups(p=0.76)
Group B	35	6	
Total	69	13	

Patients in group A (without drain) showed a greater duration of ileus as compared to group B. There were 17% in group A and 14% in group B whom duration of ileus was more than 3 days. There was no significant statistical difference (p=0.76).

Table 5: Comparison between the two groups of A and B

	GROUP A (n=41)	GROUP B (n=41)	P VALUE
Wound Dehiscence	4 (10%)	5 (12%)	0.72
Anastomotic Leak	3 (7%)	4 (10%)	0.69
Surgical site infection	6 (14%)	5 (12%)	0.74
Intra Abdominal Collection	5 (12%)	4 (10%)	0.72
Fever	9 (22%)	8 (20%)	0.78

In the above table, it is clearly depicted that in between both the groups of A and B there was no significant difference with respect to outcome measures as above.

11 patients died during the study due to septicemia and cardiopulmonary complications, out of which 6 patients were from Group A and 5 patients were from Group B. There was no significant statistical difference (p=0.74) in mortality between the two groups.

DISCUSSION

Out of 82 patients, 11 patients died during the study due to septicemia and cardiopulmonary complications. Out of which 6 patients were from Group A and 5 patients were from Group B. Out of 6 patients from group A, 2 patients had intestinal leaks and out of the 5 patients from group B, 3 patients had anastomotic leak.

In our study, there was no significant difference (p=0.74) in mortality between both the groups.

Maulana M Ansari et al (2012)³ reported that use of abdominal drain can be omitted without a significant increase in morbidity and mortality or any major statistical difference in the study parameters. These results had been reproduced in controlled randomized studies that persistently failed to derive any benefit from routine abdominal drainage.

In our study the patients had no significant statistical difference in the time of returning of bowel sounds (p=0.76) and our results could be explained by the study done by **Nasir AA et al (2012)**⁴ and **Manoj Kumar et al (2007)**⁵

In our study, the average length of hospital stay but there was no significant statistical difference between two groups supported by a study done by **Manoj Kumar et al (2007)**⁵ **Chang-Wei Dou et al (2015)**⁶ **Yao Cheng et al (2015)**⁷

Our study revealed that there was no significant difference between group in the development of anastomotic leakage **Karliczec A et al (2006)**⁸ Four randomized controlled trials, including a total of 414 patients, were identified that compared the routine use of drainage of colonic and/or rectal anastomoses to no drainage. The conclusion was that there was no any significant benefit of routine drainage of colon and rectal anastomoses in reducing the rate of anastomotic leakage or other surgical complications.

CONCLUSION

With this study we do not intend to make a point that no postoperative patient would benefit from an intraoperative drain placement, as some patients in fact have lesser chances of abdominal distension and pulmonary complications. In light of our data, the intraoperative drain placement of abdominal drain may be viewed simply as an adjunct to condition of peritoneal cavity and not a maneuver to put a drain to simply check the leakage of anastomosis. Ultimately, when abdominal drain is routinely put, with its associated consequences, no clinical benefit is derived. Therefore we recommend that drainage in abdominal surgeries should not be routinely used in all patients however it can be used selectively in specific patients with clear indications.

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