



ROLE OF DRAINS IN CASES OF PEPTIC ULCER PERFORATIONS: COMPARISON BETWEEN SINGLE DRAIN VERSUS NO DRAIN AT TERTIARY CARE HOSPITAL IN WESTERN RAJASTHAN

General Surgery

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ABSTRACT

Introduction:- Perforated gastro-duodenal peptic ulcer disease remains a frequent clinical problem and is potentially fatal. The aim of this study is to evaluate and compare the benefit of no drain vs single drain in cases of peptic ulcer perforation surgery. **Material and methods:-** Hospital based prospective study conducted at Dept. of Surgery, S.P. Medical College and P.B.M Hospital, Bikaner. 100 patients of duodenal perforation first part (D1) and Gastric perforation were included in study. Patients of peritonitis due to peptic ulcer perforation were selected. **Results-** Mean age of Group A was 44.12±10.34 Yrs and Group B was 44.92±8.27 Yrs. Male patients in Group A group were 88.00% and in Group B group were 82.00%. Operation time was more in Drain (group A) than in No drain (group B) and difference is statistically insignificant (p>0.05). Post-operative hospital stay was significantly less in non-drain Group B than with drain Group A (p<0.001). Fever was present in 5 patients and wound dehiscence was found in 3 case in drain group-A. Fever was present in 3 patients and wound dehiscence was found in 2 case in non drain group-B. Mean return bowel function was significantly less in non-drain Group B than with drain Group A (p<0.001). **Conclusion:-**We conclude that draining of peritoneal cavity by tube drain in patients after peptic ulcer perforation surgery is not required as it not only increases operation duration, length of hospital stay and postoperative complication as compared to cases where we don't drain.

KEYWORDS

Drain, Perforated peptic ulcer, Surgery

INTRODUCTION

Peptic ulcer disease is still one of the commonest disorders we encounter in our clinical practice. The term "peptic" comes from the hormone pepsin which plays an important role in causing mucosal break. Peptic ulcer (PU) bleeding is the most common cause of upper gastrointestinal bleeding in the western world and results in significant morbidity, mortality, and healthcare costs.¹

Peptic ulcer perforation needs special attention with prompt resuscitation and proper surgical management to reduce morbidity and mortality.^{2,3}

A lot of work is being done to reduce morbidity by omitting use of drains after surgery. In 1986, Hoffman et al performed first human prospective study of prophylactic drainage of colonic anastomosis and found that quantity or character of intraperitoneal drainage had not alerted the clinicians to the presence of an anastomotic leak.⁴

The purpose of use of drain prophylactically is to drain fluids, pus, blood or necrotic debris which interfere wound healing but is a source of infection or there can be ascending infection via the drain.^{5,6}

In peptic ulcer perforation common practice is to put drains through separate stab incision tube drain is placed at hepato-renal pouch or sub hepatic region and another tube in pelvis and even some surgeons practice to put another drain in left paracolic gutter also and these tube drains are fixed with stitch to prevent migration or pull act of drain from abdominal cavity. These drains are usually prophylactic and use of these drains following any gastrointestinal surgery is a matter of contention.^{7,9} Sometimes it is very difficult to decide whether to put a drain or not and then to decide when to remove a drain needs experience of the surgeon.¹⁰

Drains left in place for long time may be difficult to remove or early removal may decrease the risk of complications especially infection.¹¹ The basic purpose of these drains is for warning the surgeon of potential intraabdominal complications.¹² Prophylactic use of drains for drainage of peritoneal cavity is a controversial issue and many randomized trials are done to establish its use and there are studies who consider that drainage of peritoneal cavity is not possible with these tubes and these don't serve any purpose.^{13,14}

Drains are not a substitute for good surgical technique.¹⁵⁻¹⁶ The aim of this study is to evaluate and compare the benefit of no drain vs single drain in cases of peptic ulcer perforation surgery.

MATERIAL AND METHODS

Study design: Hospital based prospective study.

Study duration: 12 months

Study place: Dept. of Surgery, S.P. Medical College and P.B.M Hospital, Bikaner

Study population: Patients having perforation at 1st part of duodenum and gastric perforation were included in study.

Sample size: 100 patients

Sampling Method: Random sampling

Inclusion Criteria: All patients having perforation at first part of duodenum and gastric perforation were included in study.

Exclusion Criteria: Multiple perforations, traumatic perforations and severe co-morbid conditions.

Data Collection: All patients under the study group were included. Each group consisted of 50 patients. Group A underwent single tube drain of 28 Fr prophylactically near operation site in sub hepatic or hepato-renal pouch and Group B no drain was placed. All the patients subjected to exploratory laparotomy through upper midline incision with thorough peritoneal lavage and surgery for perforation was done. Graham's omental patch in pyloric and pre-pyloric perforations was used.

Three or four interrupted silk 2-0 sutures were taken along the axis of gut/stomach. Central stitch traverses through the center of perforation. The suture line is reinforced by placing a pedicle of omentum over the site of perforation and tied by suture.

The peritoneum and the linea alba are closed with continuous polygalactin 1-0 sutures. Skin is closed by interrupted sutures using monofilament polyamide sutures in both groups.

Nasogastric aspiration is to be continued. IV fluids to maintain fluid and electrolyte balance. IV antibiotics cefoperazone + sulbactam and amikacin were given postoperatively. IV pantoprazole also given to all study group patients. Postoperative of pulse, blood pressure, respiratory rate, urine output and drain output were monitored.

Once bowel sound returned and the patient passed flatus, oral fluid was

started and by 3 to 5 days patient was given semisolid diet.

Nature of surgical procedure was explain to the patients and informed consent was taken from the patients. Approval from ethical committee for the study was obtained.

Data Analysis

To collect required information from eligible patients a pre-structured pre-tested proforma was used. For data analysis microsoft excel and statistical software statistical package for the social sciences (SPSS) was used and data was analyzed with the help of frequencies, figures, proportions, measures of central tendency, appropriate statistical test.

RESULTS

A total of 100 patients of duodenal perforation first part (D1) and Gastric perforation were included in study. Patients of peritonitis due to peptic ulcer perforation were selected. Mean age of Group A was 44.12±10.34Yrs and Group B was 44.92±8.27 Yrs. Male patients in Group A group were 88.00% and in Group B group were 82.00%. Operation time was more in Drain (group A) than in No drain (group B) and difference is statistically insignificant ($p>0.05$). Post-operative hospital stay was significantly less in non-drain Group B than with drain Group A ($p<0.001$). Fever was present in 5 patients and wound dehiscence was found in 3 case in drain group-A. Fever was present in 3 patients and wound dehiscence was found in 2 case in non drain group-B. Mean return bowel function was significantly less in non-drain Group B than with drain Group A ($p<0.001$).

OBSERVATION TABLES

Group-A Drain & Group-B non drain

Table 1. Age wise distribution of study subjects

Age in yrs	Group A	Group B	p-value
Mean	44.12	44.92	0.437
Standard deviation (SD)	10.34	8.27	

Table 2. Sex wise distribution of study subjects

Sex	Group A	Group B	p-value
Male	44	41	0.531
Female	6	9	

Table 3. Operative time wise distribution of study subjects

Operative time (minutes)	Group A	Group B	p-value
Mean time (minutes)	93.02	84.36	0.236
Standard deviation (SD)	7.56	9.31	

Table 4. Hospital stay wise distribution of study subjects

Hospital stay (days)	Group A	Group B	p-value
Mean	8.14	6.32	0.001
Standard deviation (SD)	1.02	1.12	

Table 5. Complication wise distribution of study subjects

Complication	Group A (no. of patients with drain)	Group B (no. of patients without drain)	p-value
Fever	5	3	0.124
Wound dehiscence	3	2	0.231
Wound infection	3	1	0.078
Nausea / vomiting	3	2	0.231

Table 6. Return bowel function (return of bowel sound) wise distribution of study subjects

Return of Bowel function (in days)	Group A	Group B	p-value
Mean	3.36	2.01	0.01
Standard deviation (SD)	0.32	0.26	

DISCUSSION

Hospital based prospective study conducted at Dept. of Surgery, S.P.Medical College and P.B.M Hospital, Bikaner. 100 patients of duodenal perforation first part (D1) and Gastric perforation were included in study. Patients of peritonitis due to peptic ulcer perforation were selected.

Role of drain in peritoneal cavity after peptic ulcer perforation is to evacuate intraperitoneal collection like, blood, bile and intestinal contents. Perforation of peptic ulcer is conventionally treated by classical Graham patch technique described by Graham.¹⁸ Now a days many gastrointestinal operations can be performed safely without prophylactic drainage, drains would be omitted after hepatic, colonic or rectal resection with primary anastomosis and after appendectomy for any stage of appendicitis.¹⁹

Studies did not conclude that there was significant benefit of drainage in reducing risk of leak or other surgical complications and found that only one in 20 of the drains contains pus or enteric contents, which represent only 5% sensitivity for the detection of anastomotic leaks.²⁰

Studies concluded that these drains acted like a foreign bodies and the increases risk of surgical site infections and potentially anastomotic leak in GI surgery.²¹ Furthermore, drains are causative factor for local pain and they interfere with the ambulation of patients.²²

Use of thinner and softer tubes as drains are usually ineffective as there is always risk of getting these tubes blocked or kinked.²³

In our study Operation time was more in Drain (group A) than in No drain (group B) and difference is statistically insignificant ($p>0.05$).

Mean Post-operative hospital stay was significantly less in non-drain Group B than with drain Group A ($p<0.001$)

In our study also use of drain is not beneficial, it rather increases operative time, hospital stay and it is significant and our study is consistent with other studies.⁴⁸ In our study, fever was present in 5 patients and wound dehiscence was found in 3 case in drain group-A. Fever was present in 3 patients and wound dehiscence was found in 2 case in non drain group-B. This is an agreement with previous studies.^{24,25}

No patient had postoperative leak from perforation site. We repaired the perforation after doing peritoneal lavage and aspirating all the debris from the peritoneal cavity this prevents handling of peptic ulcer perforation site during thorough peritoneal lavage.

Even in our study we found no intraperitoneal abscess in both drain and no drain group. Though these are the drain associated complications like drain site infections, pain, pulling out of omentum through drain wound during its removal, intestinal obstruction and fluid leakage from drain site for 2-3 days.⁵⁵ But in present study we observed no such complication in both groups.

Drains are also associated with risk of ascending infection by the drain. Postoperative fever was present in both groups in drain group and no drain group which was Insignificant again it is in agreement with earlier studies.^{26,27}

CONCLUSIONS

We conclude that draining of peritoneal cavity by tube drain in patients after peptic ulcer perforation surgery is not required as it not only increases operation duration, length of hospital stay and postoperative complication as compared to cases where we don't drain.

Disclosure Statement

This study is investigator initiated. The authors declare that they have no competing/conflict of interests in relation to this article.

Funding

No financial support from an external agency was used for this study.

Consent For Publication

- Not applicable.
- Ethics approval and consent to participate.
- The study protocol was approved by the medical ethics committee of the Rajasthan University of Health Sciences, Jaipur, Rajasthan (State), India.

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