

TRANSPERITONEAL DRAINAGE VERSUS NON DRAINAGE IN ADVANCED SECONDARY PERITONITIS DUE TO ENTERIC FEVER

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ABSTRACT

Background: Drainage of body cavities has been practiced in medicine since long time. Whether or not to utilize peritoneal drainage in patients with diffuse peritonitis has been a subject of controversy for years. **Objective:** This study was designed to compare the incidence of various postoperative complications after ileostomy in secondary advanced peritonitis due to enteric perforation with or without drains. **Patients and Methods:** This prospective interventional study was conducted in Surgical Unit-I, Sheikh Zayed hospital, Rahim Yar Khan, from 1st January 2010 to 30 September 2010. All patients having history of secondary peritonitis for more than 48 hours were included in the study. Ileostomy was performed in patients showing features of systemic toxicity. Patients were randomized into two groups; Group A, in whom transperitoneal drainage was employed and Group B, without drainage. Patients with primary repair were excluded from the study. **Results:** A total of 50 patients with secondary peritonitis due to typhoid perforation (with evidence of systemic toxicity) requiring ileostomy, with or without gut resection, were included in this study. Mean age of patients was 24.75 ± 10 years. 56% was males with M:F ratio of 1.27:1. Twenty six patients were without drainage and twenty four patients had drainage (group A and B). Mean post operative hospital stay for group A and B were 9.5 ± 0.5 and 6.5 ± 0.51 respectively. 5 patients in group A, developed wound infection as compared to 3 patients in group B. In group A one patient got burst abdomen, two patients got intra abdominal collection, one chest infection compared to none in group B. **Conclusion:** The study has shown no benefit of drainage of peritoneal cavity in secondary advanced peritonitis, infact there was a slightly higher rate of complications like burst abdomen, intra abdominal collection and pulmonary infections among patients in whom drain was placed.

Keywords: Ileostomy, Transperitoneal drainage, Enteric perforation

INTRODUCTION

Enteric perforation is the most serious complication of typhoid fever and mortality ranges from 8% to 57%.^{1,2} There is a very high incidence of post operative complications which may include wound infection, fecal fistula, intra abdominal abscess and wound dehiscence. The morbidity is approximately 67% and drains contribute to increasing it.^{3,4,5}

The most important advancements in the management of typhoid perforation have come through adequate fluid and colloid replacement to correct losses, appropriate antibiotic along with timely decision of primary repair, resection or exteriorization of perforation. In spite of evidence that drains rapidly become walled off and become ineffective, prophylactic drainage of the peritoneal cavity after abdominal surgery has been widely practiced for centuries.^{6,7,8}

This study compares the incidence of various post operative complications in secondary advanced

peritonitis due to enteric perforation with or without drains.

PATIENTS AND METHODS

We carried out a prospective interventional study in surgical unit-I, Sheikh Zayed Hospital, Rahim Yar Khan from 1st January 2010 to 30th September 2010. Approval from ethical committee of SZMC was obtained prior to study. Informed verbal and written consent was taken from patients and, where necessary from attendants.

All patients having history of secondary peritonitis more than 48 hours on arrival to hospital were included in the study. We performed ileostomy in patients showing features of systemic toxicity. All the patients were randomized into group A and B. Patients with primary closure and those having co-morbid diseases like diabetes mellitus, hypertension, chronic obstructive pulmonary disease, chronic liver disease, chronic renal failure, etc, were excluded from the study.

Management in all these patients (like antibiotic cover, fluid and electrolyte replacement) was identical, except for transperitoneal drainage, which was done in group A. Patients were operated through midline incision and ileostomy performed according to site and number of perforations. In all patients peritoneal lavage with 10 liter normal saline was

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done. Closure was carried out by tension sutures using polypropylene 1. In Group A, (patients with transperitoneal drainage) Nelaton drain 30/28F was placed in pelvic cavity. Data including, post operative morbidity, duration of hospital stay, post operative fever, superficial skin site wound infection, deep wound infection, intra abdominal collection and other complications of ileostomy was obtained and analyzed by using SPSS version 10.

RESULTS

Our study included a total of 50 patients with the mean age of 24.75 ± 10 years. There were 28 males (56%) and male to female ratio was 1.27:1. Number of females were equal in both groups, whereas, males were 13 & 15 in A& B groups respectively.

Table I: Comparison of surgical outcomes between two groups

Surgical Outcomes	Drain Group (A) (n= 24)	No Drain Group (B) (n=26)	Significance (p-Value)
Start of Ileostomy Function (POD)	3.67 ± 0.57	3.52 ± 0.95	> 0.05
Initiation of soft diet (POD)	4.87 ± 0.72	4.82 ± 0.84	> 0.05
Hospital Stay (POD)	9.5 ± 0.5	6.5 ± 0.51	<0.05
Complications n (%)			
Wound infection	5 (21%)	3 (11.5%)	> 0.25
Skin excoriation	5 (21%)	6 (23%)	> 0.5
Burst abdomen	1 (4%)	0	> 0.25
Intra abdominal collection	2 (8%)	0	> 0.25
Chest infection	1 (4%)	0	> 0.25
Prolapse of Ileostomy	2 (8%)	1 (4%)	> 0.5
Mean duration of surgery	85 ± 5 min	84.5 ± 5 min	> 0.5

POD: post operative day

Twenty six patients in the study were operated without placement of drain (Group B) and twenty four patients received transperitoneal drainage (Group A). Hospital stay in group A patients with drain was 9.5 ± 0.5 days and in group B patients without drainage was 6.5 ± 0.51 days (Table II). Mean post operative hospital stay in both groups was 8.06 ± 1.59 days. Wound infections were seen in total of 8 (16%) patients. Two patients (8%)

with drainage developed intra abdominal collections. Of these two patients, one developed burst abdomen for which re-operation was required. The other one was managed conservatively with dressings alone. Chest infection occurred in one patient with trans abdominal drainage, which required prolonged hospitalization. However these findings were not statistically significant.

DISCUSSION

Yates⁹ in 1905 compiled an extensive historical, clinical and experimental review, which strongly argued that “drainage of peritoneal cavity was physically and physiologically impossible”, “peritoneal drainage must be local” and that “there was, aside from hemostasis, no other justification for the use of drains”. A majority of surgeons avoid drains in adults with generalized peritonitis.¹⁰ It is physically impossible to drain the entire peritoneal cavity, and that placement of drain in these circumstances may be harmful because it is a foreign body which is rapidly walled off and may enhance adhesions around the drain that may subsequently lead to intestinal obstruction as described by J. Alex Haller¹¹ and Moshe Schein in their studies.¹² Some surgeons feel that peritoneal drains may also act as a nidus for infection.¹³ Studies also show that routine use of drains is not effective in preventing post operative fluid collections, nor in decreasing the incidence of intra abdominal collections as described by Pai D et al and Henrik Petrowsky.^{14,15} Recent reports have suggested that many abdominal surgical procedures can be performed safely without drainage.¹⁶⁻¹⁹ Analysis of data from the study of 50 patients of advanced peritonitis due to enteric perforation with systemic toxicity in whom ileostomy was performed,²⁰ 26 had transperitoneal drainage and 24 without drainage did not demonstrate any benefit from transperitoneal drainage. Wound infections were seen a total of 8 patients (approx 16%). This is an acceptable incidence as potentially this was a contaminated wound. Infact, patients in whom transperitoneal drainage was employed, showed more abdominal and extra-abdominal complications in terms of intra abdominal collections (4%), re-operation due to burst abdomen (2%), chest infections (2%) and prolonged hospitalization as noted in other similar study as well.²¹ In this study, we found no statistically significant difference in the start of ileostomy function and initiation of soft diet between the two groups, which

are in agreement with previous studies.²² However, post operative hospital stay was significantly reduced (< 0.05). Patients with drains stayed longer. This is probably because drains, beside their local side effects as mentioned previously, make patients feel psychologically more sick and they remain reluctant to get out of bed, resulting in increased risk of chest infections, intra abdominal collections, prolonged ileus and ultimately prolonged hospitalization. Further-more, abdominal drains themselves are not without risk. They have been reported to result in bowel injury, increased rates of intra-abdominal and wound infection, increased abdominal pain, decreased pulmonary function, and prolonged hospital stay.^{23,24,25} Data is also available showing drain related complications such as fistula, drain site infection and enhanced pain after abdominal surgery.^{26,27}

CONCLUSION

The study has shown a marginal benefit of drainage of peritoneal cavity in secondary advanced peritonitis, infact there was a slightly higher rate of complications like burst abdomen, intra abdominal collection and pulmonary infections among patients in whom drain was placed. The emphasis should be on good peritoneal lavage at the time of surgery in generalized peritonitis.

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