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A STUDY ON PLACEMENT OF INTRA PARIETAL DRAINS IN SEPTIC ABDOMINAL PATIENTS

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Abstract:

Aims and objectives: *The main objective of the study is to analyse the placement of intra parietal drains in septic abdominal patients.* ***Material and methods:*** *This analytical study was conducted in Health department Punjab during 2018 to 2019. The data was collected from surgical department of the hospital. The data was collected from 100 patients of abdominal injuries. Patients underwent exploratory laparotomy with a standard midline incision with subsequent repair of all traumatic injuries identified. Additional exclusion criteria at this juncture included using the open abdomen technique, intrabdominal vascular implants (but not primary repairs) and the presence of abdominal injuries.* ***Results:*** *The data was collected from 100 patients of abdominal injuries. The overall mortality rate was 1.96% (4/100) with no significant differences among the three groups. Among the survivors, no differences were noted within the groups with respect to contamination, wound infection, fistula formation, and evisceration rates. The diagnosis of intra-abdominal abscess required radiographic identification by computed tomography or ultrasonography, and confirmation of infection by open or percutaneous drainage and culture.* ***Conclusion:*** *It is concluded that the practice of irrigating the abdomen with large volumes of saline should be avoided in trauma patients.*

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INTRODUCTION:

The trauma laparotomy has undergone several revolutionary changes over the past few decades. Spleen preservation, nephron sparing techniques, angio-embolization, the introduction of laparoscopic explorations to rule out diaphragmatic injuries and, above all else, the paradigm shift that entail the Damage Control approach and management of open abdomen have already made significant improvements in the morbidity and mortality of this patient population. The use of evidence-based techniques has the potential to unlock additional benefits this cohort of individuals. This entails the re-examination and further appraisal under more controlled, rigorous conditions of traditional, time honored surgical maneuvers during the trauma laparotomy [1]. One of these maneuvers is the use intraoperative irrigation.

As some trauma patients present with ongoing peritonitis from bowel injury they will require control of the source of contamination, since intestinal perforation and soiling of the peritoneal cavity is associated with high morbidity and mortality. Sepsis from an abdominal origin is initiated by the outer membrane component of gram-negative organisms (e.g., lipopolysaccharide [LPS], lipid A, endotoxin) or gram-positive organisms (e.g., lipoteichoic acid, peptidoglycan), as well toxins from anaerobic bacteria [2]. This leads to the release of proinflammatory cytokines such as tumor necrosis factor α (TNF-α), and interleukins 1 and 6 (IL-1, IL-6). TNF-α and interleukins lead to the production of toxic mediators, which may cause a complex, multifactorial syndrome that may evolve into conditions of varying severity and may lead to the functional impairment of one or more vital organs or systems [3].

Severe sepsis is defined as sepsis associated with organ dysfunction or tissue hypoperfusion [4]. Whereas, septic shock is defined as severe sepsis associated with refractory hypotension despite adequate fluid resuscitation. Previous studies have demonstrated that mortality rates increase dramatically in patients with severe sepsis and septic shock and that aggressive treatment of these patients may improve outcomes [5]. Mortality rates have recently stabilized due to advances in treatment options that manage the underlying infection and supports failing organs, however they remain high [6].

Aims and objectives

The main objective of the study is to analyse the placement of intra parietal drains in septic abdominal patients.

MATERIAL AND METHODS:

This analytical study was conducted in Health department Punjab during 2018 to 2019. The data was collected from surgical department of the hospital.

Data collection

The data was collected from 100 patients of abdominal injuries. Patients underwent exploratory laparotomy with a standard midline incision with subsequent repair of all traumatic injuries identified. Additional exclusion criteria at this juncture included using the open abdomen technique, intrabdominal vascular implants (but not primary repairs) and the presence of abdominal injuries. Once all operative repair was completed (including restoring intestinal continuity) and a decision to perform primary closure of the abdomen was made, the patients underwent random assignment to one of three treatment groups: Group I, assigned to receive 5L of Intra-Abdominal Irrigation (IAI); Group II, assigned to receive 10L of IAI; and Group III assigned to receive 20L of IAI. All patients received a standardized antibiotic regimen consisting of pre-operative Cefoxitin 2gm IV followed by 1gm every eight hours for a period of 24 hours.

The data was collected and analysed using SPSS version 19.0. All the values were expressed in mean and standard deviation.

RESULTS:

The data was collected from 100 patients of abdominal injuries. The overall mortality rate was 1.96% (4/204) with no significant differences among the three groups. Among the survivors, no differences were noted within the groups with respect to contamination, wound infection, fistula formation, and evisceration rates. The diagnosis of intra-abdominal abscess required radiographic identification by computed tomography or ultrasonography, and confirmation of infection by open or percutaneous drainage and culture.

Table 01: Post Hoc Comparisons between treatment groups.

Outcome Measure	Comparison groups	*p*- value
Mortality	5L vs 10L	1.000
	5L vs 20L	0.500
	10L vs 20L	0.159
Wound Infection	5L vs 10L	1.000
	5L vs 20L	1.000
	10L vs 20L	1.000
Fistula Formation	5L vs 10L	0.108
	5L vs 20L	1.000
	10L vs 20L	0.037
Evisceration	5L vs 10L	1.000
	5L vs 20L	0.165
	10L vs 20L	0.450
Abscess	5L vs 10L	1.000
	5L vs 20L	0.051
	10L vs 20L	0.057

DISCUSSION:

In patients with severe secondary peritonitis and significant hemodynamic instability and compromised tissue perfusion, primary anastomosis is at high risk for anastomotic leakage resulting in increased mortality. In these patients, consideration should be given to initially control the source of peritoneal contamination and delay the bowel anastomosis. In a retrospective study by Ordonez et al., 112 patients with secondary peritonitis requiring bowel resection who were managed with staged laparotomy were analysed [7].

Intraoperative abdominal irrigation was first formally described as a strategy for the management of peritonitis by Mikulicz and Rhen in 1902, and by Price *et al*., in 1905 (in the pre-antibiotic era), where peritoneal cleansing was able to decrease the mortality rate by 38%. It has since become part of the algorithm for any laparotomy, including the operative management of abdominal trauma. Multiple case reports and contemporary experts' opinions have been lodged in the biomedical literature over the course of the subsequent century, with subsequent variable and sometimes conflicting recommendations [8].

During the last decade of the twentieth century animal and other experimental studies began addressing the question of which fluid and how much. It was during this period that the potential adverse effects of the use of abdominal washouts were described: upregulation of pro- inflammatory mediators [9], damage to peritoneal mesothelial cells and polymorphonuclear neutrophil membranes, promotion of postoperative adhesions, documented instances of bacterial translocation, failure to effectively decrease peritoneal bacterial counts, and potential adverse effects on final hemostasis (through technical or chemical issues) [10].

CONCLUSION:

It is concluded that the practice of irrigating the abdomen with large volumes of saline should be avoided in trauma patients. Furthermore, based upon the absence of any significant differences in complication rates between the 5L and 10L groups, we recommend a maximum of 5L volume of intrabdominal irrigation in all patients regardless of injury and amount of contamination.

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