Comparative Study between Mass Closure and Hughes Repair in Emergency Laparotomy

Thesis

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List of Abbreviations

Abb.	Full term

ADP .....*Adenosine diphosphate*

AGEs.....*Advanced glycaton end-products*

DFUs .....*Diabetic foot ulcers*

DHEA .....*Dehydroepiandrosterone*

DHT .....*Dihydrotestosterone*

DIEA .....*Deep inferior epigastric artery*

DPC .....*Delayed primary closure*

DSEA .....*Deep superior epigastric artery*

IL .....*Interleukin*

MCL .....*Midclavicular line*

MMPs.....*Matrix metalloproteases*

NPWT .....*Negative pressure wound therapy*

NPWT .....*Negative pressure wound therapy*

PDS .....*Polydioxanone*

PMNs .....*Olymorphonuclear leukocytes*

ROS.....*Reactive oxygen species*

SD .....*Standard deviation*

TNF .....*Tumor necrosis factor*

VAC .....*Vacuum assisted closure*

INTRODUCTION

An emergency laparotomy is a major operation that involves opening the abdomen. This allows the surgeon to view the organs inside and repair any emergency problems that have occurred, it is called "emergency" because it must be done very soon or even immediate ***(Caroline, 2018)***.

Since 19th century when surgeons started performing surgery, they had to inflict wound on their patients and it is their duty to endeavor constantly to get these wounds to heal as quickly as possible, uncomplicated wound is the only accepted outcome. Peritoneal adhesions and chronic discharging sinuses develop in some surgical wounds and even though it is due to circumstances beyond his control. It is a tragedy for the patient leading to high morbidity and mortality ***(Schwartz, 1988)***.

Multiple factors can lead to impaired wound healing. In general terms, the factors that influence repair can be categorized into local and systemic. Local factors are those that directly influence the characteristics of the wound itself, while systemic factors are the overall health or disease state of the individual that affect his or her ability to heal. Any of these factors are related, and the systemic factors act through the local effects affecting wound healing ***(Gogia, 1995)***.

There are several factors that affect the outcome of abdominal closure, these factors are pre-operative like age and

comorbidities and intra operative like the duration of the operation and Post-operative like the use of antibiotics and follow up wound dressing ***(Hofman et al., 2007)***.

Common complications are Wound infection, Wound failure, Incisional hernia and sinus formation. The most frequent complications following midline emergency abdominal laparotomy include incisional hernias, which develop in 10-15 % of patients and surgical site infections in 15-25 % of cases ***(Leaper, 1998)***.

Incisional hernia forms the most common delayed morbidity following midline laparotomy surgeries causing mental trauma to the patient impairing their quality of life and also scars the name and fame of the surgeon. Also, this morbidity impairs the patient-doctor relationship though the incisional hernia may occur both due to surgeon's or patient's variables.

So, the need for possible attributes on surgeon's aspect to prevent the incisional hernia is the need of the hour ***(Harvath, 2003)***

We commonly use the conventional method of closure according to Jenkins's rule. Which includes continuous fascial closure with a single suture. This method allows even distribution of tension across the entire length of the suture, resulting in minimization of tissue strangulation. The goal is

approximation of tissue edges to allow scar formation. Excessive tension leads to tissue necrosis and eventual failure of the closure ***(Millbourn, 2009).***

There is a relatively new technique called Hughes repair. The Hughes abdominal closure technique constitutes a series of two horizontal and two vertical mattresses within single suture whereby, the tension load of suture is distributed both along and across the suture line. Hughes method of abdominal wall closure is named after an eminent professor Hughes BR, who has initially proved this technique to be efficacious than mesh repair in treating Incisional hernias ***(Rajasekaran, 2017)***.

AIM OF THE WORK

To compare mass closure & Hughes repair in emergency laparotomy as regard intraoperative technique, operation time, incidence of complication as wound infection, dehiscence, burst abdomen and incisional hernia.