

# The Modified Jo' Burgs Technique for Abdominal Drain Fixation - A Pilot Study

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## Abstract:

**Background:** A common procedure at the end of every major abdominal surgery includes placing a drain, commonly two drains are placed. Roman sandals is the most commonly used technique for abdominal drain fixation. This study is done to determine the efficacy of Modified Jo' burg technique in fixing abdominal drains, which was introduced for fixation of Inter Costal Drains(ICD).

**Materials and Methods:** Patients who fulfil the inclusion criteria will be recruited for the study after obtaining informed written consent from the patient. A pilot study was done with 15 patients & the results were analysed.

**Results:** Among the 15 study participants there were 9 male patients and 6 female patients with mean age of 54yrs. Out of 15 patients, 13 cases are taken up as elective surgery, 2 surgeries were emergency. Among 15 patients - 4 patients had their drain removed on or before 5th post operative day(POD), 8 patients had their drain removed on or before 10th POD and 3 patients had the drain removed on or before 15th POD. Out of 15 patients - 2 patients were morbidly obese with BMI > 30, among them one patient had peri-tubal leak post operatively. Out of 15 patients only one patient had skin necrosis after removal of drain & none of the patients had experienced slippage of drain.

**Conclusion:** The modified Jo'Burgs technique is easy to learn and more secure technique with negligible complication rates. However, this is a pilot study conducted with a small sample size with 15 patients; hence, with increased study participants included in the study the results will be much reliable.

**keywords** - abdominal drains, Modified Jo' burg, Roman sandals, secure

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## I. Introduction:

The most common procedure in any emergency major abdominal surgery includes placing one or two abdominal drains. These drains decide the course of the patient in the hospital<sup>1</sup>. The drains quantity and colour of the output gives us vital information about the general well being of the patient. Urgent need for re exploration will be warranted in case of high drain outputs or with unusual content of drain like fresh blood, bile or fecal matter especially in patients for whom intestinal anastomosis was performed. Hence, fixation of drain is of high importance, since the drain has to be in place until it serves its purpose.

The most common and widely used method of drain fixation is Roman sandals method. Modified Jo' Burgs method was introduced for fixation of Inter Costal Drain(ICD). This is a pilot study which was done in our institute for evaluation of efficacy of Modified Jo' Burgs method in fixation of abdominal drains.

## II. Material And Methods

**Design of study:** Cross sectional study

**Duration of study:** 2 months

**Period of the study:** March 2022 to April 2022

**Study centre:** Department of Surgical oncology, Saveetha Medical College and Hospital, Thandalam.

**Study population:** Patients who underwent elective and emergency major abdominal surgery at Saveetha Medical College and Hospital, Thandalam

**Sample size:** 15

**Inclusion criteria:**

- Patients above 18yrs of age
- Patients who underwent elective and emergency abdominal surgery in which drain was placed.

**Exclusion criteria:**

Patients not willing to give a written & informed consent.

**III. Methodology:**

Patients who fulfil the inclusion criteria was recruited for the study. Modified Jo' Burgs technique was used for abdominal drain fixation. Efficacy of the technique was assessed.

**Technique :**

Plastic Romson ADK drain of size 24-32FG are used. These drains have a tube length of 50cms, the drain is fixed at an appropriate length with the skin.

Using an appropriately robust suture, insert a horizontal mattress suture (incorporating the drain) with the extracorporeal loop positioned superiorly. Pull the 2 ends of the suture so that they are equal in length and remove the needle. Place the tips of haemostatic forceps (held by an assistant) under the loop and tie the suture tightly inferior to the drain with a single throw. Wrap both lengths of the suture tightly several times around the drain at the level of the skin. Ensuring that tension is maintained, grasp both of the lengths of suture with the haemostatic forceps. Again, ensuring that tension is maintained, pull the sutures under the loop. Tie a floating knot approximately 2-3 cm from the skin level. Wrap the sutures around the drain several times and tie tightly. Cut the suture and then apply a sterile dressing around the tube<sup>2</sup>.

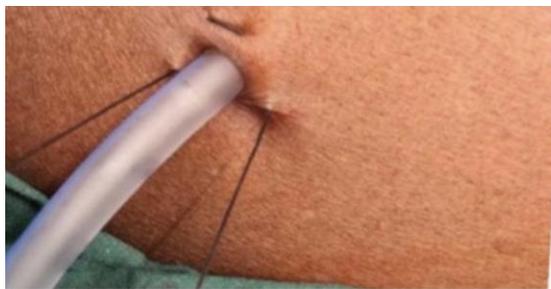


Figure 1



Figure 2

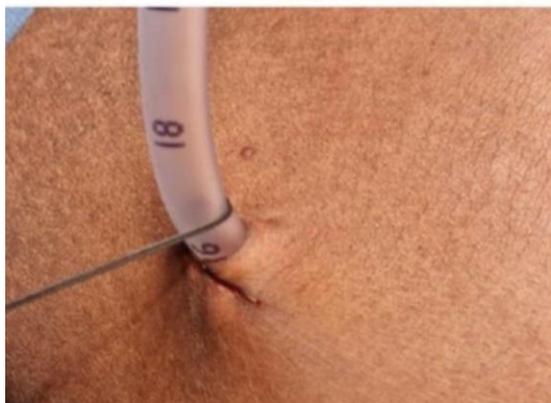


Figure 3

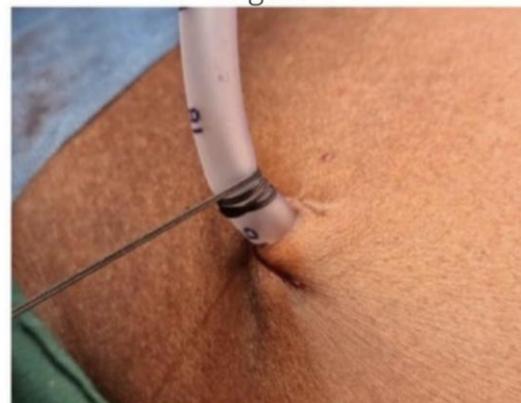


Figure 4



Figure 5



Figure 6

Figure 1- horizontal mattress suture taken

Figure 2- both ends of suture pulled and needle to be cut

Figure 3- wrap both lengths around the tube

Figure 4- wrapped sutures around tube

Figure 5- pull the sutures below the knot and tie

Figure 6- rest of the sutures , tie approximately 2-3 cms above the skin

Statistical analysis: Both descriptive and appropriated inferential statistical analysis test was done. Data entry was done in MS excel sheet and statistical analysis done with SPSS version 16.

#### IV. Result

Among the 15 study participants there were 9 male patients and 6 female patients(table 1). The mean age of the patients was 54yrs ranging from 36 to 72years of age(table 2). The age distribution among the study participants was 2, 2, 5 and 3 patients below the age of 40, 50, 60 and 70 years respectively; 3patients age was above 70years. Out of 15 patients,13 cases are taken up as elective surgery, 2 surgeries were emergency(table 3). 10 patients out of 15 study participants had 2 ADK drains placed, 5 patients had one drain placed at the end of the surgery. Out of the 15 patients - 4 patients had their drain removed on or before 5th post operative day(POD), 8 patients had their drain removed on or before 10th POD and 3 patients had the drain removed on or before 15th POD(table 4). Out of 15 patients - 2 patients were morbidly obese with BMI > 30, among them one patient had peri-tubal leak post operatively. Out of 15 patients only one patient had skin necrosis after removal of drain & none of the patients had experienced slippage of drain.

Table 1: Gender distribution of study population

GENDER	FREQUENCY (n=15)	PERCENTAGE (%)
MALE	9	60
FEMALE	6	40

Table 2 : Age distribution of study population

AGE RANGE OF STUDY POPULATION	MEAN
18- 60 YEARS	36 to 72 yrs

Table 3: Frequency distribution of nature of surgeries

NATUTRE OF SURGERY	FREQUENCY (n=15)	PERCENTAGE (%)
EMERGENCY	2	13.3
ELECTIVE	13	86.7

Table 4: Frequency distribution of day of removal of drain among the participants

DAY OF DRAIN REMOVAL	FREQUENCY (n=15)	PERCENTAGE (%)
ON OR ABOVE POD 5	4	26.7
ON OR ABOVE POD 10	8	53.3
ON OR ABOVE POD 15	3	20

#### V. Discussion

Modified Jo' burgs technique was introduced predominantly for the sake of ICD fixation. Insertion of an Intercostal chest drain (ICD) is a common intervention in the management of pneumothorax, hemothorax and penetrating thoracic trauma. It is done as an emergency procedure during the initial resuscitation period and often in the ER. Most of the complications post ICD insertion observed were due to inadequate fixation, resulting in dislodgement<sup>3</sup>. The risk of dislodgement is due to patient mobilisation from ER to scans/operation theatre on stretchers and hospital beds. Secure air tight drain with acceptable post removal wound approximation and healing are the advantages of this method.

The incidence of abdominal drain slipping out of the site was not reported. In case of ascites, where the drain outputs are high, peri-tubal leak is high in case of roman sandal technique and comparatively very less in modified Jo' burgs technique. Post drain removal, the site skin was unhealthy in most cases where modified technique was used. The skin changes were cosmetically better in case of modified Jo' burgs technique. The learning curve for the technique is not very steep, considering the fact even junior trainees are well versed with horizontal mattress technique.

#### VI. Conclusion

The modified Jo' Burgs technique is easy to learn and more secure technique. The incidence of skin necrosis is very negligible and also there is no slippage of the drain in any of the study participants included in the study. However, this is a pilot study conducted with a small sample size with 15 patients; hence, with increased study participants included in the study the results will be much more reliable.

#### References

- [1]. Ablett DJ, Navaratne L, Chua D, et al The modified 'Jo'burg' technique for securing intercostal chest drains BMJ Military Health 2017;163:319-323.
- [2]. A new adaptation for a secure surgical drain placement and a comparison with four common drain fixation methods L Heskin1, V Cahill2, G Filobos3, P Regan4, ST O'Sullivan1, K Bryan2
- [3]. Securing drains: the clinch knot <https://doi.org/10.1016/j.bjps.2005.02.009> 5.Ringel Y, Haberfeld O, Kremer R, et al Intercostal chest drain fixation strength: comparison of techniques and sutures BMJ Mil Health 2021;167:248-250.