

A Prospective Randomized Control Study Of Comparison between Continuous Versus Interrupted X-Suture for Midline Laparotomy Wound Closure

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Type of Publication: Original Research Paper

Conflicts of Interest: Nil

Abstract

Background: The choice of surgical incision to open the abdominal cavity can be based on patient, surgeon, or health care system criteria.

Methods: A prospective randomised study was designed wherein a total of 119 patients undergoing midline laparotomy at one of the surgical units at S.P. Medical College & Hospital, Bikaner were recruited randomly after taking written informed consent. In the study group of 59 cases, sheath closure was done by using interrupted X suture and the same was compared with control group (n = 60) in which sheath closure was done by continuous suture technique.

Result: In our study showed that the 41.66% dirty wound was found in interrupted X-suture group as compared to continuous suture group. Because interrupted suture use more in dirty wound during patients selection.

Conclusion: In our study conclude that the dirty wound was more in interrupted X-suture group as compared to continuous suture group.

Keyword: Wound Dehiscence, Burst abdomen, interrupted X-suture.

Introduction

A hernia described as an abnormal projection of a viscera, in part or in complete, through a normal or abnormal

congenital or acquired defect in the wall through the region of the abdominal wall that contains it. The inguinal section is a weakest part of the abdominal wall by the presence of the inguinal canal, the deep inguinal ring and the superficial inguinal ring. Inguinal hernia is the most common diversity accounting for roughly 75% of all hernia. More than 2 million laparotomies are executed per annum in the US, with a reported incidence of incisional hernia 2% to 11%.¹ Suture repair techniques have prominent repairing of ventral and incisional hernia over a century. The most standard of these techniques was the Mayo duplication. In larger hernias, the suture repairing involved the relevance of tension to the fascia in order to close the orifice.

Laparotomy is a major surgical procedure, whether elective or emergency always remains the bread and butter of a general surgeon. The choice of surgical incision to open the abdominal cavity can be based on patient, surgeon, or health care system criteria¹. Surgeon main interests, aside from the quick and optimal exposure of the operative field, are time to open and close the abdomen, and frequency of burst abdomen, wound infection, postoperative pulmonary complications, and incisional hernias. For health economy, parameters such

as duration of operation, length of hospital stay, and full physical and mental activity are relevant².

Materials and Method

Study design: Comparative prospective hospital based study.

Study duration: 12 months

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

Study population: All patients scheduled to undergo a midline laparotomy for emergency or elective reasons were included in the study.

Sample size: All patients reporting to the Surgery dept. within study duration and eligible as per inclusion criteria were included in the study.

Sampling Method: Convenience sampling

Inclusion Criteria: All patients scheduled to undergo a midline laparotomy for emergency or elective reasons were included in the study.

Exclusion Criteria:

1. Patients younger than 18 years of age.
2. Patients who had undergone a previous laparotomy for any condition (or had an incisional hernia or burst abdomen at presentation).

Observation

Table 1: Demographic profile of both groups

Age (yrs)	Interrupted X-suture (group I)	Continuous Suture (group II)
Mean±SD	44.97±17.41	45.00±16.30
Minimum	18 yrs	19 yrs
Median	45 yrs	45 yrs
Maximum	82 yrs	98 yrs
P-value = 0.9914 NS		

The above table depicts that the mean age of patients was 45 years in this study. The age range of patients was 18 yrs-82 years in interrupted X-suture group and 19 yrs to 98 yrs in continuous suture group in our study.

Table 2: Demographic profile of both groups

Sex	Interrupted X-suture (group I)	Continuous Suture (group II)
Male	43	33
Female	17	27
Total	60	60

In present study showed that the male to female ratio was 2.5:1 in interrupted X-suture group and 1.2:1 in continuous suture group.

Table 3: Operation procedure in both groups

Operation procedure	Interrupted X-suture (group I)	Continuous Suture (group II)
APR	1	2
Esophagectomy	0	1
Exp Laparotomy	48	42
Extended Hemicolectomy	0	1
Feeding Jejunostomy	2	1
LAR	0	3
Nissan Fundoplectomy	0	1
Rt. Hemicolectomy	3	1
Rt. Nephrectomy	1	1
TAH with BSO	3	6
Whipples Procedure	1	1
Splenectomy	1	0
Total	60	60

Major surgical procedure was laparotomy in both groups in our study.

Table 4: Type of contamination in surgical site in both groups

Contamination	Interrupted X-suture (group I)	Continuous Suture (group II)
Clean	35	40
Dirty	25	20
Total	60	60

In our study showed that the 41.66% dirty wound was found in interrupted X-suture group as compared to continuous suture group. Because interrupted suture use more in dirty wound during patients selection.

Table 5: Hospital Stay in both groups

Interrupted X-suture (group I)	Continuous Suture (group II)	P-value
10.50±3.084	10.23±3.249	0.6455 NS

The above table depicts that the almost 10 days hospital stay in both group in our study.

Discussion

The mean age of patients was 45 years in both groups. The age range of patients was 18 yrs-82 years in interrupted X-suture group and 19 yrs to 98 yrs in continuous suture group in our study. Similar our results with Ashraf F. Al-Faouri et al (2017)³ found range of age was 20-94 years.

Anurag Srivastava et al (2004)⁴ found that the average age of the patients in the continuous arm was 36.37 years and in the interrupted arm it was 40.09 years, slightly decreased our results.

Elderly patients are more likely to have surgical wound ruptures and delayed healing, compared with younger patients. With aging, collagen undergoes qualitative and

quantitative changes and also, there is a decrease in response to hypoxia.

Male to female ratio was 2.5:1 in interrupted X-suture group and 1.2:1 in continuous suture group in our study. Slightly increased with our results by Anurag Srivastava et al (2004)⁴ found male to female ratio was 3:1. Ashraf F. Al-Faouri et al (2017)³ found 1.25:1.

In our study showed that the 41.66% dirty wound was found in interrupted X-suture group as compared to continuous suture group. Because interrupted suture use more in dirty wound during patients selection.

Richards PC, Balch CM, Aldrete JS (1983)⁵ found type of wound had no influence on the dehiscence rate.

Anurag Srivastava et al (2004)⁴ found Sepsis, cough, anaemia, malnutrition and abdominal distension are significant risk factors for burst.

Conclusion

In our study conclude that the 41.66% dirty wound was found in interrupted X-suture group as compared to continuous suture group.

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