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WOUND DEHISCENCE;

COMPARISON OF CONTINUOUS AND INTERRUPTED CLOSURE OF WOUND DEHISCENCE IN EMERGENCY MIDLINE LAPAROTOMY INCISION

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ABSTRACT… Objectives: To compare the continuous and interrupted closure in term of frequency of wound dehiscence in emergency midline laparotomy incision. **Study Design:** Randomized controlled trial. **Setting:** Surgical Unit-I, Allied Hospital Faisalabad. **Period:** From 15th March 2014 to 15th November 2014. **Material and Methods:** Two hundred patients were diagnosed clinically by taking thorough history and examinations were included. Fascial layer of wound of the patients sampled for group A was closed with interrupted mass closure with prolene no.1 whereas in group B was closed by continuous mass closure with prolene no 1. All included patients were kept nothing by mouth. Resuscitation was done with, ringers lactate and blood transfusion if needed until adequate urine output (0.5 ml/kg/hr). Base line investigations were done. After resuscitation and giving preoperative antibiotics, patients were explored through mid-line incision. Obvious source of contamination was dealt with accordingly. Variables wound were examined daily for any sign of dehiscence. Temperature pulse was measured daily along with surgical site examination for any kind of discharge, stitches cut through and gut visibility through wound. In case of no complication patient was discharged on tenth postoperative day, which was the end point of study. **Results:** There were 61 (61%) males and 39 (39%) females in group A, while in group B, 63 (63%) males and 37 (37%) females with mean ages of patients were 39.77$\pm$10.16 and 38.61$\pm$9.75 respectively. The wound dehiscence were found 7 (7%) in Group-A and 18(18%) in Group-B while remaining 93 (93%) in Group-A and 82 (82%) in Group-B had no morbidity statistically ($p<0.01$). **Conclusion:** It is concluded that wound dehiscence is significantly higher in continuous closure as compare to interrupted closure for emergency midline laparotomy incision for generalized peritonitis.

Key words: Continuous, Interrupted Closure, Laparotomy Incision, Wound Dehiscence.

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INTRODUCTION

Peritonitis is an irritation of the peritoneum, the serous layer which lines some portion of the stomach cavity and viscera. Peritonitis might be restricted or summed up, and may come about because of contamination (frequently because of break of an empty organ as may happen in stomach injury or an infected appendix). Laparotomy is expected to play out a full investigation and lavage of the peritoneum, and also to rectify any gross anatomical harm that may have caused peritonitis. Any abdominal organ can rupture as a result of inflammation, ischemia, or trauma and flood the peritoneum with blood, bile, urine, or intestinal contents.[1]

The source of infection should be removed at the earliest to minimize postoperative morbidity and mortality. To explore the abdomen midline incisions have the advantages of being relatively quick to make and close and causes less bleeding and without damage to nerve and closure of fascial layer of abdomen following laparotomy can be done either with continuous mass closure or interrupted mass closure. Because wound after laparotomy is potentially contaminated, the risk of wound infection and wound dehiscence are there.

Wound dehiscence is the untimely "blasting" open of an injury along surgical sutures.[2-4] Wound dehiscence increases morbidity by increasing the

hospital stay, the costs of treatment and exposing the patient to a second operation.

Interrupted closure of abdominal fascial layer is related with less chances of wound dehiscence (4.55%) while compared with continuous closure (15.17%) (p=0.001).[5] There are many other studies in support of interrupted closure of abdominal fascial layers.[6,7] While other favor perfect closure of midline laparotomy wound with a continuous suture.[8] According to them wound dehiscence is due to faulty techniques. e.g. poorly tied knot which may have slipped the knot may have damage the suture maternal or suture have been pulled too tight and out through the tissue.

METHODOLOGY

This randomized controlled trial was carried out at Surgical Unit-I, Allied Hospital Faisalabad from 15th March 2014 to 15th November 2014. Two hundred patients were diagnosed clinically by taking thorough history and examination were included. Fascial layer of wound of the patients sampled for group A was closed with interrupted mass closure with prolene no. 1 whereas in group B was closed by continuous mass closure with prolene no. 1. All diagnosed cases of generalized peritonitis of age between twenty and fifty years of either sex presenting in emergency department of Allied Hospital Faisalabad were included. The Patients with iatrogenic perforations and spillage, localized peritonitis and diagnosed cases of peritoneal malignant involvement were excluded. All included patients were kept nothing by mouth. Resuscitation was done with, ringers lactate and blood transfusion if needed until adequate urine output (0.5 ml/kg/hr). Base line investigations were done. After resuscitation and giving preoperative antibiotics, patients were explored through mid-line incision. Obvious source of contamination was dealt with accordingly. Variables wound were examined daily for any sign of dehiscence. Temperature pulse was measured daily along with surgical site examination for any kind of discharge, stitches cut through and gut visibility through wound. In case of no complication patient was discharged on tenth postoperative day, which was the end point of study.

RESULTS

There were 61 (61%) males and 39 (39%) females in group A, while in group B, 63 (63%) males and 37(37%) females with mean ages of patients were 39.77±10.16 and 38.61±9.75 respectively (Tables-I,II). The wound dehiscence were found 7 (7%) in Group-A and 18(18%) in Group-B while remaining 93 (93%) in Group-A and 82 (82%) in Group-B had no morbidity statistically significant p<0.01.

Gender	Group A (n=100)		Group B (n=100)	
	No.	%	No.	%
Male	61	61.0	63	63.0
Female	39	39.0	37	37.0

Table-I. Gender distribution of both groups (n=200)

Age (Years)	Group A (n=100)		Group B (n=100)	
	No.	%	No.	%
20-35	46	46.0	52	52.0
36-50	54	54.0	48	48.0
Mean±SD	39.77±10.16		38.61±9.75	

Table-II. Age distribution of both groups (n=200)

Wound Dehiscence	Group A (n=100)		Group B (n=100)	
	No.	%	No.	%
Yes	7	7.0	18	18.0
No	93	93.0	82	82.0
P value	0.01			

Table-III. Comparison of continuous and interrupted closure in term of frequency of wound dehiscence in emergency midline laparotomy incision (n=200)

DISCUSSION

Various laparatomies were done at surgical emergencies of Allied Hospital Faisalabad. Dominant part of these laparatomies opened through vertical midline cut. In this study mean age of the patients in group A was 39.77±10.16 and in group B was 38.61±9.75 respectively. 61% in Group-A and 63% in Group-B were male while 39% in Group-A and 37% in Group-B were females. Comparison of continuous and interrupted closure in term of frequency of wound dehiscence in emergency midline laparotomy incision was done, 7% in Group-A and 18% in Group-B had wound dehiscence while remaining 93% in Group-A and 82% in Group-B had no morbidity.

The findings of our study are consistent with Agrawal and co-workers[5] who recorded that interrupted closure of abdominal fascial layer is associated with less chances of wound dehiscence (4.55%) as compared to continuous closure (15.17%) (p=0.001).

Chalya et al[9] and Miller et al[10] have reported in the West that rise to wound infection with an increased use of hospital resources. The French multicentre trial, carried out by Farquharsonl[8] and Moghadamyeghaneh et al[11] also reported that more noteworthy dehiscence, however the distinction was huge just in the "polluted injuries" subgroup.

The particular procedure of intruded on suturing is of urgent significance and either a figure-of-eight (Smead-Jones strategy or twofold X technique) or twofold flat sleeping pad of Professor Hughes' methodought to be utilized to give a safe repair.[12-15] They all included just few examinations contrasting nonstop and interfered with strategies for suturing, running from six to eight.[16]

Gupta et al[17] was the most comprehensive and up-to-date, including 23 trials. It depicted a fundamentally brought down danger of twisted dehiscence in showing that of 2.17% in the intruded on gather when contrasted with 14.8% in the nonstop gathering.

However, findings of the current study justify the hypothesis of the study that "interrupted closure is better than continuous closure of emergency midline laparotomy incision for generalized peritonitis" is justified.

Our findings are helpful to define the better management policy for dirty abdominal wounds resulting from generalized peritonitis and we may come up with better solution of the problem.

CONCLUSION

It is concluded that wound dehiscence is significantly higher in continuous closure as compare to interrupted closure for emergency midline laparotomy incision for generalized peritonitis.

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– Eric Butterworth –

AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	Ammrah Tahir	Writing of manuscript and compiling results.	
2	M. Sajid Hameed Ansari	Data collection & writing of manuscript.	
3	Abdul Waheed Khan	Statistical analysis & guidance of writing the manuscript.	