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NONCLOSURE OF PERITONEUM;
A COMPARITIVE TRIAL

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ABSTRACT... Introduction: This study reflects the comparison between closure Vs non-closure of peritoneum during Caesarian section. **Objectives:** The aims of study are: 1. To make a comparative trial between closure versus nonclosure of peritoneum during cesarean section. 2. To know the requirement of postoperative analgesia in each group of patients. **Study Design:** A randomized controlled trial. **Setting:** Department of Obstetrics and Gynaecology, Arar Central Hospital, North Zone, Kingdom of Saudi Arabia. **Duration of Study with Dates:** The duration of study was six months from 02-07-2012 to 01-01-2013. **Subjects and Methods:** A total of 170 patients (85 in each group) were included in this study. Parietal peritoneum was closed using a continuous absorbable suture in closure group. In non-closure group both layers were remained unsutured. **Results:** Both groups of patients had equal availability of analgesia, but the women in the non closure group used significantly less mean number of narcotic analgesic doses during the first 24 hours after cesarean section. Besides, the operation time and exposure to anesthesia was found less in the non-closure group. **Conclusion:** Non-closure of peritoneum at caesarean section produces a significant reduction in postoperative analgesic requirement.

key words: Caesarean Section, Closure of Parietal Peritoneum, Non- Closure of Parietal Peritoneum, Postoperative Analgesia.

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INTRODUCTION

Cesarean section method remained a topic of debate in all times. There are many ways of performing C-section techniques depend upon number of factors including clinical situations and preference of the operator. The methods are evolved over the time but the prime consideration was restoration of anatomy always. Different studies in different circumstances and in different centers confer a hypothesis that peritoneal closure is not mandatory during closure of abdomen during cesarean section. This factual finding has raised many questions about closure of peritoneum. Suturing the peritoneal layer may or may not confer benefit hence the need to evaluate whether this step need to be omitted or routinely perform.[1]

The nerve supply of parietal peritonium is with somatic pain fibers that is why, are highly sensitive. The peritoneal closure by any suture material or by any method, whether by continuous or interrupted sutures always leads to tissue reaction and healing process is delayed. This effect can cause more pain and more need for analgesics in the post operative period.[2]

There are certain trials in different hospitals about the closure of peritoneum and found no advantage.[3,4] In non closure of peritoneum there was no increase in postoperative pain, duration of hospital stay, or any delay in healing process[5,6] Advantage of closing the peritoneum has not been proven. Despite of randomized trials and guidelines, majority of obstetricians continue to close peritoneum at the time of caesarean delivery.

The rationale of this study is to compare the surgical method which reduces the postoperative analgesic requirement after closure versus non-closure of the visceral and parietal peritoneum

at caesarean section. The technique which will reduce the amount of postoperative analgesia will be used in future. Although this study has short sample size and for limited time period, it may be helpful in planning the surgical choices for caesarian section in future. Reduced pain and short time are valid immediate effects of non-closure of peritoneum.

OBJECTIVES

The aims of study are:

1. To make a comparative trial between closure versus nonclosure of peritoneum during cesarean section.
2. To know the requirement of postoperative analgesia in each group of patients.

OPERATIONAL DEFINITIONS

Closure of Peritoneum

To stitch the peritoneum after caesarean section by continuous method.

Non-Closure of Peritoneum

Not stitching the peritoneum (visceral + parietal) after caesarean section with absorbable future.

Postoperative Analgesic Requirement

Total mean dose of analgesia required for pain relief during 24 hours following caesarean section in terms of pethidine 100mg parenterally.

Verbal Rating Scale

Using words to describe pain with rating score 0= no pain, 1=mild pain, 2=moderate pain, 3=sever pain.

MATERIAL AND METHODS

Study Design

A randomized controlled trial

Setting

Department of Obstetrics and Gynaecology, Arar Central Hospital, North Zone, Kingdom of Saudi Arabia.

Duration of study

Study was carried out over a period of six months from 02-07-2012 to 01-01-2013.

Sample size

Sample size is calculated by using Open Epi version 2.3.1. The sample size for comparing two means is used with a 95% confidence interval, 80% power, ratio of sample size (1) of group 2 to group 1, mean of closure group 0.82±0.49 and non-closure group 0.64±0.33.[4] The required minimum sample size is determined to be 170, closure group 85 and non-closure group 85.

Sampling technique

Non-probability random sampling.

Sample selection

Inclusion Criteria

- Age 25-35 year
- First caesarean section
- Gestational age 37-40 weeks (assessed on dating scan).

Exclusion Criteria

Patients with previous abdominal surgery including caesarean section and laparotomy.

Data collection procedure

Total 170 patients (85 patients in each group) fulfilling the inclusion criteria at 37-40 weeks gestation were selected. An informed consent was taken from all recruited patients. The patients were randomized into group-A (closure) and group-B (non-closure) with the use of opaque sealed envelopes. Pfannenstiel was routine incision. Peritoneum was closed using a continuous absorbable suture in closure group. In non-closure group both layers were remained unsutured. The time of skin incision till the end of surgery was recorded.

For the first 24 hours following surgery the patient received analgesia upon demand, in the form of pethidine 100mg intramuscularly. Pain was assessed after 12 hours of surgery using verbal rating scale. All that information was recorded through predesigned proforma.

The main outcome measures were mean analgesia required. Confounding variables were controlled through stratification of age, gestational

age, gravid, primi and multi parity, height, weight, operative time. The research proposal was submitted to ethical review committee for approval and written informed consent was taken from each patient.

Data analysis procedure

Statistical Package for Social Sciences (SPSS) version 15 was used for data entry and analysis. Frequency and percentages were calculated for parity (primi para, multi para). Mean±SD was used calculated for the ages of the patients, gestational age and analgesia required. Student t-test was used with a $p < 0.05$ considered significant.

RESULTS

In this study 85 women were allocated to the closure group-A and 85 women were assigned to non closure group-B. No woman was excluded from the analysis. The mean age of the women was similar in both the closure and non closure groups (28.7+3.7 and 28.6+3.5 years respectively) (Table-I).

Age (Year)	Group-A (Closure)		Group-B (Non-`Closure)	
	No.	%	No.	%
25-30	59	69.4	61	71.8
31-35	26	30.6	24	28.2
Total	85	100.0	85	100.0
Mean±SD	28.7±3.7		28.6±3.5	

Table-I. Distribution of cases by age n=170

The groups were similar with respect to Parity (Table-II), gestational age (38.9+1.0 and 38.8+1.0) (Table-III). The mean operation duration was significantly longer in the closure group compared with the non-closure group ($p < 0.001$) (Table-IV). The mean doses of narcotic analgesia (pethidine) were less in non-closure group when compared with closure group during the first 24 hours (1.96 +0.728 vs 2.11+ 0.747 respectively) (Table-V).

Parity	Group-A (closure)		Group-B (Non-closure)	
	No.	%	No.	%
P0-P5	75	88.2	78	91.8
P6-P11	10	11.8	07	08.2
Total	85	100.0	85	100.0

Table-II. Distribution of cases by parity n=170

Gestational age (week)	Group-A (Closure)		Group-B (Non-`Closure)	
	No.	%	No.	%
37-38	31	36.5	36	42.3
39-40	54	63.5	49	57.7
Total	85	100.0	85	100.0
Mean±SD	38.9±1.0		38.8±1.0	

Table-III. Distribution of cases by gestational age n=170

Group	Mean	SD
Group-A (Closure)	35.80	2.61
Group-A (Non-closure)	33.47	2.52
t value	5.911	
P value	P < 0.001	

Table-IV. Time of operation (minute) n=170

Time of Doses	Group	N	Mean	Std. Deviation
At 1st hour	Group-A (Closure)	6	1.00	.000
	Group-B (Non-closure)	0	.	.
At 2nd hour	Group-A (Closure)	17	1.00	.000(b)
	Group-B (Non-closure)	17	1.00	.000(b)
At 4 hours	Group-A (Closure)	34	1.00	.000(b)
	Group-B (Non-closure)	7	1.00	.000(b)
At 6 hours	Group-A (Closure)	0	.	.
	Group-B (Non-closure)	37	1.00	.000
At 12 hours	Group-A (Closure)	72	1.78	.419
	Group-B (Non-closure)	30	1.77	.430
At 24 hours	Group-A (Closure)	71	2.11	.728
	Group-B (Non-closure)	67	1.96	.747

Table-V. Mean number of doses n=170

DISCUSSION

This study was carried out to assess postoperative analgesia requirement in patient with closure versus non-closure of peritoneum at cesarean section on post-operative analgesic requirement.

A conservative approach is to perform cesarean section in consideration to restore the anatomy. This fact is not objected when there is no closure of peritoneum. Only the need is to improve the technique, effects and recovery of patients. This study was an attempt to find out the more refined form of surgery in shortest possible time period.[6,7] These benefits which includes a short anesthesia time[8,9], fewer adhesions[6], lower post operative complications in the form of reduced infection rate and earlier discharge from the hospital.[9]

In terms of analgesia requirement in post operative time our study had shown promising results. There was shorter duration of time of surgery and less analgesia requirement. This effect had made the patients to be mobilized more earlier and less hospital stay. Hull et al. and Negele F also found the same results.[10] In both of these studies significance was given to the dosages of analgesia.

Nice guidelines also suggested about the non-closure of peritoneum beneficial in terms of time, analgesia requirement and duration of surgery.[11]

The hypothetical approach is to improve the clinical benefits by improving the technique of cesarean section.

To verify the objective, standardization of proceedings was done. Spinal anaesthesia was given to all patients without any opiate. For 1st 24 hours pethidine intramuscularly was administered according to the patient demand.

The need of analgesia was less in patients in which peritoneum was not closed. This result is very similar to different studies in local or at international level. The timing of surgery is also relatively short and duration of anaesthesia exposure was also relatively less as compared to the patients in closure group. These results are very consistent to the result of study published in Obstet Gynaecol in 2011 by Atabekoglu. These facts are very much similar to study done by Hull. D. B in1991 in Obstet Gynecol.[5,10] The consideration of non closure of peritoneum depends on the fact that epitheliazation occurs within 48 hours. There is still a debate on nonclosure of parietal peritoneum that exists in clinical surroundings and it is due to a conservative approach that restoration of anatomy is mandatory in every surgery.

With this study, we emphasize that leaving the peritoneum unsutured decreases postoperative analgesia demand and shortens the operation time. This study needs more debate and larger trials so that we will be able to improve the outcomes. The patients of cesarean section are large in number and with more promising results, these findings can be applied in routine abdominal closure in other surgical indications.

CONCLUSION

Non-closure of parietal and visceral peritoneum during caesarean section produces a significant reduction in postoperative analgesia requirement and shortens the time of surgery. After consideration of our data we recommend non-closure of peritoneum at cesarean section as the method of choice.

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Patience is not the ability to wait,
but how you act while you're waiting.

– Unknown –

AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	Uzma Manzoor	Manuscript writing, Data analysis, COncepts, Data collection.	Uzma Manzoor.
2	Mumtaz Jahan	Data collection.	M jahan
3	Uzma Shahzad	Discussion and reference.	Uzma Shahzad.
4	Saima Qureshi	Critical review.	Saima