



RESEARCH ARTICLE

WOUND BY SOUTHAMPTON GRADING IN CLOSURE VERSUS NONCLOSURE OF PARIETAL PERITONEUM AT CAESAREAN SECTION

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ABSTRACT

Background – Caesarean section is one of the most frequently performed surgery in obstetrics. To make it better from cosmetic point of view, it is important to know if a surgical step has an effect on the wound condition postoperatively. **Aim and Objective:** The study was undertaken to study the effect of closure versus nonclosure of parietal peritoneum on postoperative wound condition. **Material and Method:** It was a hospital based interventional study done in a tertiary care hospital over one year. Detailed history, investigations, operative details, Southampton wound grading of postoperative wound was done. Unpaired t test was used for statistical analysis. **Result:** There was no significant difference in the incidence of wound infection on day 3 postoperatively in the closure and nonclosure groups as assessed by Southampton wound grading. However, on wound assessment at six weeks the scar was better in nonclosure cases. **Conclusion:** Peritoneal nonclosure can be chosen over closure as the wound condition is better and leads to less postoperative stay in hospital.

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INTRODUCTION

Wound infection is the commonest and distressing disorder of wound healing. Surgical site infection is the second most common infectious complication after urinary tract infection following a delivery by caesarean section (CS) (Talukdar *et al.*, 2015). In India, the incidence of postoperative infections varied from 10 to 25% but later studies showed a decrease to 6.05% (Talukdar *et al.*, 2005). To make it better from cosmetic point of view, it is important to know if a surgical step has an effect on the wound condition postoperatively. Very few research have been done on this issue, hence the present study was undertaken to find the association of closing technique and postoperative patient condition.

Aim and Objective: The study was undertaken to study the effect of closure versus nonclosure of parietal peritoneum on postoperative wound condition.

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MATERIALS AND METHODS

This was a hospital based interventional longitudinal study conducted in Department of Obstetrics and Gynaecology of a tertiary care hospital from 1st February 2017 till 31st January 2018. 36 patients in each group were required as sample size. It was further enhanced and rounded off to 40 patients in each group. Primigravida women aged 18-35 years, with normal Body Mass Index with live singleton term pregnancy undergoing caesarean section and who were willing to give consent and participate in the study were selected. Women with polyhydramnios who had undergone any surgeries in past, anaemia, any sign of sepsis, or any medical disease or who have any surgical complications or postpartum haemorrhage were excluded. A written informed consent was taken from all women for the surgery and to participate in the study. The study comprised of two groups. In both the groups, surgical technique was similar except that parietal peritoneum was sutured with Chromic Catgut 1-0 (group A) or left open (group B). Detailed records of intraoperative and postoperative

parameters were made. Wound assessment was done by Southampton wound grading Williams NS et al (Love and Bailey, 25th ed). Data collected was analysed. Unpaired t test were used for statistical significance and P value <0.05 was taken as significant.

Southampton wound - grading system

Grade	Appearance
0	Normal healing
I	Normal healing with mild bruising or erythema
	Ia Some bruising
	Ib Considerable bruising
	Ic Mild erythema
II	Erythema plus other signs of inflammation
	IIa At one point
	IIb Around sutures
	IIc Along wound
	IId Around wound
III	Clear or haemoserous discharge
	IIIa At one point only (≤ 2 cm)
	IIIb Along wound (> 2 cm)
	IIIc Large volume
	IIId Prolonged (> 3 days)
IV	Pus
	IVa At one point only (≤ 2 cm)
	IVb Along wound (> 2 cm)
V	Deep or severe wound infection with or without tissue breakdown; haematoma requiring aspiration

RESULTS

Forty women in group A had closure of peritoneum, while in the 40 women of group B, the parietal peritoneum was left open. Mean age, gestational age and Body Mass Index (B.M.I.) were comparable in both the groups.

wellbeing to the patient and their earlier discharge from the hospital.

DISCUSSION

In our study we found significant difference in the incidence of wound infection in the closure and nonclosure groups as assessed by Southampton wound grading. Ghongdemath JS *et al.* (Ghongdemath, 2011) assessed the short term morbidity of non-closure of the visceral and parietal peritoneal at caesarean section as compared to suture peritonization and concluded significantly lesser wound infection rate in the nonclosure group. In the CORONIS trial (Group, 2013) there was no acceptable difference seen in terms of wound infection in the two groups. Bamigboye *et al.* (2009) Shakeel S *et al.* (2008), Kapustian *et al.* (2012). Dullayakie and Mutua *et al.* (2012) all found no significant difference in the incidence of wound infection in the closure and nonclosure groups. In our study the mean duration of surgery was 29.1 ± 2.37 min when parietal peritoneum was left open and was significantly less than the closure group. The less operative time reduces the duration of anaesthesia and exposure of wound to external environmental contaminants. Hence decreasing risk of anaesthetic complication, woundinfection and thromboembolic complication. Noreen *et al.* (2015) Bamigboye *et al.* (2009) Ghongdemath *et al.* (2011) all found shorter duration of surgery in the nonclosure group and stated that it also lead to more efficient use of operation theatre time. However, in the CAESAR study (2010) and CORONIS Trial (2013) they found no differences in duration of caesarean section in the two groups. We observed that the non closure group had shorter hospital stay than the closure group thereby thus reducing the total cost. Nasir *et al.* (2013), Cheema, (2014), Agarwal *et al.* (2015).

Table 1. Comparison of Southampton Wound Score in the Two Groups

Southampton Wound Grading	Group A Closure n =40	Group B Non closure n =40	Statistical significance P value
Grade 0	16(40%)	25(62.5%)	0.044 Significant
Grade 1	13(32.5%)	11(27.5%)	0.630
Grade 2	7(17.5%)	3(7.5%)	0.180
Grade 3	3(7.5%)	1(2.5%)	0.310
Grade 4	1(2.5%)	-	-

Table 2. Comparison of Operative time and Hospital Stay in the Two Groups

	Group A n =40	Group B n =40	Statistical significance
Duration of surgery (In minutes)	31.475 ± 2.286	29.1 ± 2.37	$P=0.00003$ Highly significant
Duration of stay (in days)	≤ 5 days	31(77.5%)	39(97.5%) 0.00003
	> 5 days	9(22.5%)	1(2.5%) Highly significant
Mean \pm SD	5.6 ± 1.38	4.125 ± 0.51	

In our study, wound for infection was graded and compared in the closure and nonclosure groups on postoperative day 3 as assessed by Southampton wound grading. We found that 41 patients had no infection, grade 0, of which 60% were where the peritoneum was left open. 10% (four) women in closure group had wound infection grade 3 or 4 as compared to only one in closure group (Table 1). In our study, the mean duration of surgery in the nonclosure group was 29.1 ± 2.37 min and it was significantly lesser than the closure group with P value of 0.00003. We found that the mean duration of hospital stay in the nonclosure group was 4.125 ± 0.515 days and it was significantly lesser than the closure group with P value of 0.00003. There was early oral intake and ambulation, decreased pain and lesser febrile morbidity, which resulted in a sense of

Noreen Sarwat *et al.* (2015) also observed that nonclosure had advantage over non-closure of peritoneum during caesarean section and also found reduced hospital stay in the nonclosure group. In the CORONIS trial (Group, 2013) and in the study of Mutua *et al.* (2015) no acceptable difference was seen in terms of duration of hospital stay in the two groups.

Conclusion

Parietal peritoneum in caesarean section should be left open unless otherwise indicated. It results in cosmetically better postoperative wound condition, lesser duration of surgery and is more cost effective.

Conflict of Interest statement: There is no conflict of interest

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