ADVANTAGE OF NON-CLOSURE OF THE PERITONEUM AT CAESAREAN SECTION

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ABSTRACT

OBJECTIVE

To determine advantage of non-closure of peritoneum at LSCS over of closure of peritoneum with regard to postoperative complications.

STUDY DESIGN

Prospective randomized controlled trial.

SETTING

Tripura Medical College and Dr. BRAM Teaching Hospital, Hapania, Tripura.

SUBJECTS AND METHODS

Three hundreds term pregnant women undergoing first cesarean section were divided into 2 groups (N = 150). Group I: Non-closure of both visceral and parietal peritoneum. Group II: closure of both visceral and parietal peritoneum. Postoperative complications were compared. Adhesions were evaluated in 50 patients in each group returning for a second LSCS and compared for severity of adhesions.

RESULT

There was statistical difference between group I and II for postoperative complications or number of adhesion formation. However, adhesions in the closure group were more severe.

CONCLUSIONS

Non closure of visceral and parietal peritoneum has benefit over closure of both visceral and parietal peritoneum at LSCS. So closure of visceral and parietal peritoneum may be avoided in LSCS.

KEYWORDS

Non-Closure Peritoneum, Adhesion, Cesarean Delivery.

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INTRODUCTION

Worldwide caesarean section is a very common surgical procedure. Peritoneal closure is a controversial issue among obstetricians and gynaecologists. The peritoneum is a thin membrane of cells supported by a thin layer of connective tissue, and during caesarean section these peritoneal surfaces have to be cut through. Following a caesarean section, it has been standard practice to closure of the peritoneum.¹⁻⁶ as it was thought to possibly allow for (i) restoration of anatomy and approximation of tissues for healing; (ii) re-establishment of the peritoneal barrier to reduce the risk of infection; (iii) reduction of the risk of wound herniation or dehiscence; and (iv) minimizing adhesion formation.¹The arguments against non-closure of peritoneum involve the following. 1) Peritoneum has the innate ability to rapidly heal itself.

Being a mesothelial organ with the capacity to initiate multiple sites of repair, the peritoneum can simultaneously heal throughout the wound. In case of non-closure peritoneum a spontaneous reperitonealization.^{2,3,7} will appear within 48 to 72 hours and complete healing after 5-6 days. 2) Non-closure of the peritoneum contributes to less adhesion.^{8,9,10-12} When injured, the peritoneum responds initially by producing a fibrin matrix and proceeds with fibrinolysis to break down the fibrin. Reapproximation of the peritoneal edges with suture material is suspected to result in tissue ischemia, necrosis, foreign body tissue reaction, suppression of fibrinolysis and thus increased risk in adhesion formation. 3) Non-closure of the peritoneum reduces the amount of surgical intervention and saves on valuable operating time and cost.^{1,2,3,6,13,14,15,16} The objective of this study was to assess the effects of non-closure and closure of the peritoneum at caesarean section.

MATERIALS AND METHODS

Three hundred pregnant women were included in this study from January 2007 to January 2014. The peritoneum was left open in 150 cases and in 150 it was closed; 50 (Fifty) women in the nonclosure group and 50 (Fifty) women in the closure group were undergone repeat cesarean section. Detailed history, examinations and investigations, informed written consent was taken for each patient. They were evaluated intraoperatively subsequently.

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Women with preoperative diseases or infections, previous complications of pregnancy or previous laparotomy were excluded. A standard technique for LSCS was performed. The uterine incision was closed with 2 layers of continuous 1 Vicryl suture, the peritoneum with a continuous 00 chromic cat gut, and the fascia with a continuous 1 Vicryl suture. The skin was sutured with subcutaneous continuous by 00 Nylon sutures.

A urinary catheter was routinely inserted throughout the operation and was removed after 24 hours of operation. Prophylactic antibiotics parental form in first two days and oral for next three days were used. The women were controlled for age, parity, indications for LSCS and operation time, infection/febrile episodes, bowel function, post-surgery analgesic/anaesthetic requirement, stay and Pain was evaluated twice a day from the first to the fifth postoperative day by Visual Analog Scales. The presence of adhesions and their severity, hernia were evaluated and recorded. Febrile morbidity was defined as a nonspecific fever above 38 degree Celsius on two occasions at least twelve hours apart.¹³ Tenderness of the uterus and offensive lochia with fever was diagnosed as Endomyometritis. Wound infection was diagnosed by erythema, induration, or purulent discharge from the skin. Cystitis was diagnosed by clinical dysurination or frequent micturition with more than 1 lack colonies of single sepsis of bacteria per mL of urine.

During the second LSCS, operative findings concerning intra-abdominal adhesion, including the degree of adhesion were noted. The women were classified into four groups; group with no adhesion, mild adhesion (<3cm band), moderate adhesion (>3-5cm band), and severe adhesion (>5cm band and or difficult to lysis).

RESULTS

In all 300 cases were analysed and profiles of the patients are shown in the **Table No-1**. The age of patients ranged from 18-36 years and range of parity was 0-3. All patients were given spinal anaesthesia.

	Non-Closure Group	Closure Group
Maternal Age (Yrs.)	18-35	18-36
Parity	0-2	1-3
Anaesthesia (Spinal)	150	150

Table 1: Patient's Profile

Table No-2 Presents the indications of LSCS. Maximum of patients (43-46%) in this study underwent t LSCS due to Foetal distress then formal presentations, CPD and BOH.

	Non-Closure Group	Closure Group
Foetal distress	70	65
Malpresentation	30	35
CPD	20	22
BOH	18	20
APH	12	08

Table 2: Indications of Operations

Post-operative complications at First LSCS are illustrated in Table No-3 Mean operation time, i.e. incision to closure of skin, mean anaesthesia time, hospital stay, therapeutic antibiotic requirements, Febrile morbidity of nonclosure group were less than that of closure group.

	Non-Closure Group	Closure Group
Mean Operation Time	32 min	36 min
Mean Anesthesia Time	40 min	45min
Post-operative Hospitalization	6days	7days
Additional Narcotics Used	6 (4%)	12 (8%)
Febrile Morbidity	4 (2.66%)	10 (6.66%)
Wound Infection	3 (2%)	3 (2%)
Endomyometritis	2 (1.33%)	2 (1.33%)
Cystitis	4 (2.66%)	5 (3.33%)
Bowel Function	18 hrs.	20 hrs.
Pph	nil	1(0.66%)
Others Infection	nil	Nil
Antibiotic for 2 more days	4 (2.66%)	10 (6.66%)

Table 3: Postoperative complications at first LSCS operations

Table No-4 contains the intra-abdominal adhesions during 2nd LSCS of fifty cases in each group. In this study more adhesions (44% V/s 20%) were observed in closure group.

Adhesion	Non-Closure Group	Closure Group
No adhesion	40 (80%)	28 (56%)
Mild adhesion	7 (14%)	15 (30%)
Moderate adhesion	3 (6%)	5 (10%)
Severe adhesion	nil	2 (4%)
Total adhesion	10 (20%)	22 (44%)

Table 4: Intra-abdominal adhesions found in 2nd LSCS

Bar Chart Showing Complications at 2nd LSCS

DISCUSSION

In this study there is shorter exposure to anaesthesia and lesser operation time in nonclosure group. This is consistent with Ghongdemath et al., Grundsell et al., Pietrantonio et al., Nagele et al., Saha et al.^{13,16-19} Less postoperative analgesic administration in open group due to less pain which was similar with Nagele et al., Hojberg et al., Rafique et al., Grundsell et al., Ghongdemath et al.^{13,14,17,18,20} Lower utilization of antibiotic due to lower febrile and infectious morbidity. This is also reflected by the other authors.^{9,13,16,17} Holtz and Elkins et al.² mentioned that adhesion formation after peritoneal closure is mainly due to foreign body reaction to the suture material, interruption of vascular supply or ischaemia and inflammation. There is less tissue reaction in nonclosure cases due to absence of foreign body i.e. suture material which was supported by observers.⁸⁻¹² On the other hand, peritoneal closure correlated with a significantly higher incidence of febrile morbidity and wound infection. This observations was correlated with.^{17,18} cystitis correlated with.²¹ endometritis with.¹⁸ increased postoperative pain with more narcotics use reflected in.^{14,15,16,18} prolonged hospital stay was comparable with.^{16,17,18} and antibiotic use coincided with.^{12,18} Return of bowel function was correlated with.^{14,15,17,21,22}

CONCLUSION

Operation time, Hospital stay, pain, adhesion formation, febrile and infectious morbidity were less in nonclosure patients during cesarean delivery. So, routine nonclosure of peritoneum at LSCS delivery is favorable.

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