Original Article

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A Clinical Study-Extraperitoneal Cesarean Section

Anita Pawar

Abstract

Objectives: To study postoperative recovery of modified extra peritoneal cesarean section technique (group, A) and its comparison with standard transperitoneal cesarean section (group, B) *Methods:* Observational study with sample size of 93 and 105 for group A and B respectively, at Lokmanya Tilak Municipal Medical College & General Hospital, Mumbai, India, with rate of over 10,000 deliveries per year. Two important parameters were studied. *Results:* Postoperative febrile morbidity was significantly lower in group A than B (6.5% Vs 21%, p=0.004). Gastrointestinal function recovery was earlier in group A than B (6h Vs 18.5h, p<0). *Conclusion:* Modified extraperitoneal cesarean section is associated with less febrile morbidity and early postoperative recovery than transperitoneal cesarean section.

Keywords: Early Postoperative Recovery; Transperitoneal Cesarean Section; Modified Extraperitoneal Cesarean Section.

Assistant Professor, Department of Obstetrics and Gynecology, Government Medical College, Latur, Maharashtra 413512, India.

Corresponding Author:
Anita Pawar
Assistant Professor, Department of Obstetrics and Gynecology, Government Medical College, Latur, Maharashtra 413512, India.
Email: dranita1983@gmail.com

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Introduction

Cesarean section (C-Section) is one of the most common procedure performed in modern obstetrics. Current situation is rising Incidence of cesarean section allover world including developing countries like India where it has reached to level of 25-50% including teaching institutes and private sector [7,16,18]. Infection is still one of the main reason of post cesarean morbidity and mortality [1]. The frequency of infection varies from 5% to 85% in most studies [9].

Background/Rationale

To bypass peritoneal cavity is a basic defense against infection and postoperative morbidity therefore, extraperitoneal c-section [8,12,14] provides an additional and maximum safety of margin to the patient. Modified extra peritoneal cesarean section [2,3] is simplified form of extra peritoneal cesarean section proposed to use its advantage of uncontamination of peritoneal cavity.

Methodology

Study Design

This study was carried out over a period of 3 years in the setting of Lokmanya Tilak Municipal Medical College and General Hospital , a tertiary care centre (Mumbai, India) from June2008 to June2011 (where yearly cesarean section rate is 25%) .

Participants

A. Study group, Modified extraperitoneal c-section (MECS), n=90.
B. Control group, Transperitoneal c-section (TCS), n=100.

Calculation of Sample Size

The sample size was based on a previous study by D. Cricton [3] showed a significant

difference in postoperative fever in cases undergone cesarean section by MECS technique versus cases undergone cesarean section by TCS technique [12% versus 30%].

Confounding Factors like maternal characteristics i.e. indications, age, parity, gestational age (all in range of 36-42 weeks) situation under which c-section performed (emergency or elective), type of anesthesia (all cases were done under regional anesthesia) type of abdominal skin incision (all cases by pfannenstiel), were *matched* in both groups. All patients had received antimicrobials postoperatively for five days.

Exclusion Criteria

Acute fetal distress where FHS <110 bpm, anterior placenta praevia, previous cesarean section -relative contraindication (only cases where lower segment & UV fold is densely adherent)

Technique of Modified Extraperitoneal Cesarean Section [2]

Abdomen is opened by pfannenstiel/midline incision till parietal peritoneum is reached and separated from rectus muscle by blunt dissection till the epigastric vessels visualized. Peritoneum is cut transversely just above the level of dome of bladder to its lateral limit. Utero–vesical (UV) fold cut and opened transversely to its lateral limit. Upper leaf of UV fold is sutured with upper leaf of parietal peritoneum. Thus the peritoneal cavity is cordoned off from the lower uterine segment. Rest of procedure is similar to transperitoneal cesarean section except that uterus is not exteriorized and sutured in situ.

Parameters Studied

1. Febrile morbidity
2. Gastrointestinal function recovery time

Follow up

Till the patients were in ward and after discharge up to two weeks i.e. first postnatal visit.

Statistical Analysis

Records subsequent to discharge were unavailable in case of two and five patients of group A and B respectively, therefore 91 and 100 cases were analyzed. Data analysis was done by applying Pearson Chi-square and unpaire

Statistical Analysis

Data analysis was done by applying Pearson Chi-square and unpaired T -test using SPSS software, Version15. P value of <0.05% was considered significant, at 95% confidence interval.

Results

Table 1: Indications of c-section

Indication	A (MECS, n=91)	B (TCS, n=100)
Premature rupture of membranes (duration, 8-30 hours)	37 (40.6%)	39(39%)
Prolonged labour(include CPD Malpresentation, failure of induction)	36(38.7%)	40(40%)
Meconium stained liquor (FHS reassuring)	8(8.7%)	10(10%)
Chorioamnionitis	5(5.4%)	6(6%)
Previous LSCS	5 (5.4%)	5(5%)

Table 2: Comparision of MECS with TCS

Parameters	MECS(n=91)	TCS(n=100)	p value
Febrile Morbidity (n,%)	6(6.5%)	21(21%)	0.004
Gastrointestinal Function recovery time(h) (mean±SD)	6±4.4	18.7±7.8	<0.01

MECS- modified extraperitoneal cesarean section, TCS- transperitoneal cesarean section

CPD-Cephalopelvic Disproportion

In our study, patients were having mean age of 24 years (range 19-31 years). The common indications (Table 1) were the cases with potential for infection like premature rupture of membranes, prolonged labor and chorioamnionitis.

The febrile morbidity (Table 2) was significantly less in the modified extraperitoneal cesarean section compared to transperitoneal cesarean section (6.5% vs 21%, p=0.004). The reduction in risk of febrile morbidity with MECS technique was RR=0.26(at 95% confidence interval,0.10 to 0.69).

Mean gastrointestinal function recovery time (Table 2) was significantly earlier in the MECS than TCS (6 hours Vs 18.7 hours , p<0.01). It was in range of 3-7 hrs and 14-24 hrs in group A and B.

Discussion

Postoperative febrile morbidity [12,17] is defined as oral temperature of 38.0°C on two occasions at least 4 hours apart, excluding the first 24 hours. Pelvic Infection (5-40%) [13] is the most common complication after cesarean section. Prophylactic antibiotics known to reduce the rate of pelvic infection by 70-80% (Smaill and Holmeyr 2002) [4]. However, Goepfert [5] and his colleagues reported that though pelvic infection is the most frequent cause of postoperative febrile morbidity, it could develop in 20% of cases despite perioperative antibiotic prophylaxis.

In our study we found that febrile morbidity was significantly less with modified extra peritoneal cesarean technique than routine transperitoneal cesarean technique. Although post cesarean antibiotic prophylaxis has a major impact in reducing infectious morbidity, there is also a concern of rapidly emerging widespread antibiotic resistance. In the observational study, conducted in rural part of South India [9] found that there is risk of antibiotic resistance even in rural parts with prolonged hospitalization and further added morbidity. MECS is one of of the best cesarean technique, could be used in such situation.

In similar type of study by Ding [5] and et al found, that postoperative morbidity was significantly less with modified extra peritoneal c-section (10% v 24%, p<0.01), also there was an early postoperative recovery. He concluded that it is a simple, convenient, safe and practical operative method and especially applied to those cases that have factors of intrauterine infection.

After abdominal surgery motility [15] of small intestine and stomach generally recover within 12-24 hours. Inhibition [11] of gut attributes the to handling during surgery, swab packing during operation or cleaning amniotic fluid or blood in the abdominal cavity and closure of the peritoneum may also affect the return of bowel function. We assessed gastrointestinal function recovery by gurgling bowel sound heard with stethoscope. There was early appearance of bowel sound in study group (as there was no bowel handling) and patients were early ambulated and discharged earlier, on day 3 postoperatively while in transperitoneal group it was on day 5. According to Cochrane Controlled Trials Register [10] early initiation of oral fluid is associated with reduced hospital stay. It is economical and decreases patient load, thus, very useful technique in developing countries like India where public hospitals face maximum patient turnover.

Conclusion

1. Modified extra peritoneal cesarean section is feasible except in acute cases.
2. It has an advantage of less post operative morbidity and early recovery.

A further long term study of modified extra peritoneal cesarean section over large number of cases is required.

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