



Intrauterine Cleaning After Delivery of Placenta during Cesarean Section: A Randomized Comparative Trial

Thesis

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Raghda Elsayed Ghonem



Dedication

To:

My parents

*for their endless love, support,
and continuous care*

My Husband

&

My Family

ABSTRACT

Background: Post-cesarean endometritis is still regarded as serious morbidities, in spite of the strategies used to prevent these complications. To reduce the morbidity, different preventive measures have been taken including the administration of prophylactic antibiotics, use of prophylactic vaginal preparation, and the uterine cavity cleaning. The benefits of such measure remain a topic of debate.

Objectives: To our knowledge, this is the first Egyptian trial to evaluate the value of intrauterine cleaning after placental delivery in reducing the rate of post-cesarean endometritis.

Subjects and Methods: We conducted this RCT at the Obstetrics and Gynecology department of Ain Shams university hospitals on 400 pregnant women aged 20-35 years and would undergo cesarean section for their deliveries. These women were randomly and evenly assigned into two groups; uterine cleaning and non-cleaning.

Results: The incidence of endometritis was higher among the cleaning group with a statistically significance difference ($p = 0.02$). Participants who had uterine cleaning had 2.25 increase in risk of endometritis in comparison to those who did not receive cleaning ($P = 0.04$). Also, women in the cleaning group complained of pelvic tenderness more frequently than those in the non-cleaning group ($p = 0.008$).

Conclusions: Uterine cleaning was associated with a significant increased risk of endometritis; however, it didn't increase the surgical time and estimated blood loss significantly.

Keywords: post-cesarean endometritis, uterine cleaning.

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LIST OF ABBREVIATIONS

Abbreviation	Meaning
AAP	American Academy of Pediatrics
ACOG	American College of Obstetricians and Gynecologists
BMI	Body Mass Index
BV	Bacterial Vaginosis
CD	Cluster of Differentiation
CDC	The Centres for Disease Control and Prevention
CE	Chronic Endometritis
CI	Confidence Interval
cm	Centimetre
CT	Computed Tomography
EBL	Estimated Blood Loss
EM	Electron Microscopy
g	Gram
IL	Interleukin
IUGR	Intrauterine Growth Restriction
IV	Intravenous
mg	Milligram
MRI	Magnetic Resonance Imaging
NK	Natural Killer
PEACH	PID Evaluation and Clinical Health
PID	Pelvic Inflammatory Disease
PPH	Postpartum Hemorrhage
q4h	Quaque Quarta Hora = Every 4 Hours

Abbreviation	Meaning
q8h	Quaque Octava Hora = Every 8 Hours
RCT	Randomized Controlled Trial
RR	Relative Risk
SPT	Septic pelvic thrombophlebitis
STD	Sexually transmitted diseases
TH	T-helper
UTI	Urinary Tract Infection

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INTRODUCTION

Caesarean section is one of the commonest operations performed and its incidence is increasing. The majority of these operations proceed smoothly and safely; however, caesarean section is a major, open abdominal procedure (**Dahiya, 2016**).

Women undergoing caesarean sections are 5-20 times more susceptible to infection than women who had normal vaginal delivery. Infectious complications after cesarean delivery include fever, sore wounds and endometritis. These complications are major causes of maternal morbidity, and may prolong mother's hospital stay (**Mohamed et al., 2015**). The rate of post-cesarean infection varies from 7% to 20%, depending on operating time, maternal body mass index (BMI), duration of labor, number of vaginal examinations during labor, the amount of blood loss, emergency or elective caesarean delivery and surgeon's experience (**Mohamed, 2013**).

Post-cesarean wound infection and endometritis are still regarded as serious morbidities, in spite of the strategies used to prevent these complications with respect to patient complaint, patient cost, use of antibiotics and prolonged hospital stay. The most recognized risk factors for

developing post-cesarean endometritis involve pathways that introduce high quantities of bacteria into the uterine cavity (**Abdallah, 2015**).

To reduce morbidity, different preventive measures have been taken including the administration of prophylactic antibiotics, use of prophylactic vaginal preparation, and the uterine cavity cleaning (**Jafarzadeh et al., 2016**). The latter two measures haven't been approved by the scientific community; yet, they are discussed in some gynecologic surgery textbooks (**Haas et al., 2010**).

Despite the lack of a scientific evidence to support a policy of routine intrauterine cleaning after placental delivery at cesarean sections, the benefits of such measure remain a topic of debate. Obstetricians who don't support intrauterine cleaning argue that this procedure is not routinely performed after vaginal deliveries, and therefore, it's unnecessary to do so following cesarean sections (**Eke et al., 2016**).

To date, none of the previous studies addressing this topic, especially randomized clinical trials (RCTs), has been conducted in Egypt. Therefore, to our knowledge, this is the first Egyptian trial to evaluate the value of intrauterine cleaning after placental delivery in reducing the rate of post-cesarean endometritis.

AIM OF THE WORK

To improve the outcomes of women undergoing cesarean sections.

OBJECTIVES

To compare the efficacy of cleaning versus not cleaning the uterine cavity after placental delivery at cesarean section, on developing postpartum endometritis.

RESEARCH QUESTION

In women undergoing cesarean section, does cleaning the uterine cavity after placental delivery reduce the rate of postpartum endometritis?

RESEARCH HYPOTHESIS

Null hypothesis:

There is no significant difference between cleaning and not cleaning the uterine cavity after placental delivery in the rate of postpartum endometritis.

Alternative hypothesis:

Cleaning the uterine cavity after placental delivery in cesarean section reduces the rate of postpartum endometritis

Chapter I:

Cesarean Section

Caesarean section is one of the commonest operations performed all over the world and its incidence is increasing. In addition to the increasing rates in developed countries, rates are increasing in some developing countries. The majority of these proceed smoothly and safely; however, caesarean section is a major, open abdominal procedure, often performed in an emergency setting (**Dahiya, 2016**).

1. Indications:

The indications and proportions of caesarean delivery will vary from country to another one, and from hospital to another. Nonetheless, there are four main indications that account for 60–90% of all caesarean sections. These include: repeated caesarean section (35–40%), dystocia (20–35%), breech (10–15%) and fetal distress (10–15%) (**Baskett and Arulkumaran, 2011**). Each hospital and health region can analyze its own caesarean delivery indications using the universally applicable Robson 10-group method (**Robson, 2001; Allen et al., 2010**).

1.1 Indisputable Indications:

- Placenta praevia, except possibly in the most minor degrees of this condition.

- Demonstrable fetal hypoxia or imminent fetal demise. Except in the second stage of labor when vaginal delivery may be a safer and quicker option, clear evidence of fetal hypoxia or its inevitability mandates immediate caesarean delivery. This includes antepartum or intrapartum asphyxia confirmed by fetal blood gas measurement or unequivocal cardiotopographic evidence; umbilical cord prolapse; vasa praevia; uterine rupture; and severe abruption placentae where the fetus is still viable.
- Unequivocal cephalopelvic disproportion, soft tissue obstruction or fetal malpresentation not caused by gross fetal malformations incompatible with life (**Baskett and Calder, 2011**).

1.2 Marginal Indications:

This is a small category but has the potential to increase. Included here are those women who have a morbid fear of labour, possibly based on a previous bad experience. Another example is the woman who wants elective caesarean delivery to obviate the perceived risks of fetal injury or asphyxia during labor, or to minimize the risks of damage to her pelvic floor. Others may have worries about their body image or sexuality after vaginal delivery. Each of these