



**Title:** Second Stage Cesarean Delivery, Low Segment Uterine Incision Extensions and Prematurity in the Following Delivery

**Presenting author name** Orna Reichman

**Affiliation details of Presenting author** Department of Obstetrics and Gynaecology, Shaare Zedek Medical Centre, Hebrew University, Jerusalem, Israel

**Co-authors' details** Ayala Hirsch, Shira Fridman, Sorina Grisaru-Granovsky and Sarit Helman

**Affiliation details of Co-authors** Department of Obstetrics and Gynaecology, Shaare Zedek Medical Centre, Hebrew University, Jerusalem, Israel

**Abstract:** Preterm birth (PTB), defined as delivery before 37 weeks of gestation is a multifactorial phenomenon and associated with various factors. Few studies have demonstrated the association between a second stage cesarean delivery (SSCD) and PTB in the following delivery. The hypotheses proposed for this association include structural cervical trauma by various mechanisms, occurring more frequently during SSCD. Such trauma has the potential to harm the muscular body of the internal os, leading to cervical dysfunction in subsequent pregnancies ultimately increasing the risk of PTB. We investigated whether SSCD had a higher occurrence of low segment uterine incision extensions compared with cesarean delivery (CD) at other stages of labor and to study the association of these extensions with prematurity in the following delivery. We present a retrospective longitudinal follow-up cohort study, spanning from 2006 to 2019. All selected mothers who delivered by a CD at first birth (P1) and returned for second birth (P2) were grouped by cesarean stage at P1: planned CD, first-stage CD, or SSCD. Excluded were mothers with PTB at P1, multiple-gestation pregnancies in either P1 or P2 and those with prior abortions. The study included 1574 selected women who at P1 underwent a planned CD n=483 (30.7%), first-stage CD n=878 (55.8%), and SSCD n=213 (13.5%). There was a higher occurrence of low segment uterine incision extensions among SSCD compared to first-stage CD and planned CD: 50/213 (23%), 56/878 (6.4%), and 5/483 (1%), respectively ( $p<0.001$ ). A multivariate logistic regression showed that women undergoing a SSCD are at risk for low segment uterine incision extensions compared with women undergoing a planned CD, OR 28.8 (CI 11.2; 74.4). We observed no association between the occurrence of a low segment uterine incisional extension at P1 and  $PTB\leq 37$  gestational weeks in the subsequent delivery, with rates of 6.3% (7/111) for those with an extension compared to 4.5% (67/1463) for those without an extension ( $p=0.41$ ). Notably, parturients experiencing a low segment uterine incisional

extension during their first childbirth were six times more likely to have a preterm delivery before 32 weeks of gestation compared to those without extensions, 2 cases (1.8%) compared to 4 cases (0.3%) respectively. A similar trend was observed for PTB between 32-34 weeks of gestation, with those having extensions showing twice the prevalence of prematurity compared to those without,  $p=0.047$ . This study highlights that mothers undergoing SSCD experience higher prevalence of low uterine incision extensions compared to other CD. To further ascertain whether the presence of these extensions is associated with prematurity in subsequent births, particularly early PTB before 34 weeks of gestation, larger-scale future studies are warranted.

## **Biography**

Orna Reichman MD MSCE

- Director of Maternity Ward A, OGBYN, Shaare Zedek Medical Center, Jerusalem, Israel.
- A Senior Lecturer, Hebrew University, Jerusalem, Israel.
- Master Degree in Clinical Epidemiology.
- Research Fellow in Wayne State University (2007-2009)
- Publications <https://pubmed.ncbi.nlm.nih.gov/?term=orna+reichman&sort=pubdate>