

## Factor Contributing to Abdominal Delivery in Women with one Cesarean Section

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### Abstract

**Objective:** To determine the maternal outcome in females undergoing trial of labor with previous one cesarean section.

**Material and Methods:** A cross-sectional study was conducted at department of Obstetrics & Gynecology, Central Park Teaching hospital, Lahore from June 2022 to January 2023 in which two hundred and fifty females having previous one cesarean section were included in the study from labor room undergoing trial of labor. Then females were followed-up in labor room till delivery and mode of delivery was noted. The indications for current cesarean section, including maternal wish, short inter-pregnancy interval, failed progress, fetal distress and impending rupture were also noted. All this information was recorded on proforma and analyzed through SPSS version 21.

**Results:** In this study, 250 females were enrolled with mean age of  $30.25 \pm 5.89$  years, at mean gestational age at delivery  $38.91 \pm 2.24$  weeks. The most common indication for previous cesarean section was fetal distress 170(68%), followed by Cephalo-pelvic disproportion 30(12%), failed induction 22(8.8%), failed progress 18(7.2%), breech pregnancy 7(2.8%), and placenta previa 3(1.2%). Successful vaginal delivery occurs in 120 (48%) cases, and cesarean section was repeated in 130 (52%) cases. The repeat cesarean section was done due to following indications i.e. fetal distress 82 (32.8%), followed by failed progress [48 (19.2%)], short inter-pregnancy interval 85(34%), impending rupture 32(12.8%), and maternal wish [21 (8.4%)].

**Conclusion:** Thus the chances of vaginal VBAC with trial of labor can be effective in reducing almost half number of repeat cesarean sections.

**Keywords:** Vaginal birth after previous 1 cesarean section, normal delivery, fetal distress, failed progress, maternal wish

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### Introduction

Although the rates of cesarean section vary widely from one nation to the next and even within a single country from one institution to the next, they have been on the rise in recent decades. This rise may be attributed

to a number of factors, including the rise in popularity of electronic fetal heart rate monitoring and the subsequent decline in surgical vaginal births including episiotomies and breech vaginal deliveries.<sup>1</sup> Flamm and Geiger developed a scoring system in 1997 to assist physicians in determining the likelihood that a woman requesting a VBAC would actually give birth vaginally.<sup>2</sup> To predict whether or not a TOLAC would be effective, Grobman et al. created a model using first-visit data.

Having another cesarean section may be recommended or provided to women who have already had one. As a result, this factor contributes to the rising trend of C-sections. As a result, one effective method for lowering C-section rates is the trial of labor after caesarean section

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(TOLAC). In between 65% and 83.3% of VBAC attempts succeed.<sup>3,4</sup> Despite the fact that VBAC has few risks, its use has been on the wane in recent years. In contrast, the number of repeat caesarean sections that are voluntary is increasing.<sup>5</sup> Patients' worry and panic about the potential dangers of VBAC may be contributing factors in this phenomena.<sup>6</sup>

According to a study, done by Ugwu et al., there were 2610 women who had already had a Cesarean section at least once. Ninety one percent of the women surveyed were in favor of VBAC. Just around 54% were deemed VBAC candidates, and of those, 50% had a successful outcome.<sup>7</sup> Yet, another research found that only 45.5% of women who had had one prior cesarean scar were able to successfully give birth vaginally. Under the right circumstances, women who have already had a cesarean should be encouraged to try giving birth vaginally. In order to prevent needless cesarean sections, care should be taken before suggesting moms for cesarean delivery owing to a history of just one prior cesarean section.<sup>8</sup> Yet, a study conducted in Iran found that even after one prior cesarean surgery, 91% of women still had successful vaginal deliveries.<sup>9</sup> As long as they don't have any other complications, pregnant women who have already had a cesarean section should be given the option of trying for a vaginal delivery (also known as a planned VBAC). Yet, there is a dearth of reliable, comprehensive data on the results of this decision to help advise eligible women.<sup>10</sup>

Rationale of this study is to determine the factors leading to repeat cesarean section in females having previous one cesarean section. In routine, females who had one delivery through cesarean section, it is usually thought that next delivery would occur through cesarean section only. However, trial of labor can be given and vaginal delivery can be successful in at least 50% patients. However, mostly females are unaware about importance VBAC, due to lack of abundant knowledge and counselling, and usually undergo repeat cesarean section. Therefore this study was conducted to assess the maternal outcome in patients undergoing vaginal delivery and having previous one cesarean section.

## Material And Methods

This descriptive study was conducted at the Department of Obstetrics & Gynecology, Central Park Teaching hospital, Lahore from June 2022 to January 2023. After the taking approval form Ethical Committee No 1326 date 10-01-2022. Sample size (n) of 250 cases

was calculated with 95% confidence level, 6.5% margin of error & percentage of successful vaginal delivery i.e. 50% in females with previous one cesarean section.<sup>7</sup> All the patients were enrolled by applying Non probability, consecutive sampling who fulfilled the following selection criteria. Females of age 20-40 years, parity <5, presenting in at term (gestational age >37 weeks) having previous delivery through cesarean section were enrolled in the study. But females do not want to take part in study, previous >1 cesarean section, previous classic incision, h/o myomectomy, uterine anomalies, macrosomia (>4 kg fetal weight). Informed consent was obtained. Demographic details (name, age, parity, BMI, gestational age, inter-pregnancy interval, indications for cesarean in previous pregnancy, indication for repeat cesarean in current pregnancy) were also noted. Then females were followed-up in labor room till delivery and mode of delivery was noted. If delivery occurs through repeat cesarean section, then it was noted and factors or indications for repeat cesarean sections were also noted. After delivery, females were shifted to post-delivery wards and were follow-up there for 24 hours. Blood loss was noted and if blood loss >500 ml within 2 hours, then postpartum hemorrhage was labeled. The indications for cesarean section, including maternal wish, short inter-pregnancy interval (<6 months), failed progress, fetal distress (on CTG or meconium detected) and impending rupture were also noted. All this data was recorded on proforma. All data was entered and analyzed in SPSS v. 21. Mode of delivery, outcome, and indications for repeat cesarean section was presented as frequency and percentage. Chi-square test was applied to compare indications in mode of delivery. P-value  $\leq 0.05$  was kept as significant.

## Results

In this study, 250 females were enrolled with mean age of  $30.25 \pm 5.89$  years, at mean gestational age of  $38.91 \pm 2.24$  weeks. The mean BMI of females was  $25.06 \pm 3.43 \text{ kg/m}^2$ . There were 103 (41.2%) females of parity 1-2 and 147 (58.8%) females had parity 3-4. The mean inter-pregnant interval was  $13.62 \pm 4.84$  months. There were 68 (27.2%) females who were illiterate, 105 (42%) were under matric and 77 (30.8%) were graduate. Out of 250 females, 155 (62%) females were house wives, 72 (28.8%) were doing jobs and 23 (9.2%) were maids. Out of 250 husbands, 83 (33.2%) were doing business, 105 (42%) were doing jobs, 47 (18.8%) were labor and 15 (6%) were farmers. The most common indication

for cesarean section in last pregnancy was fetal distress [170 (68%)], followed by Cephalo-pelvic disproportion [30 (12%)], failed induction [22 (8.8%)], failed progress [18 (7.2%)], breech pregnancy [7 (2.8%)], and placenta previa [3 (1.2%)]. The mean duration of labor in that

**Table 1:** *Basic characteristics of patients*

Characteristic	Mean ± SD, f (%)
N	250
Age (years)	30.25 ± 5.89
BMI	25.06 ± 3.43
Parity	
1-2	103 (41.2%)
3-4	147 (58.8%)
Gestational age	38.94 ± 1.32
Inter-pregnancy interval	13.62 ± 4.84
Education	
Illiterate	68 (27.2%)
Under matric	105 (42%)
Graduate	77 (30.8%)
Occupation	
Housewife	155 (62%)
Jobian	72 (28.8%)
Maid	23 (9.2%)
Husband's job	
Business	83 (33.2%)
Job	105 (42%)
Labor	47 (18.8%)
Farmer	15 (6%)
Indication for cesarean section in last pregnancy	
Fetal distress	170 (68%)
Cephalo-pelvic disproportion	30 (12%)
Failed induction	22 (8.8%)
Failed progress	18 (7.2%)
Breech pregnancy	7 (2.8%)
Placenta previa	3 (1.2%)
Duration of labor in that pregnancy	13.37 ± 5.92

pregnancy was 13.37 ± 5.92 hours as explained in table 1. The decision, taken for VBAC were due to inter-pregnancy interval >6 months [162 (64.8%)], followed by maternal wish [55 (22%)], and spontaneous labor [33 (13.2%)]. Successful vaginal deliver occurs in 120 (48%) cases, out of which spontaneous delivery occurs in 40(16%) cases while episiotomy was done in 80 (32%) cases. Cesarean section was repeated in 130 (52%)

cases. Postpartum hemorrhage was observed in 22 (8.8%) females. The repeat cesarean section was done due to following indications i.e. fetal distress 82 (32.8%), followed by failed progress [48 (19.2%)], short inter-pregnancy interval 85 (34%), impending rupture 32 (12.8%), and maternal wish [21 (8.4%)]. Among females who had maternal wish for cesarean section, 7 (18.9%) had prolonged agony, 17 (45.9%) had cannot bear pain, 3 (8.1%) had urinary tract infection, 2 (5.4%) were alone and 8 (21.6%) got anxiety form fetal distress as explained in table 2. Mode of delivery showed significant impact on PPH (p<0.05) and females with vaginal

**Table 2:** *Outcome in current pregnancy*

Decision taken for VBAC	F (%)
Inter-pregnancy interval >6 months	162 (64.8%)
Maternal wish	55 (22%)
Spontaneous labor	33 (13.2%)
Outcome	
Successful vaginal delivery	120 (48%)
Spontaneous Vaginal delivery	40 (16%)
Episiotomy	80 (32%)
Repeat cesarean section	130 (52%)
Post-partum hemorrhage after vaginal delivery	22 (8.8%)
Indication for repeat cesarean section	
Fetal distress	82 (32.8%)
Failed progress	48 (19.2%)
Short inter-pregnancy interval	85 (34%)
Impending rupture	32 (12.8%)
Maternal wish	21 (8.4%)
Explanation of maternal wish for repeat c/s	21 females
Prolonged agony	5 (23.8%)
Pain	11 (52.4%)
Infection / puerperal sepsis	1 (4.8%)
Anxiety from fetal distress	4 (19.0%)

**Table 3:** *Comparison of outcome of delivery in females with and without short IPI delivery*

		Mode of delivery		Total (n = 250)	P- value
		Repeat Cesarean (n=130)	Vaginal delivery (n=120)		
PPH	Yes	0	22	22	0.000
		0%	18.3%	8.8%	
	No	130	98	228	
		100%	81.7%	91.2%	



delivery had more risk of PPH. (Table 3)

## Discussion

Trials of labor after cesarean and uterine rupture have among of the highest success rates for women who have previously given birth vaginally, including those who have given birth vaginally after a cesarean (VBAC).<sup>11</sup> In 2017, it was reported that 26% of births were performed through cesarean section. Women who have had cesareans and then try to go into labor again face a number of risks, the most serious of which is uterine rupture.<sup>12</sup> As compared to having cesarean sections repeatedly, the benefits of VBAC include fewer complications during surgery, less time spent in the hospital, a lower risk of postpartum hemorrhage, less maternal morbidity, and a lower chance of complications with subsequent pregnancies. VBAC is also an important tactic for reducing the number of repeat cesarean sections that are neither medically required nor financially prudent.<sup>13,14</sup>

In our study, we observed successful vaginal delivery occurs in 120 (48%) cases, and cesarean section was repeated in 130 (52%) cases. The repeat cesarean section was done due to following indications i.e. fetal distress 82 (32.8%), followed by failed progress [48 (19.2%)], short inter-pregnancy interval 85(34%), impending rupture 32(12.8%), and maternal wish [21 (8.4%)]. A research by Mi et al., indicated that 76.48 percent of women who attempted VBAC were successful, whereas 23.52 percent had complications and needed to have a cesarean section instead. Parity = 1, pre-pregnancy BMI 24 kg/m<sup>2</sup>, cervical score >5, prior vaginal delivery, and neonatal birthweight <3300 g were all linked with TOLAC success in a multi-factor logistic regression.<sup>15</sup>

The relevance of fetal weight in predicting TOLAC effectiveness has been shown by several studies.<sup>16,17</sup> From our data, we know that 12 percent of prior cesarean sections were performed because of cephalo-pelvic disproportion.

One of the major predictors of a successful VBAC is an interbirth period of more than 2 years. There have been more studies that confirm this. Thus, women who have already had a cesarean section should wait at least 2 years before trying to get pregnant again. This is something that doctors should think about when discussing VBAC with expectant moms. Nevertheless, this link was not found in an Ethiopian investigation.<sup>18-20</sup> In our sample, about 65% of women experienced a gap of more than 6 months between pregnancies. Women of

lower socioeconomic position are more likely to try childbirth following a cesarean.<sup>21</sup> One of the most important predictors of a successful VBAC is the absence of a previous stillbirth. This observation is consistent with the results of the Addis Abeba research. This indicates that a negative obstetric history, such as stillbirth, might influence the method of delivery. Women who have already given birth through cesarean think that their child has a better chance of survival if they give birth using the same method.<sup>18</sup>

By comparing women with and without a history of VBAC or VD, Atia et al. discovered that women with both VBAC and VD had considerably higher rates of successful VBAC (96% and 86% vs. 76%;  $p < 0.01$ ). Nevertheless, compared to women who had not had a VBAC or VD before, those who had a VBAC in the past had considerably reduced rates of uterine rupture (0.1% versus 0.6% and 0.6%;  $p < 0.01$ ). Women who had a VBAC before their CD had a much higher prevented proportion of TOLAC success (83% vs. 42%,  $p < 0.01$ ) than women who had a VD before their CD.<sup>11</sup> Counseling patients on trying to go into labor after a cesarean section should be evidence-based and free of prejudice. Providers often employ VBAC "calculators," but many of them are based on older research papers and incorporate race in their calculations, leading to lower anticipated success rates for patients of Hispanic and African-American origin even when other factors are taken into account.<sup>22</sup>

Masooma et al., conducted a study in Islamabad and reported that about 41.2% females underwent repeat cesarean section after trial of labor. The main indicators were non-engagement of fetal-head, and higher estimated fetal weight.<sup>23</sup> While Kashif et al., conducted a study and observed that with trial of labor in previous cesarean section, 41.0% females had cesarean section because of fetal distress, while in 28% had breech presentation, 29.0% females had impending rupture.<sup>24</sup> In another study, conducted by Bari et al., in Karachi, it was reported that 51.6% underwent repeat caesarean section, due to cervical dilatation <4cm in 94% cases and effacement >25% in 66.9%.

## Conclusion

Thus, the chances of vaginal delivery with trial of labor can be effective in reducing about 48% repeat cesarean sections. Now in future, we will implement counseling sessions for females who had previous 1 cesarean delivery for trial of labor and importance of VBAC. That

will ultimately reduce chances of repeat cesarean section and improve our knowledge and we can be able to plan better management protocols to improve the outcome of pregnancy with VBAC.

**Conflict of interest** None

**Funding source** None

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### Authors Contribution

**NUA:** Conceptualization of Project

**NUA, UZ, RAA:** Data Collection

**RAA:** Literature Search

**MM:** Statistical Analysis

**MM:** Drafting, Revision

**NUA, UZ, RAA, MM, MZS:** Writing of Manuscript