



**Republic Of Iraq  
Ministry Of Higher Education  
And Scientific Research  
University Of Diyala  
College Of Medicine**

## **Pregnancy outcome in women with previous one Caesarean Section**

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## *Dedication*

To My loving parents, my sisters and my brother

Without whom none of my success would Be possible...

Asking Allah to help me to do All the possible things to make them Happy and proud of me...

## *Acknowledgment*

All my gratitude and thanks for ALLAH the greatest, most merciful, for giving me the strength to complete my research.

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## *List of contents*

<i>Subject</i>	<i>Page number</i>
Abstract	6
<b>Chapter one</b>	<b>7</b>
Introduction	8
Caesarean section	8
Risk of caesarean section	9
Vaginal Birth After Cesarean section	10
Complications	10
<b>Chapter two</b>	<b>11</b>
Materials and methods	12
<b>Chapter three</b>	<b>14</b>
Results	15
<b>Chapter four</b>	<b>19</b>
Discussion	20
<b>Chapter five</b>	<b>22</b>
Recommendation	23
Appendix	25
References	28

## ***List of tables***

<i>Table</i>	<i>Page number</i>
<i>Table 1: Indication for cause of cesarean section</i>	<i>15</i>
<i>Table 2: Outcome of pregnancy</i>	<i>17</i>
<i>Table 3: Effect of parity on delivery outcome</i>	<i>18</i>

## ***List of figures***

<i>Figure</i>	<i>Page number</i>
Demographic Data of participants and cause of cesarean section	16
Outcome of pregnancy	17

## ***List of abbreviations***

<b><i>abbreviation</i></b>	<b><i>meaning</i></b>
<b><i>VBAC</i></b>	<b><i>vaginal birth after cesarean</i></b>
<b><i>ERCP</i></b>	<b><i>elective repeat cesarean section</i></b>
<b><i>TOS</i></b>	<b><i>trial of scar</i></b>
<b><i>TOLAC</i></b>	<b><i>trial of labor after cesarean section</i></b>
<b><i>ARM</i></b>	<b><i>Artificial rupture of membranes</i></b>

## ***Abstract***

**Background:-** Women with previous cesarean sections constitute a highrisk group in obstetrics, with associated medical and legal implications. Vaginal birth after cesarean (VBAC) or trial of scar (TOS) represents a significant change in modern obstetric practice.

The association between previous c/s and pregnancy outcomes were assessed by world health organization. Maternal outcomes were stillbirth, early neonatal death, perinatal death, neonatal near miss (NNM), neonatal intensive care unit (NICU) admission, and preterm birth.

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**Objectives:-** The purpose of this study was to determine the outcome of pregnancy in women with previous one caesarean section in relation to vaginal delivery and maternal complications.

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**Resuls & Methods:-** This study was conducted in Albatool teaching hospital Diyala, Iraq. Approval was obtained from the Ethics Committee, and a retrospective analysis of medical records of 90 women with previous one cesarean section who delivered during the time period (August2022\_December 2022) was carried out.

Of the 90 women,36 were candidates for trial os scar. Of these women, 17 (18.9%) had failed vaginal birth and underwent for repeat cesarean section and 19(21.1%) had successful trial of scar and delivered by normal vaginal delivery..The rate of normal delivery was significantly higher in woman with previous vaginal delivery, especially in those with prevoius VBAC.

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**Conclusion:** careful selection of appropriate patients for trial of scar with no previous significant complications and close follow up of maternal and fetal condition is often indicated and successful.

In multiparous women with previous vaginal delivery, the rates of vaginal delivery were significantly higher than patients with no previous normal delivery.

**Keywords:-** VBAC, Trial of scar, Elective

# *Chapter one*

*Introduction and literature Review*



## ***Introduction***

### **Caesarean section**

also known as C-section or caesarean delivery, is the surgical procedure by which one or more babies are delivered through an incision in the mother's abdomen, often performed because vaginal delivery would put the baby or mother at risk.[1] Reasons for the operation include obstructed labor, twin pregnancy, high blood pressure in the mother, breech birth, and problems with the placenta or umbilical cord.[2][3]

A caesarean delivery may be performed based upon the shape of the mother's pelvis or history of a previous C-section.[2][3] A trial of vaginal birth after C-section may be possible.[2] The World Health Organization recommends that caesarean section be performed only when medically necessary.[3][4] Most C-sections are performed without a medical reason, upon request by someone, usually the mother.[2]

C-sections result in a small overall increase in poor outcomes in low-risk pregnancies.[3] They also typically take longer to heal from, about six weeks, than vaginal birth.[2] The increased risks include breathing problems in the baby and amniotic fluid embolism and postpartum bleeding in the mother.[3] The method of delivery does not appear to have an effect on subsequent sexual function.[4]

In 2012, about 23 million C-sections were done globally.[8] The international healthcare community has previously considered the rate of 10% and 15% to be ideal for caesarean sections.[5]

### ***Etymology***

The term "caesarean" or "cesarean" section is derived from the Latin word "caesus," meaning "cut." The false belief that Julius Caesar was born by C-section has been widely repeated, but there is no classical source to support it.[5] The Roman practice of performing C-sections was only used as a last resort, and it was only performed on women who had died during childbirth or who were in their tenth month of pregnancy and could not survive a natural delivery.[6] The term "Caesar" became associated with C-sections because of the belief that a certain

Julius Caesar was "cut from the womb." While the spelling of "caesarean" or "cesarean" may vary, it remains a common procedure for delivering babies safely today.[7]

### *Risk of caesarean section*

#### **Risks to babies include:**

**\_Breathing problems and Surgical injury**[8]

#### **Risks to mothers include:**

**\_Infection and Blood loss**[9]

**\_Reactions to anesthesia and Blood clots**[10]

**\_Surgical injury and Increased risks during future pregnancies.** [11] The more C-sections, the higher the risks of placenta previa and a condition in which the placenta becomes attached to the wall of the uterus (placenta accreta).

A C-section also increases the risk of the uterus tearing along the scar line (uterine rupture) for women who attempt a vaginal delivery in a later pregnancy.[11]

## **Vaginal Birth After Cesarean Delivery**

Vaginal birth after cesarean section (VBAC) describes a vaginal delivery in a women who has given birth via cesarean section in a former pregnancy. Patients desiring VBAC delivery undergo a trial of labor (TOL), also called trial of labor after cesarean section (TOLAC). [12]While TOL is an accepted and generally safe practice, serious potential complications include uterine rupture or uterine dehiscence and associated maternal and/or neonatal morbidity.[14] Providers caring for patients with prior cesarean section need to counsel patients regarding potential risks and benefits of TOL and the factors which affect the likelihood of successful vaginal delivery. [13]

### ***Complications:***

The most significant complication which can occur in patients undergoing TOLAC is uterine rupture which involves the incision made into the uterus at the time of the prior cesarean delivery. [15] Uterine rupture is a medical emergency and patients must be taken immediately for laparotomy for delivery of the fetus and to address and additional complications. [16] When uterine rupture occurs, transfer of blood and oxygen to the baby is interrupted, and this can result in fetal complications including fetal acidosis, a need for neonatal intensive care unit (NICU) admission, and even death. [13,15] While the absolute risk of perinatal mortality is low with TOLAC, the risk is slightly higher when compared to babies born to mothers undergoing planned repeat cesarean delivery (.13 versus 0.05%). [15]

In cases of uterine rupture risk to the mother is also significant. Patients may experience significant hemorrhage. When hemorrhage occurs in this setting transfusion, and sometimes hysterectomy, is necessary to control bleeding and can be life-saving. [16]

**Both**, attempting a vaginal birth and opting for an elective repeat cesarean section (ERCS) are associated with different risks for the mother and newborn; and, deciding a delivery plan involves a difficult weighing of those cases. [17]

**The main aims of our study** were to determine the outcome of pregnancy in women with prior cesarean section in relation to vaginal delivery, maternal complications and to identify the factors, which can influence the outcome of TOS. [18]

# *Chapter two*

## *Materials and methods*

## ***Materials And Methods***

This study was conducted in Albatool teaching hospital Diyala, Iraq. Approval was obtained from the Ethics Committee, and a retrospective analysis of medical records of 90 women with previous one cesarean section who delivered during the time period (August 2022\_December 2022) was carried out.

### **Inclusion criteria:**

- 1- Age 20-41
- 2- Gestational age 37 week and above
- 3- Single and twin pregnancy
- 4- No significant complications such as uterine rupture in previous pregnancy
- 5- Both cephalic and breech presentation were included

### **Exclusion criteria:**

- 1- Age of less than 20 or more than 41
- 2- Prematurity( less than 36 week)
- 3- Any significant complications as uterine rupture
- 4- Woman with more than previous one cesarean

uterine surgery involving the cavity, scar rupture or extension, those with inter-delivery interval of less than 18 months, and those with unknown scar type were booked for ERCS. The mode of delivery was planned during the antenatal visit to the clinic, usually by about 36 weeks after proper counseling.

For un-booked patients, the decision was made when they reported to the labour ward. For those who planned for TOS, spontaneous onset of labour was awaited till 40 week. Induction of labour was carried out when cervical dilatation was 3\_4 cm by artificial rupture of membranes (ARM) and follow up of cervical dilation and descent with partograph were done. However, prostaglandins and oxytocin were not used for cervical ripening.

Maternal outcome was measured in terms of type of delivery (VBAC, ERCS, or Failed VBAC), occurrence of scar dehiscence (complete or partial), visceral injury, post-partum hemorrhage with the need for blood transfusion, uterine rupture, adherent placenta, hysterectomy, and maternal death.

Descriptive statistics were used to analyze the continuous and categorical data and presented in the form of mean, standard deviation and percentage, while proportions were analyzed using chi-square test. A p-value  $\leq 0.05$  was considered statistically significant.

# *Chapter Three*

## *Results*

### *Results*

***Table 1: indications for cause of caesarean section.***

***Figure 1: Demographic data of participants and cause of caesarean.***

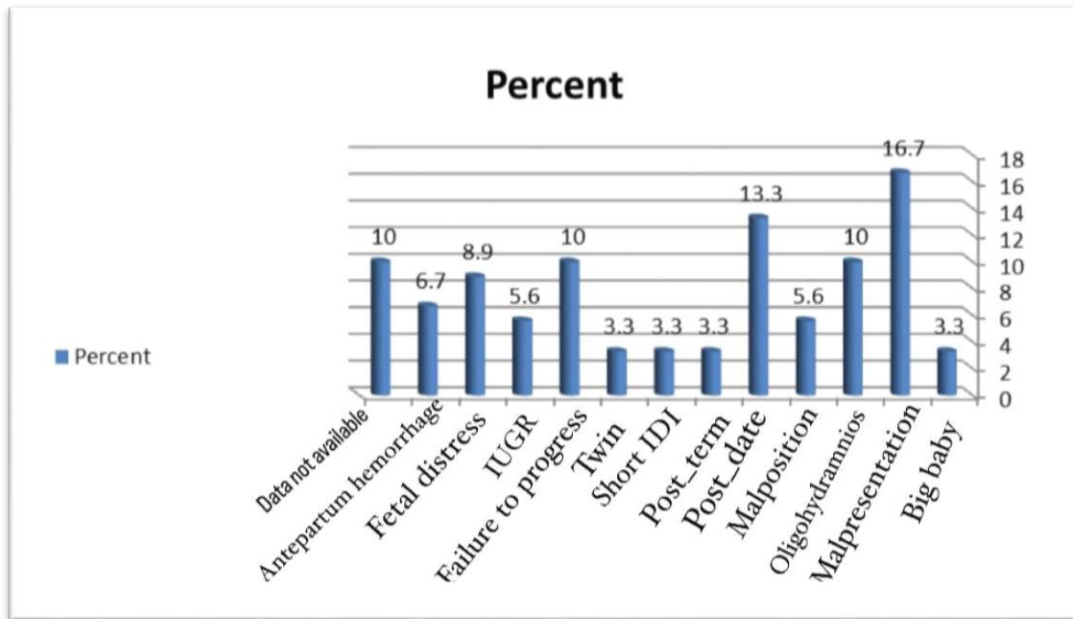
A total of 90 women with history of previous one caesarean delivery, were included in the study.

Of 90 woman has caesarean section by different causes,the most common cause was malpresentation (15 patient , 16.7%) , followed by second most common cause which was post \_date ( 12 patient, 13.3%) ,other causes arranged respectively were: 3 women (3.3%) had big baby, 9 women (10.0%) oligohydramnios , 5 women (5.6%) malposition, 3 women (3.3%) post term,3 women (3.3%) short inter delivery interval, 3 women (3.3% ) twin pregnancy, 9 women (10%) failure to progress,5 women (5.6)IUGR, 8 women (8.9%) Fetal distress, 6 women (6.7%) antepartum hemorrhage and there were 9 women (10.0%) date not available.

		Frequency	Percent
Valid	big baby	3	3.3
	malpresentation	15	16.7
	Oligohydramnios	9	10.0
	malposition	5	5.6
	post date	12	13.3
	post term	3	3.3
	short inter delivery interval	3	3.3
	twin pregnancy	3	3.3
	failure to progress	9	10.0
	IUGR	5	5.6
	fetal distress	8	8.9
	antepartum hemorrhage	6	6.7
	data not available	9	10.0
	Total	90	100.0

*Table 1 Indications for cause of cesarean section.*





*Figure 1 demographic data of participants and cause of cesarean.*

**Table 2 : Outcomes of pregnancy.**

**Figure 2 : Outcomes of pregnancy.**

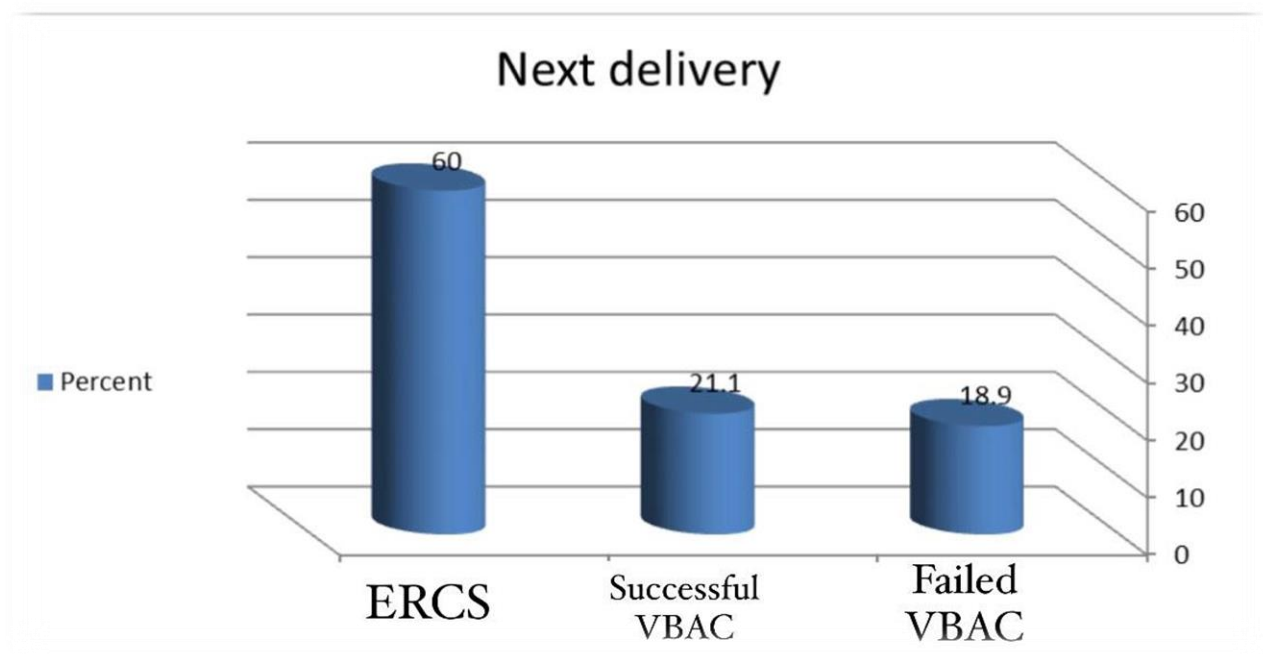
For the pregnancy, there were three outcomes in this study:

failed Vaginal birth after caesarean, successful Vaginal birth after caesarean and elective repeat caesarean section.

Of 90 women had caesarean section, there was 17 women (18.9%) had failed Vaginal birth after caesarean with trials , 19 women (21.1%) had successful Vaginal birth after caesarean with trials and 54 women (60%) had elective repeat caesarean section without trials.

		Frequency	Percent
Valid	failed VBAC	17	18.9
	successful VBAC	19	21.1
	ERCS	54	60.0
	Total	90	100.0

*Table 2 outcomes of pregnancy.*



*Figure 2 outcomes of pregnancy.*

**Table 3 :Effect of parity on delivery outcome.**

There were two categories:

Out of 90 women first category was women had delivery after one caesarean section(49 women). 14 women (28.6%) had failed TOS ,4 women (8.1%) successful TOS and 31 women (63.3%) were caesarean without TOS.

Second category was delivery in multiparous women with previous one caesarean

section( 41 women). 4 women (7.5%) had Failed TOS , 14 women (35.0%) Successful TOS and 23 women (57.5%) were caesarean without tial.

<b>Delivery after one caesarean section</b>	<b>Failed TOS</b>	<b>Successful TOS</b>	<b>Cesarean without TOS</b>
49	14	4	<b>31</b>
100%	28.6%	8.1%	<b>63.3%</b>
<b>Delivery in multiparous women with previous one cesarean section</b>	<b>Failed TOS</b>	<b>Successful TOS</b>	<b>Cesarean without TOS</b>
41	4	14	<b>23</b>
100%	7.5%	35.0%	<b>57.5%</b>

*Table 3 Effect of parity on delivery outcome*

# *Chapter four*

## *Discussion*

## **Discussion:**

Cesarean section is a significant obstetric procedure that has gained popularity in recent decades with a dramatic increase in CS all around the world.

Regarding the main outcomes of the study, there were three categories: failed vaginal birth after cesarean (VBAC), successful VBAC, and elective repeat cesarean section. Of the 90 women who had a previous cesarean section, 54 (60%) had an elective repeat cesarean section without a TOS, 19 (21.1%) had a successful VBAC with a TOS, and 17 (18.9%) had a failed VBAC with a TOS. These findings highlight the importance of careful patient selection and monitoring for TOS, as well as the need for individualized decision-making regarding mode of delivery after one previous cesarean section.

In a research was in Mafraq Hospital, Abu Dhabi 151 women with previous one cesarean section, of the 151 women 36 (23.8%) had ERCS ,19 women (12.6%) Failed VBAC and 96 women (63.6%) Successful VBAC .[21]

These results are unlike our results, this is due to limited sample size , patient wish to deliver by CS, poor antenatal care and decrease facilities for a better follow up to the patient during TOS.

another research in Ayub teaching hospital, Abbottabad, Pakistan

A total of 2652 patients were delivered during this period out of which 300 patients had history of delivery after one caesarean section.

80 women (27.1%) had failed TOS and 40 women (9.3%) had successful TOS and 180 women (63.6%) had cesarean section without Tos. These results are similar to the results of our research. In our research was 14 women (28.6%) Failed TOS and 4 women (8.1%) Successful TOS and 31 women (63.3%) cesarean without TOS.[22]

The most common indication for cesarean section in our study was malpresentation ,this is due to multiparity , polyhydramnios, low lying placenta, fibroids and twin pregnancy. followed by post\_date because of poor maternal

education leading to poor follow up and these women admitted to hospital as post\_date pregnancy. Unlike our study, a study was done in Ethiopia found that the most frequent indication of CS was obstructed labor, the second most frequent indication of CS observed in this study was fetal distress.[23]

Regarding the

## *Chapter five*

## *Limitations and Recommendation and Conclusion*

### *1\_Limitations*

Research on pregnancy outcome in women with a previous C-section has limitations that should be considered when interpreting the results. These

limitations include selection bias, confounding factors, limited sample size, retrospective design, variability in care, and lack of long-term follow-up.

## ***2 Recommendation***

If a woman has had a previous caesarean section (C-section), there are several important factors to consider when planning for her next pregnancy. Here are some recommendations for a safe pregnancy outcome in women with a previous C-section:

**Discuss the risks and benefits of a vaginal birth after caesarean section (VBAC) with the patient.** VBAC is a safe option for many women, but it does carry some

risks, such as uterine rupture. The patient should be fully informed of the risks and benefits of VBAC and should be able to make an informed decision about whether to attempt a VBAC or have a repeat C-section.

**Evaluate the patient's medical history and physical health.** Women who have had a previous C-section may be at increased risk for certain medical conditions, such as placenta previa or placenta accreta. The patient's overall health should be evaluated to ensure that she is healthy enough to carry a pregnancy to term.

**Monitor the patient's pregnancy carefully.** Women who have had a previous C-section should be closely monitored throughout their pregnancy to ensure that the pregnancy is progressing normally and that there are no signs of complications. Regular prenatal care, including ultrasounds and other diagnostic tests, can help detect any potential problems early.

**Consider the timing of delivery.** If the patient opts for a repeat C-section, the timing of delivery will be carefully planned to ensure that the baby is delivered at the optimal time for both mother and baby. If the patient opts for a VBAC, the timing of delivery will be determined by the onset of labor.



**Ensure that the patient has access to a skilled obstetrician and a well-equipped hospital.** Women who have had a previous C-section should give birth in a hospital that is equipped to handle any potential complications, such as uterine rupture. The obstetrician who oversees the patient's care should be skilled in managing complicated pregnancies and deliveries.

In summary, women with a previous C-section can have a safe pregnancy outcome if they receive appropriate prenatal care and are closely monitored throughout their pregnancy. The decision to attempt a VBAC or have a repeat C-section should be made after careful consideration of the risks and benefits, and the patient should have access to a skilled obstetrician and a well-equipped hospital

### ***3\_ Conclusion***

In conclusion, careful selection of appropriate patients for trial of scar with no previous significant complications and close follow up of maternal and fetal condition is often indicated and successful. It should be offered to all suitable women in order to reduce high cesarean rate and prevent complications associated with higher order repeat cesarean.

In multiparous women with previous vaginal delivery, the rates of vaginal delivery were significantly higher than patients with no previous normal delivery.

The presence of factors that have positive effect on successful trial such as spontaneous onset of labour, adequate pelvis, parity and others are also good indicators of successful outcome of trial of scar.



# *Appendix*

## *Questionnaire*

Name of the patient:

Age of the patient:

Gestational age(37 week and above):

Date of history taking:

Parity:

Number of previous vaginal deliveries:

The patient previously had one c/s. Yes/No

The cause of previous c/s:

data not available

Pt request

Oligohydramnios

CPD

big baby

malpresentation

Post\_date

Post\_term

previous uterine incision extension

previous ruptured uterus

history of posterior repair

short inter delivery interval

twin

IUGR

failure to progress

fetal distress

Obstructed labour

antepartum hemorrhage

Obstetric outcome of this pregnancy:

- The patient had a trial of scar in this pregnancy. Yes/No
- The trial: succeeded/ failed
- c/s (why?)
- vaginal

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