Original Article

# Intraoperative Findings During Caesarean Sections for Suspected Scar Dehiscence

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## Abstract

Objective: To investigate intraoperative findings during caesarean sections in cases with suspected scar dehiscence.
Methodology: This retrospective study was done in the Obstetrics and Gynecology departments of Rahbar Medical College and Azra Naheed Medical College, Lahore from January 2022 to December 2022. Women aged more than 18 years with clinical signs of scar dehiscence or suspicion based on their medical history, and who were scheduled for a caesarean section were included. Scar dehiscence was defined as the separation of the previous uterine incision from a C-section. It was confirmed during the current caesarean section if a gap or opening was observed at the site of the previous uterine incision. SPSS version 26 was used for data analysis.
Results: A total of 72 participants were included in the study, with an average age of 28.13 years. According to the intraoperative findings 29.2% cases had an intact scar, scar dehiscence was observed in 13.9% of cases and interestingly none of the cases had a rupture scar. Scar dehiscence was found to be statistically significant in cases with multiple previous C-sections (p=0.001), but it was statistically insignificant in relation to the pregnancy interval (p=0.140). Conversely, the presence of an intact scar was statistically insignificant when considering the number of C-sections, while it showed significance in cases with a short pregnancy interval (p=0.010).
Conclusion: According to the intraoperative findings, scar dehiscence was detected in 13.9% of cases, while scar integrity was observed in 29.2% of women suspected of having scar dehiscence, with a significant association with the number of previous C-sections and a short interval between pregnancies.
Keywords: Scar pregnancy, Scar intact, Dehiscence, Interval.

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## Introduction

Uterine scar dehiscence is a pregnancy complication arising from prior cesarean section scars. This condition heightens the likelihood of uterine rupture, which is associated with significant maternal and neonatal health risks, often resulting in adverse outcomes.

Caesarean section, a surgical procedure employed in cases of obstetric necessity, has become increasingly prevalent in modern obstetrics in recent decades.[1] While the procedure has significantly reduced maternal and neonatal morbidity and mortality rates, it is not without its potential complications. Notably, maternal morbidities and mortality linked to repeat caesarean sections represent a significant and pressing health concern.[2]

This surge in caesarean sections has led to an increased likelihood of encountering complications related to previous uterine surgeries, such as cesarean deliveries, myomectomies, or other uterine procedures. Among these complications, scar dehiscence poses a unique clinical challenge, as it can occur without any overt clinical symptoms.[3] Some women may experience multiple symptoms, while others may exhibit only one or none at all. Additionally, healthcare providers often rely on a combination of clinical signs, medical history, and imaging findings to make an accurate diagnosis of scar dehiscence. Although there isn't a precise definition for uterine scar dehiscence, its reported occurrence varies between 0.2% and 4.3% in pregnancies following a previous c-section.[4,5] A history of C-section with uterine

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scar dehiscence is a recognized risk factor for uterine rupture during vaginal delivery. However, the clinical importance of uterine scar dehiscence in instances involving repeated C-sections remains ambiguous.[4]

The most prevalent cause of rupture of the uterus is the dehiscence of previous scars from C-section procedures.[6] While the exact cause of cesarean scar dehiscence is often unclear, it is linked to factors such as the type and quantity of uterine incisions, the time between pregnancies, and conditions leading to excessive uterine distension, all of which are associated with both CSD and the risk of uterine rupture.[7,8] Therefore, scar dehiscence is a highly perilous pregnancy complication, as it can result in uterine rupture, leading to significant maternal and perinatal morbidity and mortality if not early diagnosed.[6]

One of the primary debates surrounding scar adhesion centers on its prevalence. Multiple studies have reported varying incidence rates, contributing to uncertainty regarding the true magnitude of the problem. Factors such as the study population, diagnostic methods, and the timing of assessment post-C-section all play a role in this variability. Consequently, understanding the exact prevalence of scar dehiscence remains elusive. In one study, scar dehiscence was documented at an incidence of 8.3%,[18] whereas another study found the incidence of uterine scar dehiscence in women with previous caesarean sections to be 18.4%.[10]

Given the escalating prevalence of scar dehiscence in developing countries, coupled with limited resources and underdeveloped healthcare infrastructure, there is a growing concern regarding the rising feto-maternal morbidities associated with this condition. This study explores intraoperative findings during caesarean sections for suspected scar dehiscence, addressing the diagnostic and management challenges faced by obstetricians.

## Methodology

This retrospective study was conducted within the Obstetrics and Gynecology departments of Rahbar Medical College and Azra Naheed Medical College over a duration of one year, from January 2022 to December 2022. The study includes a sample of 72 women aged more 18 years who presented clinical signs of scar dehiscence or had a suspicion of scar dehiscence based on their medical history and were scheduled for a caesarean section. Patients were clinically suspected for scar dehiscence in terms of scar tenderness, maternal tachycardia and fetal heart rate changes (distress). All the women without history of previous caesarean section, women requiring emergency caesarean sections without prior suspicion or clinical signs of scar dehiscence, those who declined to provide informed consent or expressed unwillingness to participate, patients with incomplete or missing medical records, and participants with pre-existing medical conditions or obstetric complications that could potentially confound the study's objectives or outcomes were excluded. Informed consent was obtained from all study subjects after providing a detailed and comprehensive explanation of the study's goals, procedures, and potential risks. Scar dehiscence in individuals with a prior history of cesarean section (C-section) was defined as the separation, splitting, or disruption of the uterine incision from a previous C-section procedure. This condition was typically confirmed during the current caesarean section when a gap or opening at the site of the previous uterine incision was observed. For subsequent data analysis, the collected information was entered into the statistical software SPSS version 26. This software was utilized to conduct thorough statistical analysis and generate meaningful insights from the gathered data.

## Results

A total of 72 participants were included in the study, with an average age of 28.13 years. The majority of the participants (81.9%) had a parity ranging from 1 to 3, while 18.1% had a higher parity of 4 to 6. In terms of previous C-sections, 40.3% had a history of one prior C-section, 36.1% had two previous C-sections, 15.3% had experienced three previous C-sections, and 8.3% had undergone four previous C-sections. Scar tenderness was reported in 5.6% of the cases. Regarding the interval between pregnancies, 38.9% of the participants had an interval of less than 2 years between pregnancies, while 61.1% had an interval of more than 2 years. Table I

According to the intraoperative findings 29.2% cases had an intact scar. Scar dehiscence was observed in 13.9% of cases and interestingly, none of the cases had a rupture scar. When assessing fetal outcomes, the Apgar score at 1 minute revealed that 95.8% of infants had scores greater than 7, indicating good initial health. Similarly, at 5 minutes, 97.2% of infants had Apgar scores greater than 8. Table II.

**Table I: Descriptive statistics of demographic and clinical characteristics. (n=72)**

| Variables | | Statistics | |
|---|---|---|---|
| **Age** | | 28.13±2.88 years | |
| **Parity** | 1-3 | 59 | 81.9% |
| | 4-6 | 13 | 18.1% |
| **Previous C sections** | I | 29 | 40.3% |
| | II | 26 | 36.1% |
| | III | 11 | 15.3% |
| | IV | 06 | 8.3% |
| **Scar tenderness** | Yes | 04 | 5.6% |
| | No | 68 | 94.4% |
| **Interval** | < 2years | 28 | 38.9% |
| | > 2 years | 44 | 61.1% |

**Table II: Scar dehiscence occurrence according to intraoperative findings and fetal outcomes. (n=72)**

| Variables | | | N | % |
|---|---|---|---|---|
| **Scar intact** | | Yes | 21 | 29.2 |
| | | No | 51 | 70.8 |
| Scar dehiscence | | Yes | 10 | 13.9 |
| | | No | 62 | 86.1 |
| Rupture scar | | Yes | -- | -- |
| | | No | 72 | 100.0 |
| Fetal outcomes | Apgar score at 1 minute | 1-6 | 03 | 04.2 |
| | | ≥ 7 | 69 | 95.8 |
| | Apgar score at 5 minutes | 1-7 | 02 | 02.8 |
| | | ≥ 8 | 70 | 97.2 |

**Table III: Scar intact and scar dehiscence according to previous c sections.( n=72)**

| Variables | | Previous C-sections I | II | III | IV | p-value |
|---|---|---|---|---|---|---|
| **Scar intact** | **Yes** | 11 | 5 | 4 | 1 | 0.384 |
| | | 15.3% | 6.9% | 5.6% | 1.4% | |
| | **No** | 18 | 21 | 7 | 5 | |
| | | 25.0% | 29.2% | 9.7% | 6.9% | |
| **Scar dehiscence** | **Yes** | 0 | 3 | 4 | 3 | 0.001 |
| | | 0.0% | 4.2% | 5.6% | 4.2% | |
| | **No** | 29 | 23 | 7 | 3 | |
| | | 40.3% | 31.9% | 9.7% | 4.2% | |

**Table IV: Scar intact and scar dehiscence according to pregnancy interval (n=72)**

| Variables | | Pregnancy interval <2 years | ≥ 2 years | p-value |
|---|---|---|---|---|
| **Scar intact** | **Yes** | 13 | 8 | 0.010 |
| | | 18.1% | 11.1% | |
| | **No** | 15 | 36 | |
| | | 20.8% | 50.0% | |
| **Scar dehiscence** | **Yes** | 6 | 4 | 0.140 |
| | | 8.3% | 5.6% | |
| | **No** | 22 | 40 | |
| | | 30.6% | 55.6% | |

The occurrence of scar dehiscence was found to be statistically significant in cases with multiple previous S sections (p=0.001), but it was statistically insignificant in relation to the pregnancy interval (p=0.140). Conversely, the presence of an intact scar was statistically insignificant when considering the number of C-sections, while it showed significance in cases with a short pregnancy interval (p=0.010). Table III & IV.

## Discussion

One of the most significant complications that can arise from cesarean deliveries is the development of scar dehiscence, which involves the disruption and separation of the scar tissue. When this complication occurs during pregnancy, it poses a substantial risk to both the well-being of the fetus and the mother, sometimes leading to tragic consequences.[11] Our study delves into the critical realm of intraoperative findings during these procedures, seeking to unravel the prevalence and contributing factors of scar dehiscence among patients suspected for scar dehiscence. In this study, 72 participants were examined, with an average age of 28.13 years and the majority of them (81.9%) had a parity between 1 to 3. These findings were supported by Naz R et al[6] as their study subjects average age was 31.57 ± 4.26 years and according to their study the most of the women had parity 1-4. Sultana R et al[10] also reported that the mean of patients was 29.6±5.3 years. Ashraf M et al[13] also conducted the study to assess how often Scar Dehiscence occurs in patients with a history of one previous Cesarean section who experience scar tenderness during a trial of labor. In their study mean age of the women was 28.62+5.25 years.

In this series, 40.3% of patients had undergone one prior C-section, 36.1% had undergone two, 15.3% had undergone three, and 8.3% had undergone four prior C-sections. Scar tenderness was reported in 5.6% of cases. Regarding the interval between pregnancies, 38.9% of participants had an interval of less than 2 years, while 61.1% had an interval of more than 2 years. These findings are consistent with previous research conducted by Naz R et al[6], Sultana R et al[10], Zhu Z et al[12], and Sharma C et al[14] which also explored the numbers of previous C-sections and pregnancy intervals. The alignment with previous studies underscores the importance of considering obstetric history and pregnancy spacing when assessing the risk factors associated with scar-related complications in women with a history of cesarean sections. Furthermore, in the line of this series Ashraf M et al[13] found scar tenderness 7.6%.

In this study among 13.9% of cases, there was evidence of scar dehiscence, while 29.2% of women suspected of having scar dehiscence showed intact scar tissue. These findings highlight a noteworthy connection

between scar dehiscence and a greater number of prior cesarean sections, along with a link between the preservation of scar integrity and a shorter gap between pregnancies. When comparing our results with previous research, we noted varying occurrence rates of uterine scar dehiscence. Sultana R et al.[10] reported an occurrence rate of 18.4% among women who had undergone prior cesarean sections, whereas Naz R et al.[6] found a rate of 22.38%. Tyagi N et al.[9] reported a lower rate of 8.3% in a retrospective study. In contrast, our study revealed a slightly lower incidence of uterine scar dehiscence compared to a study conducted in a military hospital in Pakistan, where a 22% occurrence was reported.[15] Khan FK et al.[16] also reported an occurrence rate of 23.75% in patients experiencing scar tenderness following a previous cesarean section. However, Ramadan MK et al.[17] detected a lower incidence rate of 4.6% in their study of 588 patients, which was notably lower than our findings. Our study further substantiates the significant relationship between scar dehiscence and a history of multiple prior cesarean sections, as well as the connection between preserving scar integrity and shorter inter-pregnancy intervals, in line with the findings of khan FK et al.[18]

However, it's important to note that differences in the occurrence rates of scar dehiscence across studies may be attributed to variations in sample sizes and selection criteria. However, our study is not without limitations, particularly its relatively small sample size and retrospective data may lack comprehensive information regarding patient history, or complications. Missing data can impede a thorough analysis and restrict the ability to accurately assess the true extent of scar dehiscence. Additionally, it can be challenging to ascertain whether scar dehiscence directly results from surgical factors or is influenced by other confounding variables. Therefore, we recommend that future research endeavors encompass larger and more comprehensive studies to accurately determine the incidence of uterine scar dehiscence and explore its associated risk factors.

## Conclusion

According to the intraoperative findings, scar dehiscence was detected in 13.9% of cases, while scar integrity was observed in 29.2% of women suspected of having scar dehiscence. These results emphasize a significant correlation between scar dehiscence and a higher number of previous cesarean sections, as well as an association of scar intact with a shorter pregnancy interval.

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