

# Frequency of Scar Dehiscence on Repeat Cesarean Section at Term in Patients with Trial of Labor

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## ABSTRACT

**Background:** Cesarean section (CS) is the most common operation in obstetrics. As a result of cesarean scar dehiscence may occur, which may lead to uterine rupture in a subsequent pregnancy.

**Objective:** To assess the frequency of uterine scar dehiscence on repeat cesarean section at term after trial of labor among patients with previous Cesarean section and to determine the frequency of various contributing factors of uterus scar dehiscence on repeat CS after trial of labor.

**Methodology:** This Descriptive case series was conducted for 6months. 180 females with previous one CS undergoing trial of labor were included through non-probability purposive sampling. All the patients who went through the cesarean section and scar dehiscence were observed at the time of operation. All the information was collected on a specially designed proforma. Contributing factors were assessed in all patients who showed scar dehiscence per-operatively.

**Results:** The mean age of patients was 30.03±5.25 years. The mean gestational age of females at time of delivery was 38.04±0.79 weeks. In 21 (12%) females scar dehiscence was observed. There was no significant effect of age and gestational age. In 21 cases of scar dehiscence, prolonged 2<sup>nd</sup> stage of labor was observed in 14 (67%) cases, short interpregnancy interval (<18 months) in 7 (33%) cases and hypertension in 5 (24%) cases.

**Conclusion:** It was concluded through results of this study that scar dehiscence was present in few cases but not negligible and can be modified by modifiable factors.

**Keywords:** Scar dehiscence, Previous Cesarean Section, Trial of Labor

## INTRODUCTION

Cesarean delivery is a surgical operation to deliver a baby abdominally through an incision in the uterus.<sup>1</sup> It is the most common surgical obstetric intervention and its rate varies internationally from 10-25% and even higher (up to 80% in some countries).<sup>2, 3</sup> Cesarean sections performed appropriately and following an appropriate medical indication are potentially life-saving procedures.<sup>4</sup> In the first half of the 20<sup>th</sup> century, if patients had one cesarean section, then subsequent pregnancies were likely to be delivered in the same way. However, current medical evidence indicates that 60%-80% of women can achieve vaginal delivery after a previous lower uterine segment cesarean delivery.<sup>5</sup>

The main concern about vaginal delivery after cesarean section is whether the previous scar is strong enough to cope with the strong uterine contractions of labor and will not lead to dehiscence.<sup>6</sup> The scar dehiscence is a life threatening condition, which may end up in loss of pregnancy, severe hemorrhage, and emergency cesarean section and may even end up in hysterectomy.<sup>4,6</sup> As regards to its associated risk factors, anemia at the time of previous Caesarean, duration between last and index pregnancy and prolonged first stage of labor lead to increased frequency of uterine scar dehiscence in repeat caesarean section.<sup>7</sup>

This present study was conducted to determine that how frequent is scar dehiscence among patients with previous cesarean section. It would help us in making recommendations to the patients and health care providers

in future to avoid complications associated with uterine scar dehiscence so that they can be managed timely. This study emphasized the importance of avoiding its contributing factors such as short interpregnancy interval and prolonged first stage of labor and hypertension that may cause drastic complication which is uterine scar dehiscence in repeat caesarean section.

## METHODS AND MATERIALS

It was a descriptive case series conducted at the department of Gynecology, Sir Ganga Ram Hospital Lahore. After obtaining ethical approval from the institutional review board, the study was started. Non-probability convenience sampling technique was employed. The calculated sample size was 180 cases with 5% margin of error, 95% confidence level and taking expected percentage of scar dehiscence at repeat cesarean section i.e. 13.1%. All patients between the ages of 20 and 40year, with gravida 2 and parity 1 with previous lower segment cesarean section undergoing trial of labor at ≥37 weeks of gestation were included in the study. Previously scarred uterus who underwent classical section & myomectomy, polyhydramnios on ultrasonography (USG) or twin pregnancy on USG were excluded from the study.

Demographic history and informed consent were taken from patients. Their duration of first stage was observed. All the patients who went through the cesarean section and scar dehiscence (presence of rupture at site of previous LSCS involving myometrium but intact peritoneal covering assessed perioperatively) were observed at the

time of operation. Contributing factors (Prolonged active phase of labor lasting >10hours (assessed through partogram), Short interpregnancy interval <18months, Hypertension: BP  $\geq 140/90$ mmHg after 20 weeks of gestation) were assessed in all patients who showed scar dehiscence per-operatively.

All the collected data was entered into SPSS version 10 and analyzed. The quantitative data like age and gestational age were presented as means and standard deviations. The qualitative data like scar dehiscence and contributing factors (prolonged active stage of labor, short interpregnancy intervals and hypertension) were presented as frequency distribution tables.

## RESULTS

The mean age of patients  $30.03 \pm 5.25$  years. The mean gestational age of females was  $38.04 \pm 0.79$  weeks (Table 1).

Table 1: Characteristics of patients

| Variables                     | Mean $\pm$ Standard Deviation |
|-------------------------------|-------------------------------|
| Mean Age in years             | $30.03 \pm 5.25$              |
| Mean Gestational age in weeks | $38.04 \pm 0.79$              |

There were 21 (12%) females in whom scar dehiscence was observed while scar dehiscence was absent in 159 (88%) females (figure 1).

Among females of age 20-30 years, scar dehiscence was present in 10 (11.8%) females while absent in 75 (88.2%) females. Among females of age 31-40 years, scar

dehiscence was present in 11 (11.6%) females while absent in 84 (88.4%) females. There was insignificant difference observed in both stratified groups ( $P > 0.05$ ). Among females presenting at gestational age 37 weeks, scar dehiscence was present in 7 (13.2%) females while absent in 46 (86.8%) females. Among females presenting at gestational age 38 weeks, scar dehiscence was present in 7 (10.4%) females while absent in 60 (89.6%) females. Among females presenting at gestational age 39 weeks, scar dehiscence was present in 7 (11.7%) females while absent in 53 (88.3%) females. There was insignificant difference observed among stratified groups ( $P > 0.05$ ) (Table 2).

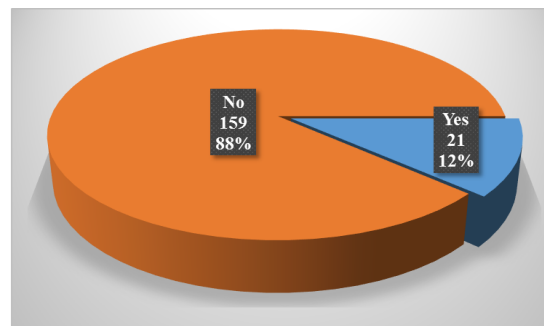


Figure 1: Distribution of Scar Dehiscence Among Study Participants

Table 2: Comparison of scar dehiscence with age and gestational age

| Parameters      |             | Scar dehiscence |            | p-value |
|-----------------|-------------|-----------------|------------|---------|
|                 |             | Yes             | No         |         |
| Age             | 20-30 years | 10 (11.8%)      | 75 (88.2%) | 0.969   |
|                 | 31-40 years | 11 (11.6%)      | 84 (88.4%) |         |
| Gestational age | 37 weeks    | 7 (13.2%)       | 46 (86.8%) | 0.896   |
|                 | 38 weeks    | 7 (10.4%)       | 60 (89.6%) |         |
|                 | 39 weeks    | 7 (11.7%)       | 53 (88.3%) |         |

Table 3: Distribution of Contributing Factors Associated with Scar Dehiscence

| Contributing Factors             | Frequency n (%)  |
|----------------------------------|------------------|
| Second stage                     |                  |
| Prolonged                        | 14 (67%)         |
| Normal                           | 7 (33%)          |
| Interpregnancy interval (months) | $21.86 \pm 8.55$ |
| Interval                         |                  |
| Short                            | 7 (33%)          |
| Normal                           | 14 (67%)         |
| Hypertension                     |                  |
| Yes                              | 5 (24%)          |
| No                               | 16 (76%)         |

Out of 21 cases positive for scar dehiscence, prolonged 2<sup>nd</sup> stage of labor was observed in 14 (67%) cases while 7 (33%) females had normal duration of 2<sup>nd</sup> stage of labor. The mean interpregnancy interval was observed as  $21.86 \pm 8.55$  months. Out of 21 cases positive for scar dehiscence, short interpregnancy interval (<18 months) was observed in 7 (33%) cases while 14 (67%) females had normal interpregnancy interval ( $\geq 18$  months). Out of 21 cases positive for scar dehiscence, hypertension

was observed in 5 (24%) cases while 16 (76%) females had normal BP level (Table 3).

## DISCUSSION

The documented overall incidence of uterine scar dehiscence after previous cesarean section is 0.2% – 0.5%.<sup>5</sup> However, few other studies have mentioned a higher frequency of scar dehiscence. In a study by Nargis N, et al, the frequency of scar dehiscence after one previous cesarean section was 3.3%,<sup>8</sup> while in another study by Shipp TD, et al, the incidence was 3.9%.<sup>9</sup> Sinha and Roy also recently reported an incidence of 24.4% scar rupture,<sup>10</sup> while Kulkarni and Kendre reported 56.12% scar rupture in their series on rupture uterus in rural India.<sup>11</sup>

Conflicting evidence from previous different studies about the frequency of uterine scar dehiscence yield wide ranges of frequencies. However, study by Nargis, Shipp, Sinha and Kulkarni, have shown an increased incidence ranging from 3.3% to 56.12%. This variability of frequency highlights the need for a study to be done in our population to determine the frequency of uterine scar dehiscence among our patients. In our country, cesarean section is a common practice and is done most of the time in small

private setups by untrained staff. So, the frequency of uterine scar dehiscence may be higher in some contributing risk factors such as prolonged active phase of labor which lasts for more than ten hours increases the risk of uterine scar dehiscence up to 63.6%.<sup>12</sup> Similarly short interpregnancy interval of less than 18 months is associated with 13.1% risk of scar dehiscence.<sup>13</sup> Hypertension is also found to be associated with 13.9% risk of uterine scar dehiscence.<sup>14</sup>

Women with previous cesarean sections constitute a high-risk group in obstetrics, with associated medical and legal implications. VBAC or trial of labor represents a significant change in modern obstetric practice. However, the concern that a scarred uterus might end up in rupturing the uterus, leading to severe maternal and perinatal morbidity, still prevents many obstetricians and pregnant women worldwide, from adopting a trial of labor after previous one cesarean section.<sup>15-17</sup>

Cesarean scar defects, i.e., deficient uterine scars or scar dehiscence following a Cesarean section, involve myometrial discontinuity at the site of a previous Cesarean section scar.<sup>18</sup> In our study, we included 180 females with the mean age of  $30.03 \pm 5.25$  years (20-40 years). The mean gestational age of females at time of delivery was  $38.04 \pm 0.79$  weeks (37-39 weeks). In our study, scar dehiscence was observed in 21 (12%) females which showed that scar dehiscence may be present in some cases with previous cesarean section. The documented overall incidence of uterine scar dehiscence after previous cesarean section is 0.2% – 0.5%.<sup>5</sup> However, few other studies have mentioned a higher frequency of scar dehiscence. In a study by Nargis N, et al, the frequency of scar dehiscence after one previous cesarean section was 3.3%,<sup>8</sup> while in another study by Shipp TD, et al, the incidence was 3.9%.<sup>9</sup> Jha et al., reported that scar dehiscence was seen in 7% cases.<sup>19</sup>

Ishwal et al., found in their study that among females of previous one cesarean section who underwent trial of labor, scar dehiscence or rupture did not occur in any case.<sup>20</sup> Goel et al., found that scar dehiscence were the indications in 1 (2.70%) case.<sup>21</sup> Frass also reported the incidence of scar dehiscence as 1% only.<sup>22</sup> Recently Balachandran et al., also reported the incidence of scar dehiscence as 1.3%.<sup>23</sup> Sinha and Roy also recently reported an incidence of 24.4% scar rupture,<sup>10</sup> while Kulkarni and Kendre reported 56.12% scar rupture in their series on rupture uterus in rural India.<sup>11</sup>

In our study, data was stratified in different age groups and it was observed that in females of age 20-30 years, scar dehiscence was present in 10 (11.8%) females while in females of age 31-40 years, scar dehiscence was present in 11 (11.6%) females. There was insignificant difference observed in both stratified groups ( $P > 0.05$ ) and there was no impact of gestational age was observed for scar dehiscence. We stratified data in different gestational age groups and found that at 37 weeks; scar dehiscence was present in 7 (13.2%) females, at 38 weeks; scar dehiscence was present in 7 (10.4%) females while at 39 weeks; scar dehiscence was present in 7 (11.7%) females. There was insignificant difference observed among stratified groups ( $P > 0.05$ ) and there was no impact of gestational age was observed for scar dehiscence.

In our study, out of 21 cases positive for scar dehiscence, prolonged 2<sup>nd</sup> stage of labor was observed in 14 (67%) cases, short interpregnancy interval ( $<18$  months with mean  $21.86 \pm 8.55$  months) was observed in 7 (33%) cases and hypertension was observed in 5 (24%) cases. In literature, the frequency of prolonged active phase of labor ( $>10$  hours) was present in 63.6% cases.<sup>12</sup> Similarly short interpregnancy interval ( $<18$  months) is present in 13.1% cases of scar dehiscence.<sup>13</sup> Hypertension is also found in 13.9% cases of uterine scar dehiscence.<sup>14</sup>

## CONCLUSION

This study showed that scar dehiscence was present in few cases, but it was not negligible and can be prevented by modifiable factors. Strategy should be developed to prevent development of scar dehiscence by focusing on the contributing factors which can be prevented to some extent.

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