

# Uterine Scar Dehiscence in Elective Versus Emergency Caesarean Section

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## Abstract

**Objective:** To determine the incidence and the associated factors of uterine scar dehiscence in women undergoing elective versus emergency caesarean section.

**Methodology:** This case series was conducted in a tertiary care hospital. All patients who underwent lower segment caesarean section either due to elective or emergency indications at more than 28 weeks of gestation in which intra-operative finding of scar dehiscence was present were included in this study. Data was collected on a structured proforma.

**Results:** The total number of women with findings of intra-operative scar dehiscence were 93. Total number of caesareans conducted till completion of sample size were 504; elective caesareans were 283 (56.1%), and 221(43.9%) were emergency caesareans. Incidence of uterine scar dehiscence in women with previous caesarean sections was 18.4%; 17.6% in elective cases and 24.4% in emergency lower segment caesarean sections. Moreover, the incidence of scar dehiscence was higher in patients who previously underwent caesarean section due to an emergency indication as compare to previous elective caesarean ( $p=0.00$ ). Uterine scar dehiscence was more in patients with higher order previous caesareans in cases of elective caesareans while more in Previous 1 caesarean in cases of emergency caesarean ( $p=0.01$ ). Moreover, lesser the inter pregnancy interval (1 year) higher the incidence of scar dehiscence in both cases of emergency and elective caesareans ( $p=0.04$ ).

**Conclusion:** Incidence of scar dehiscence is quite high in both emergency as well as in elective repeat lower segment caesarean sections. Previous emergency caesarean and interpregnancy interval of one year, number of previous caesareans, and gestational age are significantly associated with scar dehiscence.

**Keywords:** Caesarean section, Dehiscence, Elective, Uterine scar.

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## Introduction

A Caesarean section is an operation to deliver a baby through a uterine incision. It is most common surgical obstetric intervention.<sup>1</sup> Its rate varies internationally from 10 -25%. The rate of caesarean section has increased from 5% to more than 20% over the past 30 years.<sup>2</sup> According to Pakistan Demographic Analysis; caesarean section rates are higher in urban, educated women with higher socioeconomic status because of inequalities in use and availability of services.<sup>3</sup>

Caesarean section can be done as an elective and emergency procedure. Elective caesarean section is a term used when the procedure is done at pre-arranged time during pregnancy to ensure the best quality of services available. The procedure is termed as emergency caesarean section when it is performed due to unforeseen or acute obstetric emergencies.<sup>4</sup> Elective caesarean delivery has less maternal complications compared with emergency caesarean (12.9% vs

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27.3%).<sup>5</sup> One of the indications for caesarean section is previous caesarean section.<sup>2</sup> The incidence of caesarean scar dehiscence is around 1.9% with a range between 0.6% and 3.8 %.<sup>6</sup>

In uterine scar dehiscence, myometrium is disrupted but the serosa is intact. Uterine scar dehiscence is a notable complication of lower segment caesarean section surgery that may be diagnosed pre-operatively, intraoperative or post-partum in cases of vaginal birth after caesarean.<sup>7</sup> Caesarean scar dehiscence can present in multiple ways. The presentation may be silent in most of the cases, but may cause symptoms like lower abdominal pain, vaginal spotting or bleeding.<sup>8</sup> According to a prospective study carried out in a tertiary care obstetric unit over a period of one year; only 2.5% patients with scar dehiscence had associated complaint of scar tenderness. However, 14.16% cases of scar thinning had scar tenderness.<sup>6</sup>

As repeated caesarean sections are associated with high fetomaternal morbidity and one of the complications of caesarean delivery is uterine scar dehiscence and rupture that can lead to fetomaternal morbidity and mortality especially if remains undiagnosed and not managed timely. The aim of this study was to determine the incidence of the uterine scar dehiscence and its associated risks in patients undergoing elective versus emergency caesarean section. Rationale of the study is that determination of incidence of uterine scar dehiscence in elective as well as in emergency caesarean along with associated factors would help in watchful monitoring, timely intervention and appropriate management to minimize the fetomaternal complications for better outcome. As this study would provide an analysis of frequency and associated factors in elective caesarean versus emergency. Literature search reveals little data regarding this aspect, so it will also bridge the knowledge gap.

## Methodology

This case series was conducted in a tertiary care hospital. Ethical approval from Institutional Review Board was obtained; letter no. SMDC/SMRC/87-19. All patients undergoing lower segment caesarean sections either due to elective or emergency indications at more than 28 weeks of gestation in which intra-operative scar dehiscence was found were included in this study. Informed consent was taken. Patients who had previous classical caesarean section, myomectomy, hysterotomy, and patients with adherent placenta, were

excluded from the study. Required sample size was equal to 93 with 95% Confidence Interval and acceptable difference was equal to 0.08 and assumed portion equal to 0.19. Sampling technique was non-probability consecutive sampling till completion of sample size.

Demographic details like maternal age, parity, gestational age calculated in weeks from last menstrual period or from the earliest obstetric ultrasound were recorded. Number of previous caesarean sections, indications of previous, and current caesarean section, presence or absence of tachycardia, uterine contractions, acute onset abdominal pain, uterine scar tenderness, foetal heart rate, and intraoperative status of uterine scar dehiscence was noted in centimetres in a structured proforma.

The data was entered and analysed using SPSS version 23. The quantitative variables like age and gestational age were calculated as mean  $\pm$  standard deviation. Parity, gestational age, number of previous caesarean sections, indications of previous, and current caesarean section, presence or absence of tachycardia, uterine contractions, acute onset abdominal pain, uterine scar tenderness, foetal heart rate, and intraoperative status of uterine scar dehiscence in centimetres were analysed in percent. Multivariate analysis was done using Chi Square; p value less than equal to 0.05 was considered statistically significant.

## Results

Total number of women with finding of intra-operative scar dehiscence were 93. Total number of caesareans conducted till completion of sample size were 504; elective caesareans were 283 (56.1%), and 221(43.9%) were emergency caesareans. Incidence of uterine scar dehiscence in women with previous caesarean sections was 18.4%; 17.6% in elective cases and 24.4% in emergency caesarean sections.

Mean age of women who underwent emergency caesarean was  $29.6 \pm 5.3$  while mean age of patients with elective caesarean is  $28.8 \pm 4.9$ . Mean gestational age of patients in group of emergency caesarean was  $36.6 \pm 2.2$  ranging from 29-39 and  $37.4 \pm 1.0$  ranging from 34-39 in group of patients with elective caesarean.

Indications of current emergency caesarean sections were previous 2 LSCS in labour 4(7.40%), previous 3 LSCS in labour 10(18.52%), previous 4 LSCS in labour 2 (3.74%). Previous 1 with failure to progress

**Table I: Comparison of demographic and obstetric variables in Emergency versus elective caesarean section with uterine scar dehiscence**

Variables		Scar Dehiscence in Emergency LSCS (54)		Scar Dehiscence in Elective LSCS N (39)		P value
		N	%	N	%	
		Age groups	20-25	13	24.07	
	26-30	17	31.48	13	33.33	
	31-35	16	29.62	10	25.64	
	36-40	08	14.81	04	10.25	
Parity	P2	26	48.14	15	38.46	1.4
	Multipara	21	38.89	20	51.28	
	Grand multipara	07	12.96	04	10.25	
Gestational age	29-36+6	21	38.89	04	10.25	0.00
	37-39	33	61.11	35	64.81	
Previous Caesarean	Em. LSCS	46	85.18	20	51.28	0.00
	El. LSCS	08	14.81	19	48.72	
Number of previous caesareans	Previous I LSCS	38	70.37	09	23.07	0.00
	Previous II LSCS	04	07.40	13	33.34	
	Previous III LSCS	10	18.51	14	35.89	
	Previous IV LSCS	02	03.70	03	07.69	
Inter-pregnancy Interval (years)	1	38	70.37	21	53.84	0.04
	2	10	18.51	16	41.02	
	3	06	11.12	02	05.12	
Pulse Beats/minutes	80-90	26	48.15	34	87.17	0.00
	91-100	20	37.04	03	07.69	
	>100	08	14.81	02	05.12	
Uterine scar tenderness	Present	06	11.11	01	02.56	0.12
	Absent	48	88.89	38	97.43	
Acute onset abdominal pain	Yes	06	11.11	01	02.56	0.12
	No	48	88.89	38	97.43	
FHR/minute	110-160	48	88.89	37	94.87	1.0
	>160-180	06	11.11	02	05.12	
Uterine Scar Dehiscence in cm	1-2	28	51.85	29	74.36	0.04
	3-4	19	35.18	08	20.52	
	5-6	08	14.81	01	02.56	
	>6-full length	04	07.4	01	02.56	

19(35.18%), previous 1 LSCS with foetal distress 6(11.11%), previous 1 LSCS with breech in labour 7(12.96%), previous 1 with suspected scar dehiscence 6(11.11%). 47 patients had labour pains and out of which 4 women had labour pains for more than 24 hours. Mild palpable uterine contractions in 11(20.37%), moderate in 24 (64.86%), and severe palpable uterine contractions in 13 (20.07%).

Indications of current elective caesarean sections were previous 1 LSCS with postdate pregnancy 3(7.69%), previous 1LSCS with malpresentation 2(5.13%), refusal for vaginal birth after caesarean (VBAC) were

4(10.26%). Previous 2 LSCS at term 13(13.34%), previous 3 LSCS at term 14(35.89%), previous 4 LSCS at term 3 (7.69%).

## Discussion

The uterine scar dehiscence is a common intraoperative finding in patients with previous caesarean delivery undergoing repeat cesarean. In this study incidence of scar dehiscence in previous caesarean sections is 18.4%; 17.6% in elective caesareans and 24.4% in emergency caesarean sections. It was almost similar to the findings of a study that was carried out in a military hospital in Pakistan such that 22% incidence of uterine scar dehiscence.<sup>9</sup> A study conducted in Bangladesh revealed that only 3.3% (4) had scar dehiscence.<sup>6</sup> A study conducted by Ramadan et al identified 4.6% (27) cases of scar dehiscence.<sup>10</sup> The incidence of scar dehiscence is high in current study that may be due the fact that this tertiary care hospital covers the surrounding rural population and referred patients.

Current study revealed that incidence of scar dehiscence was higher in patients who underwent emergency caesarean section as compared to elective caesareans (p=0.00). Moreover, incidence of scar dehiscence was higher in patients who previously had undergone caesarean section due to an emergency indication as compare to previous elective caesarean(p=0.00). Risk of uterine scar dehiscence was more in patients with higher order previous caesareans in cases of elective caesareans as compare to Previous 1 caesarean in cases of emergency caesarean (p=0.01). This may be because most patients with previous one caesarean undergo trial of vaginal birth after caesarean section (VBAC).

Moreover, lesser the inter pregnancy interval (1 year) higher the incidence of scar dehiscence in both cases of emergency and elective caesareans (p=0.04). Women who underwent emergency caesarian sections had more risk of scar dehiscence at gestational age of less than 37 weeks (p=0.00). Higher pulse was also associated with uterine scar dehiscence (p=0.00).

Study conducted by Akbar A revealed positive association between emergency versus elective indication of previous caesarean section. Women with less inter pregnancy interval (<1year) and duration of labour more than 24hours (p=0.001) have higher incidence of scar dehiscence.<sup>9</sup> According to Ramadan et al; "preterm delivery" (OR: 2.76, 95% CI: 1.18 -

6.42), "previous 2 or higher order cesareans" (OR: 2.56, 95% CI: 1.14 - 5.75) and "inter-delivery interval less than or equal to two years" were associated with uterine scar dehiscence.<sup>10</sup>

However, women's age, multiparity, uterine scar tenderness, foetal heart rate status did not reveal any significant association with scar dehiscence. Similarly, another study revealed no significant association between women age, parity, multiple pregnancy, and duration of labour.<sup>10</sup>

In this study, uterine scar tenderness was present in 11.11% (6) women in emergency caesarean section versus 2.56% (1) in group of women who underwent elective caesarean section. Results recorded by Ashraf M, such that the frequency of scar dehiscence in patients with previous one caesarean section who developed scar tenderness during trial of labour was recorded in 2(10.53%).<sup>11</sup> A study conducted by Nargis N showed that only 3 (2.5%) of women with scar dehiscence had uterine scar tenderness.<sup>6</sup> According to Khan FK; scar dehiscence was present in 38 (27.5%) in women with a previous 1 LSCS and positive scar tenderness.<sup>12</sup> It was contrary to the findings of the current study. The difference may be because the patients observed in this study were previous one in labour while our study provide a comparison of both elective versus emergency LSCS with varied number of previous caesareans as detailed in results.

Literature reveals that most of the cases of scar dehiscence are silent and identified intraoperatively.<sup>13</sup> So, it is important to keep a high index of suspicion for scar dehiscence in patients with previous caesarean because its incidence is quite high in emergency as well as in elective lower segment caesarean sections.

Preoperative assessment is crucial with close monitoring. A literature search reveals the pre-operative ultrasonographic assessment using scar thickness.<sup>14</sup> A study by Zhu et al showed that ultrasonographic pre-operative detection rate of uterine scar dehiscence in third trimester was 26.1% (6/23) as compared to intra-operative findings of uterine scar dehiscence in 69.6% (16/23) cases.<sup>15</sup>

In cases of scar dehiscence incision is extended along the previous scar line using surgical scissors in curvilinear fashion. After the delivery of fetus and placenta incision line is repaired in two layers using delayed absorbable sutures. If there is any extension of the incision in lower uterine segment or laterally that is repaired separately using interrupted or continuous

sutures using delayed absorbable stature material like Polyglactin<sup>16,17</sup> Intra-operative findings of scar dehiscence are noted in centimeters. In order to facilitate future management plans, findings must be communicated to the patient and recorded on her discharge card, along with gestational age at the time of caesarean section. Peker N et al suggested that risk of recurrent scar dehiscence and rupture can be reduced by elective caesarean at 36-37 weeks in such patients. However, decision for time of caesarean section varies from patient to patient with objective of better foeto-maternal outcome.<sup>18</sup>

It is a single centered case series with an ample number of patients with uterine scar dehiscence to compare the incidence and risk factors for uterine scar dehiscence in patients who underwent emergency lower segment caesarean sections versus elective lower segment caesarean sections.

## Conclusion

Incidence of scar dehiscence is quite high in both emergency as well as in elective repeat lower segment caesarean sections. Previous emergency caesarean and interpregnancy interval of one year was also significantly associated with higher risk of scar dehiscence in both groups. Risk of uterine scar dehiscence was more in patients with higher order previous caesareans in cases of elective caesareans as compare to Previous 1 caesarean in cases of emergency caesarean. Women who underwent emergency caesarian sections had more risk of scar dehiscence at gestational age of less than 37 weeks.

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