Original Article

Scar Tenderness at Repeat C. Section

Evaluation of Scar Integrity in Patients Having Scar Tenderness at Repeat Caesarean Section in Term Pregnancy at a Tertiary Care Hospital

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ABSTRACT

Objective: To evaluate scar integrity in patients having scar tenderness at repeat caesarean section in term pregnancy at a tertiary care hospital, Peshawar.

Study Design: A cross sectional study.

Place and Duration of Study: This study was conducted at the Department of Obstetrics & Gynaecology, Lady Reading Hospital, Peshawar from 1st July 2023 to 31st December 2023.

Methods: A total of 142 term pregnant women with previous one caesarean section presenting with caesarean scar tenderness were included. Scar integrity was assessed as either the presence or absence of scar dehiscence. Data was analyzed using SPSS. Quantitative variables were presented as mean ± standard deviation (SD) and categorical variables as frequency and percentage. Association was determined using chi-square test and a p-value of ≤0.05 was regarded as statistically significant.

Results: The mean age of the patients was 29.37 ± 6.14 years, mean gestational age was 38.47 ± 1.17 weeks, and mean BMI was 23.29 ± 2.58 kg/m². 41 patients had scar dehiscence (28.9%) and 101 patients did not have any scar dehiscence (71.1%). No statistically significant association was found between scar dehiscence and educational status (p=0.181), socioeconomic status (p=0.571), residence (p=0.219), age group (p=0.763), gestational age (p=0.119), BMI (p=0.736), or parity (p=0.571).

Conclusion: A significant percentage of term pregnant women with previous 1 caesarean section had scar tenderness with scar dehiscence being observed in over one-third of them. None of the demographic or obstetric variables were found to be significantly related to scar dehiscence, but scar tenderness is a clinical sign that needs attention and prompt obstetric treatment.

Key Words: Scar dehiscence; scar tenderness; previous caesarean section; scar integrity; term pregnancy; repeat caesarean section.

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INTRODUCTION

Cesarean section has emerged as one of the most common obstetric procedures in the world, and it has been increasing in the last few decades[1].

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While caesarean delivery can be lifesaving for mother and child, the growing proportion of women with an older caesarean scar has brought with it new clinical challenges when women become pregnant again, such as safety of repeat caesarean section, trial of labour after caesarean and risk of caesarean scar-related complications[2]. Therefore, it is necessary to assess the previous uterine scar correctly in terms of antenatal and intrapartum decision making in term pregnancy.

The integrity of the lower uterine segment scar is significant because if healing is inadequate, the scar will thin, open up, or in rare cases, the uterus may rupture. Caesarean scar defects are also now known to be part of a spectrum of abnormal scar healing and have been linked to gynecological symptoms, obstetric complications and to the technical difficulty of subsequent caesarean section[3]. In women who present at term with a previous caesarean section, scar tenderness is regarded as a clinical warning sign, particularly if accompanied by lower abdominal pain,

uterine irritability and/or maternal discomfort. The accuracy of clinical judgement, however, is not always reliable in predicting the actual intraoperative scar weakness, and the tenderness of the scar does not accurately predict the weakness of the scar[4,5].

Scar dehiscence may occur in a significant number of women with previous caesarean section and scar tenderness as reflected by recent regional data, which would highlight the importance of thorough assessment prior to and during repeat caesarean delivery[6]. Lower uterine segment thickness also has been investigated as a non invasive predictor of scar integrity, and systematic reviews indicate a relationship between lower thin measurements of the lower uterine segment and scar defects[7,8].

Simple clinical parameters like scar tenderness are still very relevant in resource-limited tertiary care hospitals where women often present late in pregnancy and information about previous operations may be incomplete[9]. In more recent analyses, categories of risk were created using the measure of thickness of the lower segment of the uterus, and local validation is needed before this threshold is applied in general[10]. Therefore, in term pregnancy, assessment of the relationship between scar tenderness and intraoperative scar integrity at repeat caesarean section can be used clinically as evidence to enhance maternal safety, surgical preparedness and decision making in tertiary obstetric care.

METHODS

This was a cross-sectional study carried out in the Department of Obstetrics & Gynaecology, Lady Reading Hospital, Peshawar, from 1st July, 2023 till 31st December 2023. The study was conducted using non-probability consecutive sampling technique in which 142 patients were included. Eligibility criteria included having had a single lower-segment caesarean section, singleton term pregnancy (gestional age ≥ 37 weeks), and scar tenderness during trial of labour or antenatal assessment. Localized tenderness to the previous caesarean scar/lower uterine segment on clinical examination, with or without lower abdominal pain, was classified as scar tenderness. The patients with more than one caesarean section, previous classical caesarean section, history of uterine surgery other than caesarean section, multiple pregnancy, placenta previa, placenta accreta spectrum, intrauterine fetal death, known fetal anomaly and incomplete clinical record were excluded from the study.

Detailed history was taken after informed consent from each patient including age, parity, gestational age, booking status, indication for previous caesarean section, duration since previous caesarean section, onset of labour pain, associated symptoms. A general physical examination and obstetric examination was conducted. Particular attention was given to the presence and severity of scar tenderness. All cases had a standard obstetric assessment, fetal monitoring and an ultrasound abdomen performed. The lower uterine segment was evaluated by ultrasound for the presence of a scar, scar thinning, scar discontinuity, bulging of membranes, or any abnormality indicative of scar dehiscence.

Those who reported scar tenderness were treated as per departmental protocol and delivered by a repeat cesarean section. Before the uterine incision, the prior uterine scar was carefully examined during surgery. Adequacy of the scar was determined intraoperatively and documented as either an intact scar or scar dehiscence. Separation or thinning of the previous uterine scar with intact serosa and/or fetal membranes without complete uterine rupture was considered scar dehiscence. If there was complete uterine rupture, it is to be noted separately.

A predesigned proforma was used to record all relevant information. The primary outcome variable was scar integrity, defined as dehiscence or no dehiscence of the scar. Data were entered and analyzed using SPSS. The quantitative variables (age, gestational age, parity and interpregnancy interval) were expressed as mean ± standard deviation. Qualitative variables like booking status, previous caesarean section, the ultrasound results and scar integrity were presented as frequency and percentages. Stratification was done where appropriate to assess the distribution of scar dehiscence according to important clinical variables.

RESULTS

A total of 142 women with previous one caesarean section and scar tenderness at term pregnancy were included in the study. The mean age was 29.37 ± 6.14 years, mean gestational age was 38.47 ± 1.17 weeks, and mean BMI was 23.29 ± 2.58 kg/m². Baseline clinical characteristics are summarized in Table 1.

Table No. 1. Baseline clinical characteristics of study participants

Variable	Frequency (%) / Mean ± SD
Age, years	29.37 ± 6.14
Gestational age, weeks	38.47 ± 1.17
BMI, kg/m²	23.29 ± 2.58
Age 18–30 years	79 (55.6%)
Age 31–40 years	63 (44.4%)
Gestational age 37–38 weeks	70 (49.3%)
Gestational age 39–40 weeks	72 (50.7%)
Healthy BMI, 18–25 kg/m²	110 (77.5%)
Overweight/obese BMI, >25 kg/m²	32 (22.5%)
Para 1	78 (54.9%)
Para >1	64 (45.1%)

Sociodemographic characteristics of the study population are presented in Table 2. Most patients were from rural areas 94 (66.2%).

Scar dehiscence was observed in 41 patients (28.9%), while 101 patients (71.1%) had no scar dehiscence, as shown in Table 3.

Table No. 2. Sociodemographic characteristics of study participants

Variable	Frequency (%)
Educational status	
Illiterate	45 (31.7%)
Secondary education	51 (35.9%)
Higher education	46 (32.4%)
Socioeconomic status	
Rich	51 (35.9%)
Middle	40 (28.2%)
Poor	51 (35.9%)
Residence	
Rural	94 (66.2%)
Urban	48 (33.8%)

Table No. 3. Frequency of scar dehiscence among study participants

Scar dehiscence	Frequency (%)
Yes	41 (28.9%)
No	101 (71.1%)
Total	142 (100.0%)

The association of scar dehiscence with sociodemographic variables is shown in Table 4. No statistically significant association was observed with educational status, socioeconomic status, or residence.

Table No. 4. Association of scar dehiscence with sociodemographic variables

Variable	Scar dehiscence Yes n (%)	Scar dehiscence No n (%)	Total	p-value
Educational status				
Illiterate	16 (35.6%)	29 (64.4%)	45	**0.181**
Secondary education	10 (19.6%)	41 (80.4%)	51	
Higher education	15 (32.6%)	31 (67.4%)	46	
Socioeconomic status				
Rich	12 (23.5%)	39 (76.5%)	51	**0.571**
Middle	13 (32.5%)	27 (67.5%)	40	
Poor	16 (31.4%)	35 (68.6%)	51	
Residence				
Rural	24 (25.5%)	70 (74.5%)	94	**0.219**
Urban	17 (35.4%)	31 (64.6%)	48	

The association of scar dehiscence with clinical and obstetric variables is presented in Table 5. Scar dehiscence was more frequent at 39–40 weeks of gestation 25/72 (34.7%) than at 37–38 weeks 16/70 (22.9%), but the difference was not statistically significant.

Table No. 5. Association of scar dehiscence with clinical and obstetric variables

Variable		Scar dehiscence Yes n (%)	Scar dehiscence No n (%)	Total	p-value
Age group:	18–30 years	22 (27|.8%)	57 (72.2%)	79	**0.763**
	31–40 years	19 (30.2%)	44 (69.8%)	63	
Gestational age:	37–38 weeks	16 (22.9%)	54 (77.1%)	70	**0.119**
	39–40 weeks	25 (34.7%)	47 (65.3%)	72	
BMI: Healthy, 18–25 kg/m²		31 (28.2%)	79 (71.8%)	110	**0.736**
Overweight/obese, >25 kg/m²		10 (31.3%)	22 (68.8%)	32	
Parity:	Para 1	21 (26.9%)	57 (73.1%)	78	**0.571**
	Para >1	20 (31.3%)	44 (68.8%)	64	

P-values were calculated using Pearson chi-square test

DISCUSSION

This study aimed at the assessment of the integrity of scars of term pregnant women with previous one Caesarean section (CS) presented with scar tenderness. Nearly one-third (28.9%) of symptomatic women were found to have scar dehiscence, or a weak scar. This finding suggest that scar tenderness may be a significant warning sign in women who have had a prior caesarean section, especially at term or at the time of trial of labour. Our finding was similar to a study who reported that 23.75% of women with tenderness after their first caesarean section had scar dehiscence. His study also revealed that there were no significant relationships between age, gestational age, BMI or

parity with scar dehiscence, consistent with our findings. The slightly higher incidence of our study could be related to only considering term pregnancies, as progressive thinning of the lower uterine segment and uterine contractions could possibly result in increased risk for scar compromise.[11]

Conversely, Rozenberg et al experienced scar dehiscence in 14.9% of patients with a previous one CS and scar tenderness[12]. This lower frequency might account for different inclusion criteria, diagnostic methods and gestational age distribution. Their study comprised of patients beyond 28 weeks gestation, while our study involved pregnant women at term. The lower portion of the uterus is more stretched at term, increasing the likelihood of the presence of scar thinning or dehiscence. Interpretation of the ultrasound and the threshold for the diagnosis of dehiscence can also create some variation in the frequency reported.[13]

Our study also has a higher frequency than in large, general populations having elective repeat caesarean section. In a study by Bujold et al, 4.6% of women undergoing elective repeat caesarean delivery had uterine scar dehiscence[14]. The much lower rate in their study is understandable because they included an elective repeat caesarean population rather than a symptomatic group with scar tenderness. They reported that maternal age and parity were not significant factors influencing dehiscence, which is consistent with our results, and therefore does not allow for consistent prediction of scar integrity based on maternal age and parity alone.[15]

We found no significant relationship between scar dehiscence and age, parity, BMI, education, socioeconomic status or residence; these variables may be more clinically important than demographic variables for the identification of women at risk. There was no statistical difference in the rate of scar dehiscence between 39–40 weeks and 37–38 weeks, although the dehiscence rate was higher at 39–40 weeks, numerically. This may be because of the small gestational age range and small sample size of the subgroups. However, like BMI, there was no significant relation observed, likely due to the fact that the integrity of the uterus scar is modified by a variety of factors related to the scar, such as previous surgical technique, method of uterine closure, post-surgical infection, interpregnancy interval, lower uterine segment thickness, and duration of labour[16,17].

Lower uterus segment thickness has been investigated as a useful ultrasound parameter to predict scar defects in our study. In a study by Kandregula et al, found that lower uterine segment thickness was associated with a higher risk of uterine dehiscence or rupture, but they did not standardize the measurement techniques or cut-off values. Thus, ultrasound is a tool to assist in the clinical decision-making process, but should not be used as a substitute for clinical evaluation. Ramadan et al, further demonstrated that ultrasound-based management alone did not result in any significant decrease in adverse maternal-fetal outcomes, and thus ultrasound should be combined with clinical symptoms, such as scar tenderness and labour status.[18]

The results of this study are in agreement with published literature, indicating that in women with previous caesarean section, tenderness of the scar is an important clinical sign. The increased frequency of scar dehiscence in our study may be due to the study population (symptomatic), term gestation, tertiary care center, and potential referral bias. However, there is no significant association with any of the variables studied, suggesting that routine obstetric variables are not sufficient to predict scar dehiscence.

This study has certain limitations which needs to be addressed. It was a single centre cross sectional study with possible limitations in generalizability. A group of women who were not tender to scar was not available for comparison, so the predictive value of scar tenderness was not available. Important variables such as time to conception, reason for previous cesarean section, method of uterine closure, infection following surgery and length of labour were not assessed. Furthermore, the assessment of the integrity of scar with ultrasound is operator-dependent and no common lower uterine segment thickness cut-off value was used.

CONCLUSION

Scar dehiscence was observed in a considerable proportion of term pregnant women with previous caesarean section presenting with scar tenderness. Although no significant association was found with age, gestational age, BMI, parity, education, socioeconomic status, or residence, scar tenderness remains an important clinical warning sign. Therefore, women with previous caesarean section who present at term with scar tenderness should be carefully evaluated and managed promptly to reduce the risk of maternal and fetal complications..

Author's Contribution:

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Drafting or Revising Critically:	Sadia Baig, Arsh 5. Ilham
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