Original Research Article

Study of intraoperative findings in patients with scar tenderness and comparison with sociodemographic parameters

Bharati Sahu[1], Pooja Jain[2*], Sarika Rawat[3]

[1]Associate Professor, Department of Obstetrics and Gynaecologist, Netaji Subhash Chandra Bose Medical College Jabalpur, Madhya Pradesh, India

[2]Senior Resident, Department of Obstetrics and Gynaecologist, Government Medical College Ratlam, Madhya Pradesh, India

[3]Assistant Professor, Department of Obstetrics and Gynaecologist, Government Medical College Ratlam, Madhya Pradesh, India

Received: 15-06-2021 / Revised: 12-07-2021 / Accepted: 16-08-2021

Abstract

Background: An increasing trend is noted in the trial of labor in cases of previous lower segment caesarian section (LSCS) during the past few years. A vigilant approach is required identification of different signs and symptoms of giving way to the last scar. **Aims and objective:** To study the intraoperative findings in patients with scar tenderness and compare with sociodemographic parameters. **Materials and methods:** A hundred women were studied in the Department of Obstetrics and Gynaecology N.S.C.B. Medical College, Jabalpur, from September 2013 to October 2014. Maternal parameters including scar rupture, scar dehiscence, thin scar (<4mm) but intact, normal scar, and adhesions were observed compared to sociodemographic parameters. The odds ratio was calculated to obtain association. **Results:** Thin scar more likely to occur older age (OR 3.12; 95% CI 0.96-10.10; P=0.045), illiterate cases (OR 1.87; 95% CI 0.54-6.44; P=0.312), patients undergoing emergency CS (OR 3.73; 95% CI 0.76-18.44; P=0.082) and in patients with inter-delivery interval of <18 months (OR 2.75; 95% CI 0.91-8.28; P=0.061). Scar rupture more likely to occur older age (OR 3.60; 95% CI 0.34-37.88; p=0.254), low socio-economic status groups (OR 2.50; 95% CI 0.24-26.00; P=0.427), patients with significant medical/surgical history (OR 5.17; 95% CI 0.41-65.11; P=0.156), in multipara groups (OR 3.13; 95% CI 0.39-24.85; P=0.256), patients undergoing emergency CS (OR 1.40; 95% CI 0.13-14.53; p=0.777), in patients with more than one prior incisions (OR 1.50; 95% CI 0.14-16.00; P=0.736), in patients with inter-delivery interval of <18 months (OR 1.75; 95% CI 0.23-13.49; p=0.586) and in patients with no prior vaginal delivery (OR 21.67; 95% CI 0.88-532.43; P=0.007). Scar dehiscence was more likely to occur in un-booked cases OR 3.05; 95% CI 0.60-15.55; P=0.158), illiterate cases (OR 1.60; 95% CI 0.39-6.60; p=0.508), patients with significant medical/surgical history (OR 3.10; 95% CI 0.48-19.82; p=0.208), multipara groups (OR 1.56; 95% CI 0.41-5.96; p=0.510) and in patients with inter-delivery interval of <18 months (OR 1.75; 95% CI 0.50-6.12; P=0.375). **Conclusion: A**ge, booking status, educational status, socio-economic status, parity, past medical or surgical history, type of C-section (elective or emergency), number of prior uterine incisions, or the inter-delivery interval has no association with scar complications.

Keywords: C-section, Scar dehiscence, sociodemographic parameters,

Introduction

The rate of primary and repeat cesarean are 16% and 67%, respectively. Overall, 10% of the obstetric population has experienced prior cesarean delivery [1,2]. This figure is very similar to that for Indian women (10.6%) [3].

Due to a rise in the rates of primary cesarean section globally, repeat cesarean section has also become very common. During labor with scarred uteri, the chief concern is that of scar rupture, which can have devastating fetal and maternal consequences, including mortality [4]. Several studies monitoring for the features of scar rupture like abnormal cardiotocography (CTG), severe abdominal pain persisting between contractions, acute onset scar tenderness, hematuria or abnormal vaginal bleeding, maternal tachycardia or shock, cessation of uterine activity, and loss of station of the presenting part exist except for scar tenderness which has not been evaluated separately in many studies. Indeed, the chances of a repeat cesarean are quoted at 90% after a primary caesarean[5].

*Correspondence
Dr. Pooja Jain
Senior Resident, Department of Obstetrics and Gynaecologist, Government Medical College Ratlam, Madhya Pradesh, India
E-mail: jpooja11@gmail.com

Scar tenderness is sometimes associated with severe impending complications, both maternal and fetal. Therefore, this clinical sign is an essential parameter for prognostication of patients presenting in labor after prior cesarean delivery [6]. Scar tenderness is elicited by palpating the lower part of the uterus between the suprapubic region and the symphysis pubis between the contractions when the uterus is relaxed while engaging the woman in conversation and noting for a visible wince [7]. Hence, the present study is an attempt to study the intraoperative findings in patients with scar tenderness.

Materials and Methods

A prospective observational study was performed on 100 patients with prior cesarean section in the Department of Obstetrics and Gynaecology N.S.C.B. Medical College, Jabalpur, from September 2013 to October 2014.

All patients provided informed consent before being included in this study. The study was duly approved by the institutional ethics committee of Netaji Subhash Chandra Bose Medical College, Jabalpur.

All patients with a previous cesarean section with scar tenderness were included. In contrast, patients with prior cesarean section and without scar tenderness and patients with normal vaginal deliveries were excluded from the study.

Maternal parameters including scar rupture (defined by finding the fetus within the abdominal cavity. Also monitoring for the features of scar rupture is thus one of the prerequisites of VBAC), scar dehiscence (defined as a defect in the lower segment with the membranes bulging), thin scar (<4mm) but intact (defined as a papery thin lower uterine segment with thickness less than 4 mm), normal scar and adhesions were observed. In fetal parameters, APGAR score and birth weight were studied.

All case report forms (CRF) were entered using Microsoft Excel 2007 worksheet, and all categorical variables were coded numerically before entry. Data were checked and resolved for all inconsistencies and illogical entries before analysis. Odds ratio with 95% confidence interval and chi-square analysis was performed to compare frequency distribution between scar types and exposure variables. The level of significance was considered at the 5% alpha. All the statistical analysis was performed using SPSS 20 for Windows and STATA 12.1 statistical software. A P-value of <0.05 was considered significant.

Results

The majority were booked (65%), and 35% were unbooked. The mean age of the subjects was 24.96±2.85 years with only 6 percent of the patients below 20 years of age, 44 percent of patients were between 21 – 25 years of age, and 50 percent were between 26 – 30 years of age.

Table 1: Operative findings in patients operated for suspected scar complications (n=100)

Finding	Number (%)
Normal Scar	66
Thin Scar (<4 mm) but Intact	18
Scar Dehiscence	12
Scar Rupture	4

In patients under 20 years of age, all 6 subjects had a normal scar. In patients between 21 – 25 years of age, a normal scar was seen in 30 patients, a thin scar in 5 patients, scar dehiscence in 8 patients, and 1 patient had scar rupture. In patients between 26 – 30 years of age, a normal scar was seen in 30 patients, a thin scar in 13 patients, scar dehiscence in 4, and rupture in 3 patients.

Analysis revealed that thin scar (OR 3.12; 95% CI 0.96-10.10; P=0.045) and scar rupture (OR 3.60; 95% CI 0.34-37.88; p=0.254) was more likely to occur in older age groups compared with younger age groups. Scar dehiscence (OR 3.05; 95% CI 0.60-15.55; P=0.158) was more likely to occur in un-booked compared with booked patients.

Thin scar (OR 1.87; 95% CI 0.54-6.44; P=0.312) and scar dehiscence (OR 1.60; 95% CI 0.39-6.60; p=0.508) are more likely to occur in illiterate groups compared to literate groups.

Analysis revealed that scar rupture (OR 2.50; 95% CI 0.24-26.00; P=0.427) was more likely to occur in low socio-economic status groups than upper socio-economic status groups.

Table 2: Odds Ratio between Significant Medical /Surgical History Vs. Non-significant Medical/Surgical History and Scar Type

Scar Type	Past medical/surgical history			Odds Ratio (95% CI)	P-value
	Not significant	Significant Medical History	Significant Surgical History		
Normal Scar	62 (93.9)	2 (3)	2 (3)	1 (Referent)	
Thin Scar	17 (94.4)	1(5.6)	0 (0)	0.91 (0.09-8.82)	0.936
Scar Dehiscence	10 (83.3)	1 (8.3)	1 (8.3)	3.10 (0.48-19.82)	0.208
Scar Rupture	3 (75)	1 (25)	0 (0)	5.17 (0.41-65.11)	0.156

Scar rupture (OR 5.17; 95% CI 0.41-65.11; P=0.156) and scar dehiscence (OR 3.10; 95% CI 0.48-19.82; p=0.208) are more likely to occur in patients with significant medical/surgical history compared with patients in whom non-significant medical/surgical history was present. Due to a minimal number of unmarried patients seen, the association of scar type and marital status lost statistical significance.

Analysis revealed that scar rupture (OR 3.13; 95% CI 0.39-24.85; P=0.256) and scar dehiscence (OR 1.56; 95% CI 0.41-5.96; p=0.510) are more likely to occur in multipara groups compared with patients having parity as two. Thin scar (OR 3.73; 95% CI 0.76-18.44; P=0.082) and scar rupture (OR 1.40; 95% CI 0.13-14.53; p=0.777) are more likely to occur in patients undergoing emergency CS compared with patients undergoing elective CS.

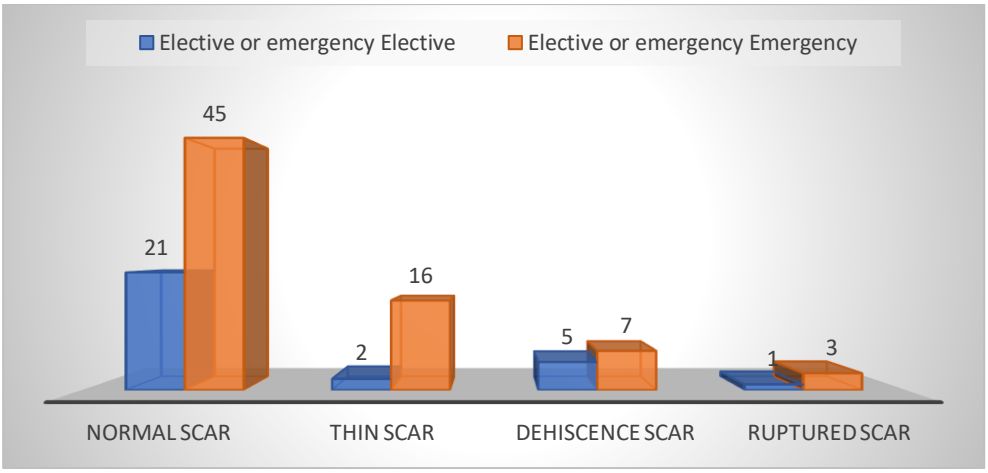

Fig 1:Distribution of scar complications as a function of the type of CS

Table 3: Odds Ratio between One Vs More than one and Scar Type

Scar Type	Prior Uterine Incision Number			Odds Ratio (95% CI)	P-value
	1	2	3		
Normal Scar	54 (81.8)	11 (16.7)	1 (1.5)	1 (Referent)	
Thin Scar	15 (83.3)	3 (16.7)	0 (0)	0.90 (0.22-3.64)	0.882
Scar Dehiscence	11 (91.7)	1 (8.3)	0 (0)	0.41 (0.05-3.56)	0.403
Scar Rupture	3 (75)	0 (0)	1 (25)	1.50 (0.14-16.0)	0.735

Scar rupture (OR 1.50; 95% CI 0.14-16.00; P=0.736) is more likely to occur in patients with more than one prior incision than patients with only a single incision. Analysis revealed that thin scar (OR 2.75; 95% CI 0.91-8.28; P=0.061) followed by scar dehiscence (OR 1.75; 95% CI 0.50-6.12; P=0.375) and scar rupture (OR 1.75; 95% CI 0.23-13.49; p=0.586) are more likely to occur in patients with an inter-delivery interval of <18 months group compared with patients with an inter-delivery interval of ≥18 months group. Scar Rupture (OR 21.67; 95% CI 0.88-532.43; P=0.007) is more likely to occur in patients with no prior vaginal delivery than patients with a previous vaginal delivery.

Discussion

This study was carried out to ascertain the significance of scar tenderness as a subjective sign of scar complications in labor. Its importance arises from being a relatively easily elicitable sign in women who may not have access to continuous CTG monitoring. However, continuous CTG is one of the prerequisites of VBAC. It also appears early compared to other features of scar rupture such as maternal shock, loss of station of the presenting part, or hematuria.

Some studies on VBAC elaborate on scar tenderness as one reason for the trial's failure. In one study on 101 women undergoing a trial of scar, 10 women had scar tenderness, of which rupture was noted in one case and dehiscence in another[8]. In another study of 205 women, 12 had scar tenderness, of which 4 had dehiscence noted intra-op[9].Another study segregated the intra-operative findings of women with failed trials into scar dehiscence and thinned out the scar. Of 4 and 28 women in the two subcategories, respectively, 3 and 17 women had scar tenderness in labor. Thus, some women with scar complications did not present with scar tenderness[10].

Rubina et al., in a study of 120 women, found three cases of scar tenderness, of which one had a ruptured uterus at cesarean[11]. The only other study available was one of 99 women, where 1 woman had scar tenderness with intact scar while one case of dehiscence of scar did not have scar tenderness[12]. Thus, only isolated case studies deal with scar tenderness per se as one of the causes of failure of a trial of the scar.

In our study, scar complication rates were not affected by the parity, onset of labor, indication for the previous cesarean, inter-conceptional period, gestation at delivery, and birth weight. Similar findings have been reported in the study by Davey et al[13]. In an extensive review of the literature, no studies have been conducted on the predictive accuracy of scar tenderness. However, there is a multitude of studies on the trial of labor after cesarean delivery. This study highlights that it is a prospective study and focuses only on cesarean deliveries done for scar tenderness. One of the drawbacks of this study is that patients who did not have scar tenderness but underwent cesarean delivery for other indications and were found to have scar complications were not included in this study. This may lead to very low specificity, as seen in our research. A prospective study that correlates all the signs and symptoms of scar dehiscence with intra-operative findings would better evaluate the accurate picture.

This study found that scar complications are not significantly affected by age, booking status, education, socio-economic status, past medical/surgical history, parity, elective/emergency cesarean section, number of uterine incisions, and inter-delivery interval due to insufficient frequency in each group. Therefore, a study with a much larger number of subjects should be carried out to either corroborate or refute the association of scar tenderness with scar complications. Nevertheless, scar tenderness in labor can serve as a sensitive indicator of scar complications and should continue to be elicited in all women undergoing a trial of labor after previous cesarean birth.

Conclusion

Scar complications are not significantly affected by age, booking status, educational status, socio-economic status, parity, past medical or surgical history, type of CS, whether elective or emergency, no. of prior uterine incisions, or inter-delivery interval due to small no. of frequency in each group. A more extensive, preferably multi-center study or meta-analysis of data would be required to demonstrate the significance of scar tenderness as a reliable predictive indicator of scar complications.

Conflict of Interest: Nil Source of support: Nil

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