

Clinical significance of uterine scar tenderness in predicting strength of scar in patients with lower segment cesarean section

Safia Khalil, Nighat Shaheen, Palwasha Maria Iftikhar

Cantonment General Hospital, Rawalpindi, Pakistan

Objective: To determine the clinical significance of uterine scar tenderness in predicting strength of scar in patients with lower segment cesarean section (LSCS).

Methodology: The descriptive study was conducted at Cantonment General Hospital Rawalpindi from 1st January 2012 to 31st January 2013. All pregnant women who had one or more cesarean section were included in the study. Patients with unknown site of uterine scar were excluded. All patients undergoing repeat LSCS were assessed for scar tenderness and divided into two groups on the basis of whether scar tenderness was positive or not. The findings were noted on a Performa. Operative findings were

noted during surgery. Outcome variables included thinned out lower segment, scar dehiscence and scar rupture.

Results: The sensitivity and specificity of uterine scar tenderness was 86.3 percent and 86.0 percent, respectively. Positive predictive value and negative predictive value was 51.3 percent and 97.3 percent, respectively.

Conclusion: Uterine scar tenderness was found to be a useful tool in predicting strength of scar in woman undergoing LSCS. (Rawal Med J 2013;38:401-403).

Key words: VBAC, TOLAC, scar tenderness, scar thickness.

INTRODUCTION

Rising cesarean section (CS) rate is a global concern. Internationally, CS rates vary from 10-30 percent. In our region, around 10 percent of the obstetric population has a CS scar.^{1,2} Cesarean section on maternal request and repeat cesarean delivery are the most prominent avoidable causes of rising CS rate.^{2,3} Vaginal birth after CS is one of the target foci to check the rising CS rate. Success rate of vaginal birth after CS varies from 60-80%.³ Relative safety of vaginal birth after CS has been well established.⁴⁻⁷ However, vaginal birth after CS has the inherent risk of scar rupture, which is a catastrophic event associated with fetomaternal morbidity and sometimes mortality.

Various attempts have been made to anticipate scar rupture. These include use of obstetric risk assessment before trial of scar, use of continuous electronic fetal heart rate monitoring and use of intrauterine pressure monitoring during labour.^{8,9} Another approach is the use of ultrasound assessment of uterine scar in the antenatal period.^{10,11} Abnormal cardiotocograph is the most consistent

finding of impending scar rupture, present in 80% of women with scar rupture.¹

Clinical features of scar rupture include maternal tachycardia, severe abdominal pain persisting between contractions, scar tenderness and abnormal vaginal bleeding. Late signs include cessation of uterine activity, hematuria, loss of station of presenting part and maternal shock.⁹ The importance of determining the predictive value of clinical features for rupture of uterine scar is immense. Among all the features listed above, scar tenderness may be a telltale sign of scar rupture in labor. Although scar tenderness is routinely assessed in every woman undergoing trial of labor after CS, very few studies have been conducted to evaluate it scientifically. The purpose of our study was to evaluate the utility of scar tenderness in anticipating scar complications.

METHODOLOGY

The descriptive study was conducted at Cantonment General Hospital, Rawalpindi from January 1, 2012 to January 31, 2013 using convenience-sampling

technique. All pregnant women who had one or more previous CS were included in the study. Women with unknown site of uterine scar were excluded from the study. Approval of the Hospital Ethics Committee and an informed consent was obtained.

All women undergoing LSCS, whether emergency or elective, were assessed for scar tenderness. Women undergoing elective surgery had the assessment done immediately before the procedure. Scar tenderness was checked every 30 minutes in patients undergoing trial of scar. A senior registrar conducted the examination. Scar tenderness was checked by superficial palpation of the lower uterine segment by pressing the pelvis above pubic symphysis in the absence of a uterine contraction. Diversion technique was used to remove bias. A visible wince was regarded as a positive sign.

In those undergoing trial of scar, regular monitoring was done including observation of maternal pulse, blood pressure, scar tenderness and vaginal bleeding. Fetal heart rate was auscultated every 30 minutes in the first stage and after every contraction in the second stage. Continuous fetal heart rate monitoring was instituted, as required. Positive scar tenderness, unexplained maternal tachycardia, fresh vaginal bleeding, fetal heart rate abnormalities and failure to progress were considered indications for emergency CS. The women who had a successful vaginal birth were excluded from the study.

Women were divided into two groups on the basis of whether scar tenderness was positive or not. Operative findings were noted during surgery. Scar rupture was defined as per operative finding of a communication between uterine and abdominal cavity. Dehiscence was defined as a defect in lower uterine segment with or without bulging membranes. Thinned out lower segment was defined as a thickness of lower uterine segment less than 5mm.

RESULTS

One hundred fifty one women had a repeat CS during the study. Mean age of the women was 27.6 ± 4.265 years. Mean gestational age was 37 ± 1.670 weeks. Scar tenderness was positive in

group one, which included 37 (24.5%) women. Rest of the 114 (75.4%) women constituted group two in whom scar tenderness was negative. Demographic data is shown in Table 1.

Table 1. Demographic data.

	Age	Gravidity	Parity	Gestational age
Number	41	41	41	41
Mean \pm SD	27.61 \pm 4.26	2.98 \pm 1.10	1.71 \pm 0.84	37.63 \pm 1.67

In group one, 8 (21.6%) patients had thinned out lower uterine segment, 9 (24.3%) had scar dehiscence and 2 (5.4%) had uterine scar rupture. In group two, thinned out lower segment was noted in one (0.87%) and scar dehiscence was noted in two (1.7%) patients (Table 2). There was no scar rupture in group two.

Table 2. Relationship of scar tenderness with scar rupture.

		Scar rupture		Total
		Yes	No	
Scar tenderness	Yes	2	35	37
	No	0	4	4
Total		2	39	41

The estimated value of prevalence was 14.5% (95% confidence interval 0.095-0.21). The sensitivity was 86.3% and specificity was 86.0%. False positives were 48.6% and false negatives were 2.6%. Positive predictive value was 51.3% and negative predictive value was 97.3%.

DISCUSSION

Scar tenderness is an easily detectable sign which appears early. In low resource settings where continuous electronic fetal heart rate monitoring is not available, it becomes even more useful. In our study, we found that scar tenderness had good sensitivity and specificity. Although the positive predictive value was low, the negative predictive value was 97.3%.

There is a multitude of studies on trial of scar. But there is a scarcity of data on the predictive value of

scar tenderness. Gaikwad et al reported sensitivity and specificity of scar tenderness to be 92.3% and 8.3%, respectively.¹ Their reported specificity was very low as compared to our study. The possible reason was that women who were false negative for scar tenderness were not included in the study. There are few studies, which deal with scar tenderness as one of the reasons for failure of trial of scar. In a study of women with scar tenderness, two out of 10 had scar complications.² Puri et al reported scar tenderness in 12 women out of 205 and among these 12 women, four had intraoperative scar dehiscence.¹² In another study, 3 cases of scar tenderness were found out of 120 women and only one had ruptured uterus at CS.¹³ A retrospective study of 99 women found scar tenderness in one woman while one case of scar dehiscence did not have scar tenderness.¹⁴ Some women were false negative for scar tenderness in a trial of labor following CS.¹⁵

Our study on scar tenderness included both false positives as well as false negatives and thus described the positive and negative predictive values for the first time. One of the drawbacks of the study was that other clinical features apart from scar tenderness were not taken into account. More studies are needed to evaluate the significance of each clinical feature in predicting scar complications.

CONCLUSION

Uterine scar tenderness was found to be a useful predictor of complications in a trial of scar. More studies are needed on a larger cohort to establish the clinical utility of these findings.

Author Contributions:

Conception and design: Nighat Shaheen
 Collection and assembly of data: Palwasha Iftikhar
 Analysis and interpretation of the data: Safia Khalil
 Drafting of the article: Safia Khalil
 Critical revision of the article for important intellectual content: Nighat Shaheen
 Statistical expertise: Nighat Shaheen
 Final approval and guarantor of the article: Nighat Shaheen
Corresponding author email: nighats82@gmail.com
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