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Research Article

### ABDOMINAL ULTRASONOGRAPHY FOR PREDICTION OF SCAR DEHISCENCE IN FEMALES WITH PREVIOUS CESAREAN SECTION

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**Abstract:**

**Introduction:** Cesarean section (CS) rates are increasing worldwide. As a result, women presenting with pregnancy with previous CS are also rising.

**Objectives of the study:** The basic objective of the study is to analyse the abdominal ultrasonography for prediction of scar dehiscence in females with previous cesarean section.

**Methodology of the study:** This cross sectional study was conducted in Allied Hospital Faisalabad, District Sargodha during June 2019 to December 2019. The data was collected from 150 patients. Females of age: 20 - 40 years with parity <5, presenting at gestational age >37 weeks with history of previous one delivery through cesarean section and planned to undergo delivery through elective cesarean section under spinal anesthesia were included in this study. The data was collected through a questionnaire. Demographic information (name, age, gestational age, BMI, parity) was also obtained. Then females undergo transabdominal ultrasonography by a single senior radiologist. Females were labeled as positive or negative for scar dehiscence. At time of delivery, uterine scar was assessed and scar dehiscence was confirmed.

**Results:** The data were collected from 160 patients. The mean age of the patients was 30.22±6.33 years with minimum and maximum ages of 20 & 40 years respectively. The mean value of gestational age of the patients was 38.81±0.740 weeks with minimum and maximum gestational ages of 38 & 40 weeks respectively. The mean value of BMI of the patients was 24.22±3.321 kg/m<sup>2</sup> with minimum and maximum BMI values of 18.60 & 29.83 kg/m<sup>2</sup> respectively. The patients with age ≤ 30 years, the sensitivity, specificity and diagnostic accuracy of scar dehiscence on USG was 93.75%, 97.78% & 96.10% respectively taking cesarean section as gold standard.

**Conclusion:** It is concluded that trans abdominal ultrasonography is a useful and reliable method having high value of diagnostic accuracy for prediction of scar dehiscence in females with history of cesarean.

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**INTRODUCTION:**

Cesarean section (CS) rates are increasing worldwide. As a result, women presenting with pregnancy with previous CS are also rising. Previous CS is becoming the most common indication for CS, confirming the age old dictum proposed by Edward Craigin in 1914 "Once a cesarean always a cesarean." Although the absolute risk of uterine dehiscence/rupture in lower segment CS is very low (0.2–1.5 %), the unpredictable nature of this complication and its grave consequences for both mother and baby has resulted in decreased rates of trial of labor after CS (TOLAC) in many countries [1].

The main cause of uterine rupture in a scarred uterus is lack of appropriate counseling and inadequate or absence of antenatal care with increasing number of women undergoing trial of labour after a previous caesarean section, in an anticipation of vaginal delivery [2], separation of previous caesarean scar has become a common cause of rupture especially in unskilled hands [3].

One study showed that frequency of scar dehiscence present in 69% cases after previous cesarean section. The frequency of ruptured uteri was calculated to be 0.67%, giving a ratio of 1:148 deliveries [4]. Ultrasound estimation of LUS provides a fairly simple and non-invasive method for prediction of scar dehiscence/rupture. Evaluation of thickness of LUS has been found to be a potential factor for predicting scar dehiscence. The risk of scar dehiscence/rupture has been directly related to the thinning of LUS. However, there is controversy over the thickness of LUS. One study showed that the sensitivity and specificity of Trans abdominal Sonography or trans abdominal ultrasonography were 91% and 93% respectively for prediction of scar dehiscence [5]. But another study showed that trans abdominal ultrasonography showed the sensitivity 25%, specificity 100% for prediction of scar dehiscence [6].

**Objectives of the study:**

The basic objective of the study is to analyze the abdominal ultrasonography for prediction of scar dehiscence in females with previous cesarean section.

**Methodology of the study:**

This cross sectional study was conducted in Allied Hospital Faisalabad during June 2019 to December 2019. The data was collected from 150 patients. Females of age: 20 - 40 years with parity <5, presenting at gestational age >37 weeks with history of previous one delivery through cesarean section and planned to undergo delivery through elective cesarean section under spinal anesthesia were included in this study. The data was collected through a questionnaire. Demographic information (name, age, gestational age, BMI, parity) was also obtained. Then females undergo transabdominal ultrasonography by a single senior radiologist. Females were labeled as positive or negative for scar dehiscence. At time of delivery, uterine scar was assessed and scar dehiscence was confirmed.

**Statistical analysis:**

All the data were analyzed using SPSS version 18.0. All the values were expressed in mean and standard deviation.

**RESULTS:**

The data were collected from 160 patients. The mean age of the patients was  $30.22 \pm 6.33$  years with minimum and maximum ages of 20 & 40 years respectively. In this study, 21(13.13%) patients had parity 01, 62(38.75%) patients had parity 02, 53(33.13%) patients had parity 03 and 24(15%) patients had parity 04. The mean value of gestational age of the patients was  $38.81 \pm 0.740$  weeks with minimum and maximum gestational ages of 38 & 40 weeks respectively. The mean value of BMI of the patients was  $24.22 \pm 3.321$  kg/m<sup>2</sup> with minimum and maximum BMI values of 18.60 & 29.83 kg/m<sup>2</sup> respectively. According to this study in patients with age  $\leq 30$  years, the sensitivity, specificity and diagnostic accuracy of scar dehiscence on USG was 93.75%, 97.78% & 96.10% respectively taking cesarean section as gold standard.

**Table 01: Frequency distribution of scar dehiscence diagnosed on USG**

Scar dehiscence USG		Frequency	Percent
	Positive	68	42.5
	Negative	92	57.5
	Total	160	100.0

**Table 02: Comparison of diagnosis of scar dehiscence on USG with caesarean stratified by age**

Age (years)	Scar dehiscence on USG	Scar dehiscence on cesarean		Total
		Positive	Negative	
≤ 30	Positive	30(93.8%)	1(2.2%)	<b>31(40.3%)</b>
	Negative	2(6.3%)	44(97.8%)	<b>46(59.7%)</b>
> 30	Positive	33(94.3%)	4(8.3%)	<b>37(44.6%)</b>
	Negative	2(5.7%)	44(91.7%)	<b>46(55.4%)</b>

**DISCUSSION:**

Cesarean section rates are increasing worldwide. As a result, women presenting with pregnancy with previous Caesarean Section are also rising [7]. Previous Caesarean Section is becoming the most common indication for Caesarean Section, confirming the age old dictum proposed by Edward Craigin in 1914 "Once a cesarean always a cesarean". In this study the sensitivity, specificity and diagnostic accuracy transabdominal ultrasonography for prediction of scar dehiscence in females with history of cesarean section was 94.03%, 94.62% & 94.38% respectively taking cesarean section as gold standard. Some of the studies are discussed below showing their results as [8]. A study by Chanderdeep Sharma et al concluded that sonographic evaluation of LUS scar and myometrial thickness (both with trans abdominal and vaginal ultrasonography) is a safe, reliable, and non-invasive method for predicting the risk of scar dehiscence/rupture [9, 10].

**CONCLUSION:**

It is concluded that trans abdominal ultrasonography is a useful and reliable method having high value of diagnostic accuracy for prediction of scar dehiscence in females with history of cesarean.

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