

Ultrasonographic Comparison of Previous Caesarean Scar Thickness in Second and Third Trimester of Current Pregnancy

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Abstract

Background:

The rate of caesarean section is increasing in the world. With which there is an increase in complications of pregnancy. There is risk of the uterine rupture if there is trial of the normal delivery. The aim of study is to determine and compare previous caesarean scar thickness in second and third trimester of pregnancy.

Objective(s):

To determine previous caesarean scar thickness in second and third trimester of current pregnancy.

Methodology:

An analytical study was conducted in the Saima medical center Shalimar link road Lahore. Sixty-two patients were enrolled in this study with convenient sampling. Toshiba nemio 10 ultrasound machines with convex transducer frequency range 3.5 MHz.patients with placenta previa and twin gestation were excluded from this study. Transabdominal technique was used in this study. Data were collected through data collection sheets and was tabulated and analyzed using statistical package for the social sciences (SPSS)version 24(SPSS, IBM, Armonk, NY, United States of America) Microsoft excel.

Results:

A total of 62 patient were examined in the study. The age incidence of the cases in this study varied between 22 years to 36 years. The mean age of the patients in the study was 27. 2903.The mean gestational age was 27.47. The mean scar thickness at 24-28 weeks was 3.3925. parity varied patient to patient. 16(25.8%) females had para 2, 23(37.1%) had para 3 and 16(25.8%) had para 4, 3(4.8%) females had para 5 and 4(6.5%) had para 6. In the current study out of sixty-two patients 13(21%) were gravida 1, 24(38.7%) was gravid 2, 17(27.4) were gravid 3, 4(6.5%) gravid 4 and (6.5) gravid. A statistical significance difference found in mean scar thickness at 24-28 weeks of gestation and at 32-36 weeks of gestation-value = 0.000 < α = 0.05.

Conclusion(s):

ultrasound is the useful modality for determining scar thickness. The scar thickness of previous c section in the current pregnancy.

Keywords: Analytical study, cesarean scar thickness

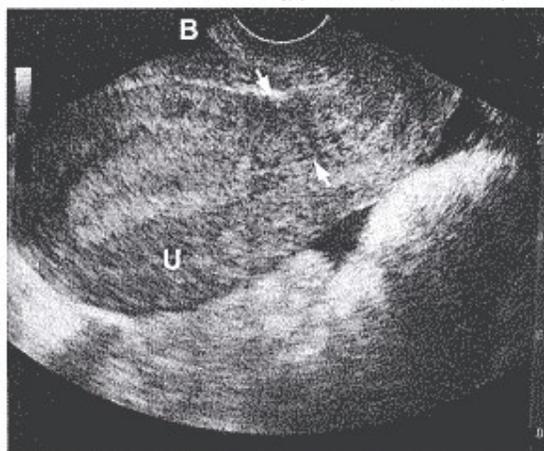
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INTRODUCTION

Caesarean section is one of the most incessant careful tasks performed in the UK and worldwide.¹ The CS rate expanded from 12% to 29% somewhere in the range of 1990 and 2008 in the United Kingdom and from 21.2% to 30.1% in the United States.^{2,3} The expanding CS rate and its related entanglements has invigorated an enthusiasm for the conduct of CS scars and their related potential grimness among wellbeing experts. The rate of uterine rupture in preliminaries of VBAC has stayed static with a recurrence assessed at somewhere in the range of 0.2% and 3.8%.⁴ Be that as it may, the future execution of the uterus after CS is as yet an underexplored zone of research, quite compelling is the impact of cesarean scar on pregnancy implantation, and the improvement of conventions for early forecast of effective preliminaries of VBAC. In the previous decade, we have seen a fast

advancement in imaging, and ultrasound filtering specifically has prospered in the field of obstetrics and gynecology with respect to new improvements in the analysis of polycystic ovaries and different inborn fetal anomalies. The presence of the CS scar utilizing ultrasound might be applicable, yet there is constrained proof to relate the scar appearances with work.⁵ incomplete healing of uterine scar is a frequent complication of CS and may result in the potential entanglements. Uterine scar imperfections are associated with gynecological problems such as spotting, dysmenorrhea, and, pelvic discomfort and unfavorable obstetrical results for example ectopic pregnancies, placenta accreta and uterine rupture one of the most disastrous obstetrical crises.^{6,8} Lower uterine segment thickness as measured by ultrasound assessment in third trimester of pregnancy results in uterine scar defect or uterine rupture during trial of vaginal delivery. A fine lower uterine segment increases the risk of uterine scar dehiscence or uterine rupture during normal delivery.⁹ The prevalence reported for the scar dehiscence was near 0.2-4.3% of all pregnancies related to previous caesarean.¹⁰ A fruitful vaginal birth after cesarean (VBAC) is related with less intricacies than an elective rehash cesarean area. It is better to done elective repeat LSCS than unsuccessful normal delivery.¹¹ The benefits of vaginal delivery prevention from abdominal surgery, reduces the chances of postpartum hemorrhage and lessens the time of healing after delivery. It decreases the chances of again c section, cesarean hysterectomy, bowel and bladder damage, require for blood transfusion and irregular placental conditions in future e.g placenta previa and placenta accreta.¹²



Ultrasound follow-up of the uterine scar at 6 weeks cesarean delivery by transabdominal approach. B, bladder; U, uterus. The scar is between the two arrows.

Figure.1. Ultrasound follow up of the uterine scar 6 weeks cesarean delivery by Trans abdominal approach

Consequences of vaginal birth after c section are uterine rupture which is harmful to life which results in hemorrhage. Several methods are used to study the integrity of scar. The methods include post-operative Eco graphic assessment of uterine injury, interval hystero graphy and MRI imaging. Ultrasound can be used to examine the reliability of previous caesarean scar.¹³ It can be useful to determine uterine rupture during delivery and identify the lower uterine thickness. The lower uterine segment thickness can be classified into 4 groups. Group 1 shows well-formed uterine segment. Group 2 shows a fine uterine scar with no uterine substances visible in it. Group 3 shows scar dehiscence. Group 4 shows rupture scar. Components associated with uterine scar rupture during normal delivery are number of LSCS, inter delivery interval, previous normal delivery, gestational age and birth weight. Enhancements in imaging have encouraged the assessment of CS scars both before and during pregnancy. Ultrasonography has been utilized to assess CS scars in late pregnancy.¹⁴ Expectation of the scar dehiscence will be helpful in selection of patients. There are different methods to investigate the scar thickness including son hysteroscopy, MRI, hysteroscopy. Different values have been given by authors for the trial of normal delivering ranging from 2.5-3mm which value is the best is still a controversy. Ultrasonography (USG) provides a fairly simple and noninvasive method, which has been most widely studied for evaluation of the LUS to assess the critical thickness above which safe vaginal delivery is predictable and safe. It saves the patients from unnecessary surgery and we reduce the number of patients from caesarean section and uterine rupture.

RESULTS:

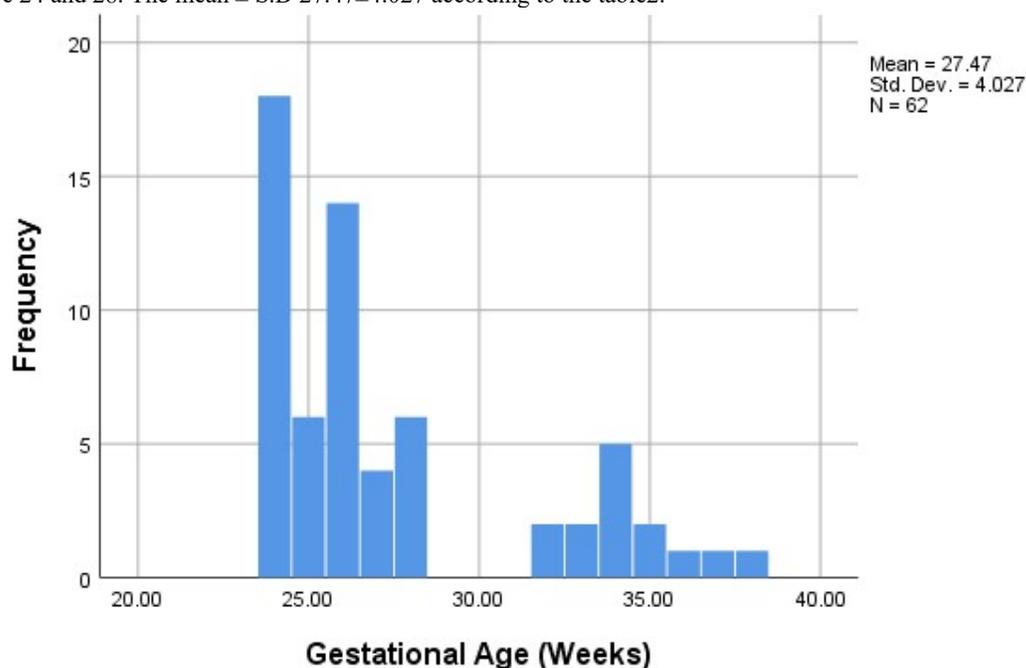
According to the table below, total 62 patient were included in this study, the minimum age is 22 and the maximum age is 36. The mean \pm S.D are 27.2 ± 3.12 .

Descriptive Statistics of Age

	Descriptive Statistics						
	N Statistic	Range Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Error	Std. Deviation Statistic
Age	62	14.00	22.00	36.00	27.2903	.39590	3.11731

	Descriptive Statistics						
	N Statistic	Range Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Error	Std. Deviation Statistic
Gestational age	62	14.00	24.00	38.00	27.4677	.51149	4.02744

The descriptive statistics of gestational age of 62 patients includes minimum and maximum gestational age are 24 and 38. The mean \pm S.D 27.47 \pm 4.027 according to the table2.



Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Scar Thickness 24-28 weeks	124	1.00	13.60	3.9395	2.50923
Valid N (listwise)	124				

Out of 124 patients, the scar thickness at 24-28 weeks the minimum value 1 and maximum was 13.60. The standard deviation came 2.50.

Descriptive Statistics

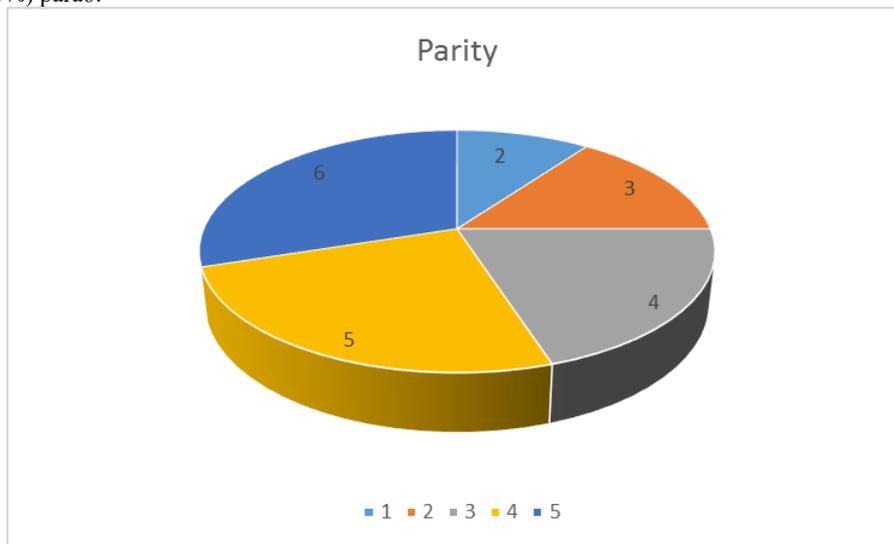
	N	Range Statistic	Minimum Statistic	Maximum Statistic	Mean		Std. Deviation Statistic
					Statistic	Std. Error	
Scar Thickness 24-28 weeks	62	11.60	2.00	13.60	4.6968	.34376	2.70676
Scar Thickness 32-36 weeks	62	9.80	1.00	10.80	3.1823	.26038	2.05023

Total number of 62 patients came with scar thickness at 24-28 weeks. The minimum statistic was 2 and the maximum statistic was 13.60.the standard deviation was 2.70676.Out of sixty two patients of scar thickness at 32-36 weeks the minimum statistic was1 and maximum statistic was 10.(table4).

Frequency Table

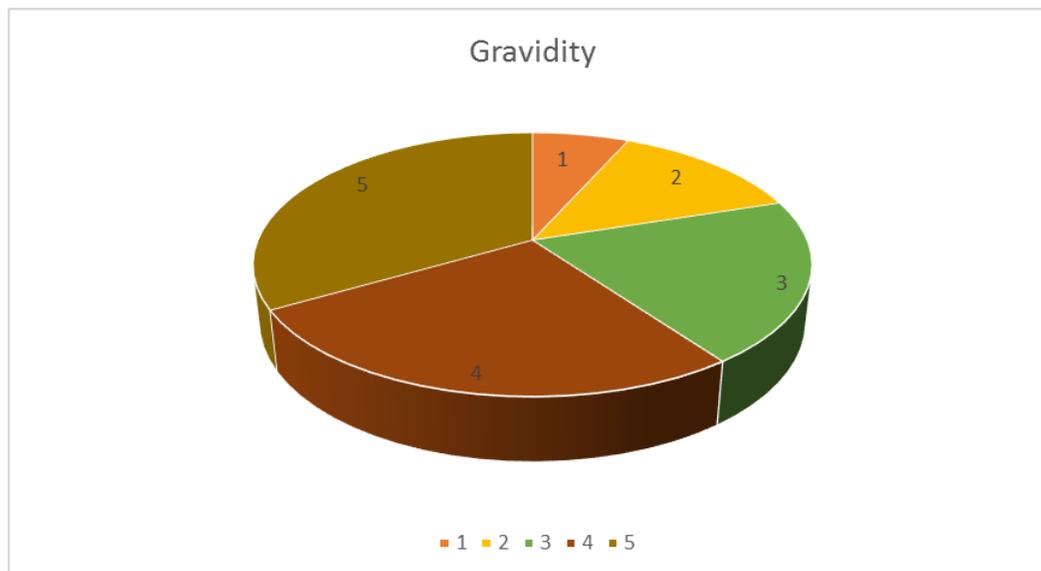
Parity		
	Frequency	Percent
2	16	25.8
3	23	37.1
4	16	25.8
5	3	4.8
6	4	6.5
Total	62	100.0

In our current study out sixtytwo patients 16(25.8%) para 2, 23(37.1%) para 3, 16(25.8%) para 4, 3(4.8%) para 5 and 4(6.5%) para 6.



Gravidity		
	Frequency	Percent
1	13	21.0
2	24	38.7
3	17	27.4
4	4	6.5
5	4	6.5
Total	62	100.0

In the current study out of sixty-two patients 13(21%) were gravid 1, 24(38.7%) was gravid 2, 17(27.4) were gravid 3, 4(6.5%) gravid 4 and 4(6.5) gravid 5. (table 6)



	Comparison								
	Paired Differences				95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper				
Scar Thickness 24-28 weeks	1.51452	1.44720	.18379	1.14700	1.88204	8.240	61	.000	
Scar Thickness 32-36 weeks									

A statistical significance difference found in mean scar thickness at 24-28 weeks of gestation and at 32-36 weeks of gestation. $p\text{-value} = 0.000 < \alpha = 0.05$.

CHAPTER 6 DISCUSSION

The main aim of this study was to compare caesarean scar thickness in second and third trimester of pregnancy. c section is one of the common surgery performing all around the world.

The current study evaluated 62 patients between the age group of 22 to 36 years of age. According to the table 1. The mean of age came out to be 27.29. this is well correlated with previous study done by Vikhareva et al in 2009, showing the mean age of 27.10 ± 6.01 years⁵².

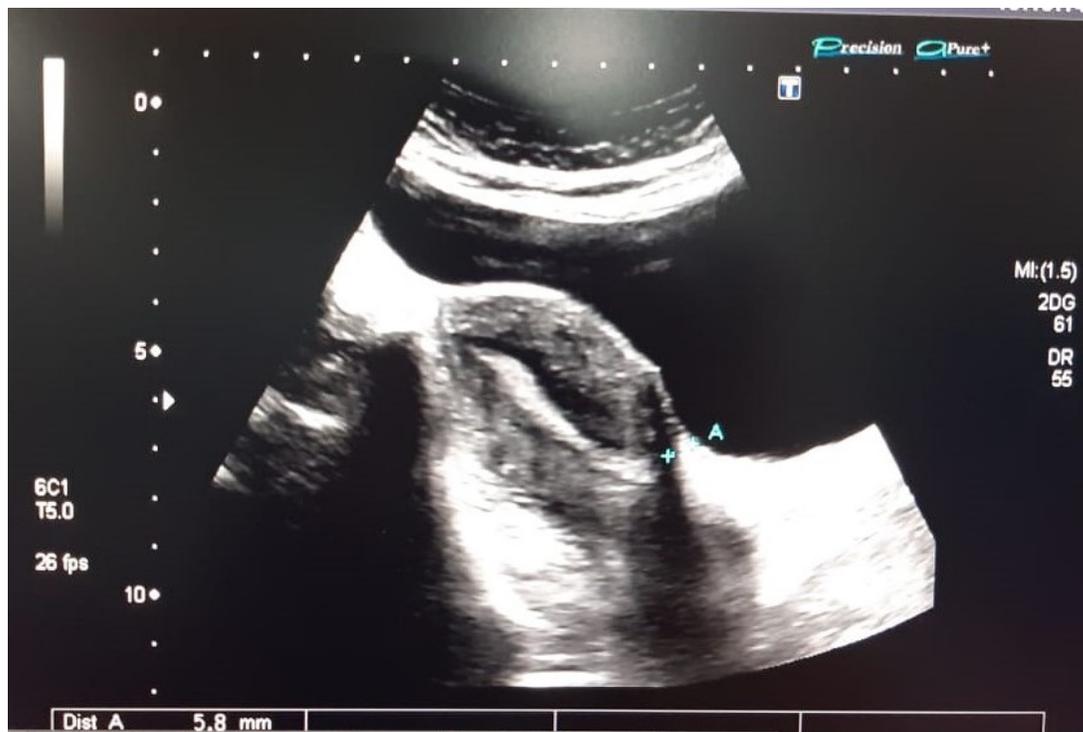
In current study 62 patients gestational age is between 24 to 26 weeks with mean of 27.47 which we correlate with the previous study of Jastrow et al. Cheung et al Micheal et which perform this study in 3 trimester between 27 to 40 weeks of gestation 27.91 ± 2.126 weeks.⁵³

In the current study we found scar thickness at 24-28 weeks is 3.93 according to the table 3. which we correlate with the previous study which was performed by the Gotoh et al in which he found no differences in scar thickness at 24 to 26 gestational age⁵⁴.

In this study we found more patients with parity 3 according to table 5. which we correlate with the previous study in which Only one (1.4%) patient was having parity of more than 5 with a mean parity of 2.01 ± 0.95 these findings are by Qureshi⁵⁵.

In our study mostly patients are gravida 2 according to table 6. we correlate it with the previous study in which mostly patients were gravida 3 and 4. this study was performed by Fukude et al⁵⁶.

In our study we found statistical difference in scar thickness at 24 to 28 and 34 to 36 weeks. $p\text{-value} = 0.000 < \alpha = 0.05$. According to the table 6 which we correlate with the previous study in which there is association between the scar thickness and intraoperative findings in which value of $p < 0.001$. this study was performed by the Mohammad⁵⁷.



Case 1:Ultrasound images show cesarean scar thickness of 5.8 mm at 34 weeks of gestation.

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