

ULTRA SONOGRAPHICAL MEASUREMENT OF SCAR THICKNESS AND PREGNANCY OUTCOME

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Received: 25/07/2018

Revised:26/08/2018

Accepted: 02/09/2018

ABSTRACT

Background: To evaluate the pregnancy outcome in previous cesarean section by ultra sonographic measurement of scar thickness. **Method:** A total of 110 women were analyzed for ultra sonographic measurement of scar thickness and mode of delivery, maternal and neonatal outcome and statistical analysis was done by p-value. **Result:** In previous c-section 88.33% was the incidence of successful Vaginal birth after cesarean VBAC while 11.67% had failed VBAC and underwent subsequent LSCS. The incidence of successful vaginal birth is more when the scar thickness measured ultra sono graphically is more. **Conclusion:** ultra sono graphic measurement of scar thickness helps to predict the risk of scar dehiscences intrapartum and thus prevent undue repeat section.

Key words: ultra sonography, previous cesarean section, scar thickness, Lower uterine segment

INTRODUCTION

Cesarean section is defined as “an operative procedure where by the fetuses after the end of 28 weeks is delivered through an incision on the abdominal wall and uterine wall (10)”. Cesarean section was originally evolved to save a maternal and fetal life during difficult child birth, but in the present era, it has become the procedure of choice in high-risk situation to reduce perinatal morbidity and mortality. More than 85% cesarean section are performed for prior cesarean, labor dystocia fetal distress, breech presentation. (11) Because the likelihood of significantly reducing the rate of cesarean section for last 3 indications is small, the only way to decrease the cesarean section rate is to decrease the rate of repeat cesarean section. But initially, the

scarred uterus was thought to be a contraindication of a vaginal delivery because of fear of uterine rupture. Now various studies have proved the relative safety of trial of labor in a most woman after a lower segment transverse cesarean section and show that 60-80% patients with previous cesarean section can be delivered vaginally.(12) Particularly, if the previous cesarean section has been a lower transverse incision, for a non-recurrent indication and the patient had a smooth postoperative recovery.

It has been suggested that ultra sonographical measurement of the lower uterine segment might be a useful tool for identification of woman at high risk of scar dehiscence or uterine rupture at the subsequent trial

of labor. (1) The risk of uterine rupture increased directly with the thinness of the lower uterine segment. As our center is of tertiary level, having inflow of higher number of complicated cases so we perform this study in our center so that we can give trial of labor to previous cesarean cases with normal scar thickness and decrease cesarean section rate.

METHODS

The study was conducted on 110 pregnant women with a history of previous one lower segment cesarean section admitted for delivery in the department of obstetrics and gynecology, Mahila chikitsalay, SMS medical college, Jaipur; either in labor or not in labor, but nearly at term, both registered & emergency cases.

Selection of woman for the trial of vaginal delivery was done after considering the place and details of previous cesarean section any complication during current pregnancy, fetal presentation and ultrasound measurement of scar thickness and fetal weight. The pelvic assessment was usually done at the onset of labor.

Selection criteria included a woman with previous one lower segment cesarean section for non – recurrent indication, singleton pregnancy, vertex presentation, scar thickness more than 3.5 mm, estimated fetal weight < 3.5 kg, clinically adequate pelvis and patient consent. Exclusion criteria included prior classical or T- shaped incision, prior uterine rupture, operative complication at the time of first abdominal delivery, estimated fetal macrosomia, malpresentation, multiple pregnancy, cephalo pelvic disproportion, bad obstetric history.

Scar thickness less than 3.5 mm by USG, IUGR medical and obstetric complications that precludes vaginal delivery were excluded.

In the cases attempting vaginal delivery during labor, pulse, BP, duration, and frequency of contraction, fetal heart sound, development of scar tenderness and progress of labor were observed in labor room and plotted on partogram with full facilities available for both vaginal and abdominal delivery. The trial of labor was discontinued with the appearance of following conditions and repeat cesarean section was done. Failure to progress, fetal distress/ changes in fetal heart sound, scar tenderness / suprapubic tenderness, abnormal vaginal bleeding, alternation of maternal vital signs,

abnormal abdominal contour, receding presenting part, haematuria. Postpartum complications like retained placenta, PPH, puerperal pyrexia, wound infection and duration of hospital stay were noted. Conditions of the baby, sex, birth weight, apgar score were also noted. Approval was taken from ethical committee of institution. Proper written informed consent was obtained from patients.

Statistical analysis was performed by chi-square test 't' test and p values <0.05 were regarded as statistically significant.

RESULTS

The overall vaginal birth after cesarean section (VBAC) was 54.54% and success rate was 88.33%. 11.67% had failed VBAC and underwent subsequent cesarean section, and there were no case of uterine rupture and dehiscence. Both the groups were similar to each other regarding maternal age, parity and registration status (Table 1).

Table 2 shows observed scar thickness intra operatively compared with USG scar thickness. There was 96.23% sensitivity of ultrasonography for scar thickness. The critical cut off value for safe lower segment thickness was 3.5 mm. There was no statistically significant difference between the two groups regarding results in USG scar thickness and birth weight of the baby, but the duration of hospital stay was significantly lower in cases of successful VBAC. (Table 3).

DISCUSSION

Maximum number of cases were the age group 20-30 years which is the age of maximum fertility, it was observed that incidence of successful VBAC was highest and that of failed VBAC was lowest in this age group our study is comparable to Williams² where the mean age was 30.40 years.

Maximum number of cases in our study were para- 1 group that is 88.18% rest 11.82% being para 2 or more. Cases with parity more than one had previous vaginal delivery also. As the parity increased, so did the incidence of successful VBAC. Similar finding was observed by Hibbard³, cases with parity more than 3 were 100% successful in achieving VBAC. Our findings are in accordance with the results of Chakra barty et al (4) Dayal (5) and Goswami (6) who showed that a large

number of cases in their studies belong to para-1. The incidence of successful VBAC in registered cases was 90.57% and successful VBAC in unregistered cases was 9.43%. Similar results of successful VBAC in registered cases were seen in study by Kala & Alam (7)-81% and Singh et al (8)-89.33%. This indicates a higher chance of successful VBAC in registered cases.

Hospital stays in successful VBAC and failed VBAC group was highly significant. The incidence of attempted VBAC in present study 54.54% comparable to the study done by Dayal (4).

On comparing the observed LUS scar thickness with USG obtained LUS thickness, a sensitivity of 96.23%, specificity 66.66%, positive predictivity 96.23 %, negative predictivity 33.33% was obtained with USG, hence USG is an important tool in measuring LUS scar thickness. The sensitivity of the USG in our study 96.23% comparable to Rozenberg¹ et al and Qureshi et al(9) 88.0% and 86.7% respectively.

CONCLUSION

We conclude that proper selection, counseling, measuring of LUS Thickness by ultrasonography and taking into account various parameters concerning present and past pregnancy is very effective in reducing the rate of repeat LSCS. Lower the LUS thickness, lower is the success of VBAC and vice versa. Thus with proper monitoring and careful approach VBAC can be increased without increasing maternal and perinatal morbidity and mortality.

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Table 1

Demographic data of the study population

Variable	Group		
	LSCS n=50	VBAC n=60	
		Successful	Failed
Maternal age (yrs)	25.24 ±3.19	25.68 ±3.57	28.14 ±2.10
Parity (P1)%	48	42	7
Multi para %	2	11	0
Registration Reg.	44	48	6
Unreg.	6	5	1

Table No.2

On comparing the observed thickness & USG scar thickness

USG scar thickness (in mm)	Observed thickness		Total
	Average	Thinned out	
< 3.5 (n=3)	1 -1.75	2 -3.51	3 -5.26
>3.5 (n=54)	52 -91.23	2 -3.5	54 -94.74
Total	53 -92.98	4 -7.01	57 -100

Sensitivity = 96.23%

specificity = 66.66%

Positive predictivity = 96.23%

negative predictivity = 33.33%

Table 3

Comparison of elective cesarean and attempted VBAC group

Variable	Group		
	LSCS	VBAC	
		Successful	Failed
Mode of delivery %	45.45	48.18	6.36
USG scar thickness (in mm)	3.98±0.36	4.00±0.41mm	3.86±0.19
Hospital stay in (days)	7.50±0.85	2.05±0.27	7.29±0.45
Birth weight in KG	2.77±0.38	2.74±0.32	2.8±0.15

How to cite this article: Jain V., Dadwaria S., Gupta M., ultrasonographical measurement of scar thickness and Pregnancy outcome. Int.J.Med.Sci.Educ 2018;5(4):565-568