

EVALUATION OF THE UTERINE SCAR IN PATIENTS WITH PREVIOUS CAESAREAN SECTION IN SMS MEDICAL COLLEGE, JAIPUR



Gynaecology

KEYWORDS: caesarean section, thinning, dehiscence and rupture.

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ABSTRACT

Aims and Objective: To evaluate the safety and integrity of scar in patients with previous caesarean section.

Material and Method : This study was a prospective observational study was done in the Department of Obstetrics and Gynaecology, Zenana Hospital, SMS Medical College and Hospital, Jaipur during a period of August 2015 to August 2016, either in labour or not in labour. Both booked and emergency cases were included in the study group. A total of 320 cases were studied. All pregnant women with previous one caesarean will be selected. History and investigations (USG) will be done. Intraoperatively findings will be noted. Results will be compared and statistically analysed. **Results and Discussion :** Uterine dehiscence was present in 2.81% cases. Thinning was present in 25.63% cases intraoperatively. Rupture was not present in study group. 75.82% of cases of thinned out scar and dehiscence had their previous caesarean section at tertiary hospital. The intraoperative findings were statistically significantly associated with complain of scar tenderness at the time of admission ($p < 0.05$). 18.12% cases complain of scar tenderness. The sensitivity of scar tenderness for thinning and dehiscence 56%, specificity 96.9%, positive predictivity 87.9%, negative predictivity 84.7%. The intraoperative findings were statistically significantly associated with preoperatively USG scar thickness. When preoperative USG scar thickness was $< 3\text{mm}$ then intraoperative findings of thinned out scar and dehiscence was increased ($p < 0.05$). With a cut off value of 3 mm the sensitivity of USG scar thickness for evaluation of uterine scar was 87.90%, specificity 98.25%, positive predictivity 95.23%, negative predictivity 95.34%. This shows that preoperative USG is an important tool in measuring lower uterine segment scar thickness. It indicate that preoperative USG scar thickness $> 3\text{mm}$ is safe for trial of labour in previous caesarean section. Intraoperative adhesion was seen in 27.82% cases. **Conclusion :** The concept of routine repeat caesarean birth should be replaced by a specific indication for a subsequent abdominal delivery and in the absence of contraindication, a woman with one previous caesarean delivery with a low transverse incision should be counselled and encouraged to attempt labour in her current pregnan

INTRODUCTION

Caesarean section is defined as "an operative procedure whereby the fetus after the end of 28th week is delivered through an incision on the abdominal wall and uterine wall." This definition does not include removal of the fetus from the abdominal cavity in case of rupture of uterus or abdominal pregnancy. It is the most common surgical obstetric intervention and its rate varies internationally from 10-25%.¹ The main indication for caesarean section has become repeat caesarean section. During the second half of 20th century, a caesarean section implied that all subsequent pregnancies were very likely to be delivered in the same way. This policy was the result from the fear of catastrophic uterine scar rupture of classical caesarean section, which persisted even after its replacement with lower segment caesarean section (LSCS) without the same basis.¹ Documentation that the rate of uterine rupture is only marginally increased among women undergoing a trial of labour² than among those under grant an elective repeat caesarean section with a significant decrease in need for transfusion or hysterectomy, has led authorities to encourage vaginal birth after caesarean³. A group of investigators concluded⁴ that among women with a previously scarred uterus, induction of labour is associated with an increased risk of uterine rupture compared with spontaneous labour.

Current medical evidence indicates that 60-80% of women can achieve a vaginal delivery following a previous lower uterine segment

caesarean delivery. When vaginal birth after caesarean become successful, it is associated with less morbidity than repeat caesarean birth. The subject of the delivery of a woman after a previous one caesarean section remains controversial.⁵ Sonographic examination of the lower uterine segment has been used to diagnose a uterine defect and to determine the degree of lower uterine segment thinning in women with previous CS.^{6,7} Previous studies have demonstrated that the lower uterine segment thickness measured sonographically has a high negative predictive value for uterine rupture, suggesting that a normal lower uterine segment thickness predicts a safe trial of VBAC. However, the clinical application of lower uterine segment measurement in the management of VBAC remains controversial.

MATERIAL AND METHOD

This study was a prospective observational study was done in the Department of Obstetrics and Gynaecology, Zenana Hospital, SMS Medical College and Hospital, Jaipur during a period of August 2015 to August 2016, either in labour or not in labour. Both booked and emergency cases were included in the study group. A total of 320 cases were studied.

Sample Size

Sample size is calculated at 95% of confidence level assuming thinning out and scar dehiscence among 26.6% patients with

previous caesarean section as the precision of 5% (absolute allowable error) minimum 320 patients with h/o previous caesarean section as required as sample size.

Inclusion Criteria

- Cases with previous one lower segment caesarean section.
- Cases scheduled for delivery during study period.

Exclusion Criteria

- Primigravidae
- Cases with history of more than one caesarean section
- Previous classical or inverted T-shaped incision on the uterus.

Firstly the preliminary details in the form of demographic characteristics such as name, age, address, educational and socio-economic status, and indoor registration number were noted. A suitable predesigned pretested proforma for data collection was prepared. Routine, obstetric, menstrual, relevant past, personal and family history was also elicited. General and systemic examination, per abdominal and per vaginal examination were done.

Routine investigations of blood for Hb, blood grouping and Rh typing urine for albumin and sugar and a complete obstetrical USG with special reference to measure lower uterine segment scar thickness. Other investigations were done as per requirement.

Scar tenderness was elicited by pressing below and behind the pubic symphysis while engaging the women in conversation and noting for a visible wince.

The patient intra-operative findings were noted. Intra-operative adhesions were noted. Results were compared and statistically analysed. Uterine rupture was defined as an intraoperative findings of fetal parts within the abdominal cavity.

Dehiscence was defined as a window in the lower segment with either membranes bulging or parts of the baby visualised through it. Thinned out scar was defined as a papery thin lower uterine segment, with thickness <3 mm.

Type of repair was noted. Postpartum complications like wound infection, puerperal pyrexia, PPH, UTI, anaemia, condition of baby, sex, birth weight, APGAR score and condition of baby also noted.

The surgeons were requested to note in particular the difficulties they encountered while operating on cases of previous caesarean section.

Statistical Analysis

We analysed the data with the help of simple percent, proportion and chi-square test was used to assess statistically significance of association p-value <0.05 was considered as statistically significant.

RESULTS

The present study was hospital based observational study conducted on 320 cases of post caesarean pregnancy admitted in Zenana Hospital, SMS Medical College, Jaipur. Lower uterine segment scar thickness in the study group was measured by ultrasonography and intraoperatively findings were noted. Results were compared and statistically analysed. Majority of cases 81.25% were in the age group 21-30 years. Mean age was 26.33 yrs. Majority of cases 36.88% belonged to lower middle class. 87.5% cases undergoing caesarean section were Hindu and 12.5% were Muslim. 69.06% cases were urban and 30.94% were from rural area. Uterine dehiscence was present in 2.81% cases. Thinning was present in 25.63% cases intraoperatively. Rupture was not present in study group. 75.82% of cases of thinned out scar and dehiscence had their previous caesarean section at tertiary hospital. The intraoperative findings were statistically significantly associated with complain of scar tenderness at the time of admission ($p < 0.05$). 18.12% cases complain of scar tenderness. The sensitivity of scar tenderness for thinning and dehiscence 56%,

specificity 96.9%, positive predictivity 87.9%, negative predictivity 84.7%. The intraoperative findings were statistically significantly associated with preoperatively USG scar thickness. When preoperative USG scar thickness was <3mm then intraoperative findings of thinned out scar and dehiscence was increased ($p < 0.05$). With a cut off value of 3 mm the sensitivity of USG scar thickness for evaluation of uterine scar was 87.90%, specificity 98.25%, positive predictivity 95.23%, negative predictivity 95.34%. This shows that preoperative USG is an important tool in measuring lower uterine segment scar thickness. It indicates that preoperative USG scar thickness >3 mm is safe for trial of labour in previous caesarean section. Intraoperative adhesion was seen in 27.82% cases.

OBSERVATION AND DISCUSSION

Table-1 Distribution of Cases According to Age Group

Age Group (in yrs)	No. of Cases	%
20	12	3.75
21 – 25	154	48.13
26 – 30	106	33.12
31 – 35	44	13.75
36 – 40	4	1.25
>40	0	0.00
Total	320	100.00

The above table shows that maximum number of cases i.e. 260 (81.25%) were the age group of 21-30 years which is the age of maximum fertility. The mean age of study group was 26.33 years.

Table-2 Distribution of Cases According to Socio-economic Status

Socio-economic Status	No. of Cases	%
Lower	44	13.75
Upper Lower	24	7.50
Lower Middle	118	36.88
Upper Middle	65	20.31
Upper	69	21.56
Total	320	100.00

The above table shows that the lower middle class made the majority of study population. Out of 320 cases, 36.88% belonged to lower middle class. Janani Shishu Suraksha Karyakaram offering free treatment (surgery plus drugs) attracted the mass of the study from lower and middle class.

Gordon D et al (1991)⁸ reported that 71.9% belonged to middle socio-economic status, 7.6% belonged to low socio-economic status and 20.5% to high socio-economic status. These findings correlates with the present study.

Table-3 Distribution of Cases According to Religion

Religion	No. of Cases	%
Hindu	280	87.50
Muslim	40	12.50
Total	320	100.00

Above table shows that maximum number of cases in study were Hindus i.e. 280 (87.50%) and 40 (12.50%) were Muslims. This was usual religion wise distribution of population attending our hospital.

Table-4 Distribution of Cases According to Co-existent Risk Factors

Co-existent Risk Factors	No. of Cases	%
No Complications	126	39.37
Scar Tenderness	58	18.12
Chronic Abdominal Pain	28	8.75
Placenta Previa	9	2.81
GDM	15	4.69

PIH	28	8.75
UTI	7	2.18
Postdated Pregnancy	19	5.94
BOH	9	2.81
PROM	21	6.56
Total	320	100.00

This study is comparable to the results of Kaur J et al (2013)⁹ who showed that 52.31% cases had emergency caesarean section and 47.70% cases had elective caesarean section.

Table – 5 Distribution of Cases According to Place of Previous Surgery

Place of Previous Surgery	No. of Cases	%
Medical College Hospital	153	47.81
Local Private Hospital	102	31.88
Remote Private Hospital	65	20.31
Total	320	100.00

The above table shows that distribution of cases according to place of previous surgery were maximum 167 cases (52.18%) is conducted in private hospital and 153 (47.81%) cases is conducted in Medical College Hospital. These findings indicate the incidence of unnecessary medical intervention during delivery in private medical institutions. As caesarean delivery remains profitable for both the doctor and the institution, caesarean section is always higher in private medical centres.

Table – 6 Distribution of Cases According to Intraoperative Findings

Intraoperative Findings	No. of Cases	%
Average Scar	229	71.56
Thinned Out Scar	82	25.63
Dehiscence	9	2.81
Rupture	0	0.00
Total	320	100.00

The present study was comparable to the study of Kouser S et al (2009)¹⁰ show incidence of scar dehiscence is 2.6%.

Table – 7 Relation Between Scar Type and Place of Previous Surgery

	Medical College		Private Hospital		Remote Private Hospital		Total	
	No.	%	No.	%	No.	%	No.	%
Thinned Scar	62	68.13	13	14.29	7	7.69	82	90.11
Dehiscence	7	7.69	1	1.10	1	1.10	9	9.89
Total	69	75.82	14	15.39	8	8.79	91	100.00

Similar study was comparable to the Kouser S et al (2009)¹⁰ show that all cases of scar dehiscence had their previous caesarean section at teaching hospital and 86% of thin scar the previous caesarean section was performed at teaching hospital.

Table – 8 Relation Between The Complaint of Scar Tenderness and Intraoperative Scar

	Thinning / Dehiscence		Average Scar		Total	
	No.	%	No.	%	No.	%
Scar Tenderness Present	51	15.94	7	2.19	58	18.13

Scar Tenderness Absent	40	12.50	222	69.37	262	81.87
Total	91	28.44	229	71.56	320	100.00

$\chi^2 = 144$ d.f. = 1 p < 0.05 sig

The sensitivity of scar tenderness in present study is 56%, specificity 96.9%, positive predictivity 87.9%, negative predictivity 84.7%. The present study was comparable to the study of Gaikwad HS et al (2012)¹¹, which shows the sensitivity of scar complication in labour was 92.3%. The sensitivity is lower in present study because in that study all pregnancy are not in labour.

Table – 9 Relation of Observed Thickness and USG Scar Thickness

USG Scar Thickness (in mm)	Thinning / Dehiscence		Average Scar		Total	
	No.	%	No.	%	No.	%
<3	80	25.00	4	1.25	84	26.25
3	11	3.43	225	70.31	236	73.75
Total	91	28.43	229	71.56	320	100.00

$\chi^2 = 249$ d.f. = 1 p < .05 Sig

Sensitivity of USG scar thickness in present study is 87.90% and specificity 98.25%, positive predictive value 95.23%, negative predictive value 95.34%. Uharcek P et al (2015)¹² show sensitivity 90.9% and negative predictive value 95.5%.

Table – 10 Distribution of Cases According to Types of Intraoperative Adhesions

Types of Intraoperative Adhesions	No. of Cases	%
Bladder	10	3.13
Uterine Adhesion	21	6.56
Bladder and Uterus	58	18.13
Normal	231	72.18
Total	320	100.00

Table shows that intraoperative adhesions were seen in 89 cases (27.82%) out of the total 320 cases. Similar findings were observed by Ramkrishnarao MA et al (2008)¹³ were 25.43% various intraoperative adhesions present.

CONCLUSION

Hence, I concluded that proper selection, counselling, measuring of lower uterine segment thickness by ultrasound and c/o of scar tenderness and involvement of senior experienced surgeon in previous caesarean section and various parameters concurring present and past pregnancy is very effective in reducing the rate of repeat LSCS. Lower the LUS thickness, lower is the successful of VBAC and vice versa. Though the risk of dehiscence is 2.81% in our study yet VBAC should be encouraged. Successful VBAC has less maternal and fetal complications as compared to the emergency repeat caesarean section group.

The concept of routine repeat caesarean birth should be replaced by a specific indication for a subsequent abdominal delivery and in the absence of contraindication, a woman with one previous caesarean delivery with a low transverse incision should be counselled and encouraged to attempt labour in her current pregnancy.

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