



Journal Homepage: -www.journalijar.com

INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI:10.21474/IJAR01/15608
DOI URL: <http://dx.doi.org/10.21474/IJAR01/15608>



RESEARCH ARTICLE

“A PROSPECTIVE STUDY ON THE MATERNAL OUTCOME IN CASES OF PREVIOUS ONE CESAREAN SECTION”

Dr. Bharti Sahu¹, Dr. Rohini² and Dr. Bhoomika Tantuway³

1. Associate Professor, Department of Obstetrics and Gynaecology.
2. PG Resident, Department of Obstetrics and Gynaecology.
3. Assistant Professor, Department of Obstetrics and Gynaecology, N.S.C.B Medical College, Jabalpur Madhya Pradesh, India.

Manuscript Info

Manuscript History

Received: 31 August 2022
Final Accepted: 30 September 2022
Published: October 2022

Key words:-

Trial of Labor After Cesarean (TOLAC),
Vaginal Birth After Cesarean (VBAC),
Cesarean Section (CS)

Abstract

Background and Objectives: Women with previous cesarean sections constitute a high-risk group in obstetrics. The study was conducted to determine the mode of delivery in a previous cesarean section group and maternal complications.

Method: The study was a prospective observational study conducted in The NSCB Medical College, Jabalpur from January 2020 to June 2021. Cases with previous one cesarean section for outcome in present pregnancy were taken and Cases with gestation before 28 weeks and previous section > 2 were excluded.

Result: A total of 384 cases presented with the previous one CS, TOLAC was given to 109 patients (28.38%) and 51.37% achieved VBAC in the TOLAC group. Women who were selected for repeat CS without a trial of labor were 275 (71.61%) and the most common indication being scar tenderness 28%. Post-op maternal complications and infectious morbidity were significantly higher in the repeat cesarean section group.

Conclusion: Women given a trial of labor with careful monitoring and taken for emergency LSCS on minimal indication is the best answer to management with an expectant attitude and individualization of labor in patients who had one cesarean section is not only justifiable but represents a sound and conservative obstetrical practice.

Copy Right, IJAR, 2022.. All rights reserved.

Introduction:-

CS is among the essential comprehensive intrapartum services. CS can be a life-saving intervention for the fetus, the mother, or both in certain circumstances including obstructed labor, distressed fetus, obstetric hemorrhage, abnormal presentation, and other emergency obstetric conditions. Before the 1970s, deliveries by cesarean section were considered an indication for cesarean section in subsequent pregnancies, reflecting a concern that uterine scar tissue might rupture during labor. In the 1980s, the dictum was —once a Cesarean, always a Cesarean, espoused by Craigin in 1916.^[1] But these days the dictum should be “once a cesarean, always a hospital delivery”. Over the past decade, the CS rates have continued to trend upward, with major contributions to the high CS rate among previous CS 15.4% to 67.7% and CS that were performed in nulliparous women 17.2% to 41.6%.^[2]

Corresponding Author:- Dr. Rohini

Address:- PG Resident, Department of Obstetrics and Gynaecology.
(email-v.rohini180@gmail.com)

Aims And Objectives:-

To study and evaluate maternal outcomes in previous one Cesarean Section

Methods:-

A prospective observational study was conducted in the department of Obstetrics and Gynaecology, NSCB Medical College Jabalpur during one year period from 1st JAN 2020–31st JUNE 2021.

Sample Size:

384

Inclusion Criteria:

Women presenting with

1. previous one LSCS
2. Mean Gestational age beyond 28 weeks in previous one section

Exclusion Criteria

1. Myomectomy and other uterine surgeries
2. Gestation age <28 weeks
3. Multiple prior LSCS >:1

Data Collection And Methods:-

Pre-structured proforma was used to record the demographic variables of the patients. Subjects were assessed for gestational age, adequacy of the pelvis, whether or not in labor, associated risk factor, and consent for trial for vaginal birth. Labor was strictly monitored by partogram. Termination of the vaginal birth trial was based on signs of fetal distress, suspected scar dehiscence/rupture, undue prolongation of labor, and patient demand. In subjects taken up for repeat cesarean section/laparotomy, intraoperative findings were recorded and analyzed. Maternal outcomes were measured in terms of type of delivery (VBAC, Repeat CS), intraoperative and intrapartum findings, scar dehiscence, PPH, need for blood transfusion, uterine rupture, sepsis, and adherent placenta.

Statistical Analysis:

Data was entered on a Microsoft excel worksheet. Observation tables prepared using the data were analyzed by Graph pad software. The Chi-square test was used for calculating p values. P values <0.01 was considered significant.

Result:-**Table 01:-** Age Wise Distribution.

AGE GROUP (YEARS)	SUCCESSFUL VBAC (N=56)		FAILED TOPIC (N=53)		REPEAT CS GROUP (N=275)		TOTAL (384)	
							FREQUENCY	%
UPTO 20	0	0.00%	3	5.66%	4	1.45%	7	1.82
21-30	47	83.93%	48	90.57%	229	83.27%	324	84.37
31-40	9	16.07%	2	3.77%	42	15.27%	53	13.80
>41	0	0.00%	0	0.00%	0	0.00%	0	0

(P value 0.036 significant)

Table 02:- Obstetric Score Distribution.

PARITY	Successful VBAC (56)		Failed TOLAC (53)		Repeat CS Group (275)		Total (384)	
							N	%
1	20	35.71%	48	90.56%	211	76.73%	279	72.65
>=2	36	64.28%	5	9.43%	64	23.27%	105	27.34

(P value 0.009 significant)

Table 03:- History Of Previous Vaginal Birth / Vbac And Present Pregnancy Outcome.

HISTORY OF VBAC	Successful VBAC (N=56)		Failed TOLAC (N=53)		Repeat CS Group (N=275)		Total (N=384)	
							N	%

YES	36	64.29%	5	9.43%	64	23.27%	105	27.34
NO	20	35.71%	48	90.56%	211	76.73%	279	72.65

(P value =0.002, Significant)

Table 04:-Interdelivery Interval Distribution.

MONTHS	SUCCESSFUL VBAC (N=56)		FAILED TOLAC (N=53)		REPEAT CS GROUP (N=275)		TOTAL (N=384)	
	N	%	N	%	N	%	N	%
<=18	6	10.71%	5	9.43%	25	9.09%	36	9.37
>18	50	89.29%	48	90.57%	250	90.91%	348	90.62

(P value =0.107, not Significant)

Table 05:- Influence Of Previous Cs Indication On Successful Vbac.

INDICATION	SUCCESSFUL VBAC		FAILED TOLAC		TOTAL (TOLAC)	
	FREQUENCY	%	FREQUENCY	%	FREQUENCY	%
NON-RECURRENT CAUSES	39	69.64	29	54.71	68	62.38
RECURRENT CAUSES	17	30.35	24	45.28	41	37.61

Table 06:- Distribution Of Study Subjects According To Outcome Of Tolac.

OUTCOME OF TOLAC	FREQUENCY	PERCENTAGE
SUCCESSFUL VBAC	56	51.37
FAILED TOLAC	53	48.62
TOTAL	109	100%

Table 07:- Distribution Of Study Subjects According To Delivery Methods Used In Tolac.

DELIVERY METHODS	SUCCESSFUL VBAC (56)		FAILED TOLAC (53)	
SPONTANEOUS DELIVERY	32	57.14%	15	28.30%
AUGMENTATION WITH ARM AND / OR OXYTOCIN	16	28.57%	19	35.84%
INDUCTION WITH PGE2 GEL	8	14.28%	19	35.84%

Table 08:- Distribution Of Study Subjects According To Indications Of Repeat Cs.

INDICATIONS	FAILED TOLAC GROUP (53)		EMERGENCY REPEAT CS (230)		ELECTIVE REPEAT CS (45)		TOTAL(384)	
	N	%	N	%	N	%	N	%
FETAL DISTRESS	8	15%	17	7.39%	0	0.00%	25	6.51
SCAR TENDERNESS	25	47.1%	77	33.4%	0	0.00%	102	26.56
MALPRESENTATION	0	0.00	7	3.04%	3	6.66%	10	2.60
CPD	0	0.00	19	8.26%	4	8.88%	23	5.98
POST DATE	0	0.00	5	2.17%	3	6.66%	8	2.08
HYPERTENSIVE DISORDER	0	0.00	22	9.56%	0	0.00%	22	5.72
OLIGOHYDRAMINOS(SEVERE)	0	0.00	27	11.7%	5	11.1%	32	8.33
TWINS	0	0.00	3	1.30%	0	0.00%	3	0.78
ABRUPTION	0	0.00	12	5.21%	0	0.00%	12	3.12
PLACENTA PREVIA/PLACENTA ACCRETA/INCRETA	0	0.00	8	3.47%	15	33.3%	23	5.98
RUPTURE UTERUS	3	5.6%	15	6.52%	0	0%	18	4.68
MATERNAL REQUEST	0	0.00	17	7.39%	15	33.3%	32	8.33
HAND PROLAPSE /OBSTRUCTED LABOUR	3	5.6%	1	.43%	0	0.00%	4	1.04
NPOL/PROLONGED 2 ND STAGE OF LABOUR	14	26.4%	0	0.00%	0	0.00%	14	3.64

Table 09:-Distribution Of Study Subjects According To Maternal Complications intraoperatively.

CHARACTERISTICS	VBAC GROUP (56)		EMERGENCY REPEAT CS (283)		ELECTIVE REPEAT CS(45)		TOTAL(N=384)	
	N	%	N	%	N	%	N	%
BLOOD TRANSFUSION	1	1.78%	20	7.06%	8	17.77%	29	7.55
ATONIC PPH	0	0.00%	11	3.88%	0	0.00%	11	2.86
DENSE ADHESIONS	0	0.00%	131	46.28%	15	33.33%	146	38.02
OBLITERATION OF UV FOLD	0	0.00%	19	6.71%	4	8.88%	23	5.98
LOWER SEGMENT THINNED OUT <4MM	0	0.00%	99	34.98%	2	4.44%	101	26.30
SCAR DEHISCENCE	0	0.00%	19	6.71%	0	0.00%	19	4.94
SCAR SITE RUPTURE	0	0.00%	18	6.36%	0	0.00%	18	4.68
EXTENSION OF SCAR	0	0.00%	8	2.82%	0	0.00%	8	2.08
CS HYSTERECTOMY	0	0.00%	0	0.00%	6	13.33%	6	1.56
BLADDER INJURY	0	0.00%	2	0.70%	2	4.44%	4	1.04

Table 10:- Distribution Of Study Subjects According To Maternal Morbidity: Post Op complications.

CHARACTERISTIC	VBAC GROUP (56)		REPEAT CS GROUP (328)		TOTAL (N=384)	
	N	%	N	%	N	%
BLOOD TRANSFUSION	8	14.28%	52	15.85%	60	15.62
SEPSIS	2	3.57%	15	4.57%	17	4.42
RE-EXPLORATION FOR POSTPARTUM COLLAPSE	0	0.00	2	0.60%	2	0.52
HOSPITAL STAY >4DAYS	8	14.28%	54	16.46%	62	16.14
PARALYTIC ILEUS	1	1.78%	14	4.26%	15	3.90
PROLONGED CATHETERISATION (>3DAYS)	1	12.50%	17	5.18%	18	4.68

Discussion:-

In recent years there is a significant increase in the primary cesarean section for various indications, thus increasing the proportion of pregnant women with previous one cesarean section.

During this study period

1. Total number of Women fulfilling inclusion criterion = 384
2. Women who were given TOLAC = 109 (28.38%, when N=384)
3. Women who had successful VBAC = 56 (51.37%, when N=109)
4. Women who were given TOLAC but failed, repeat CS performed = 53 (48.62%, when N=109)
5. Women who were selected for repeat CS without a trial of labor = 275 (71.61%, when N=384)

Age Distribution:

In present study, out of 384 patients, the maximum number of patients with successful VBAC (83.93%) belong to the age group of 21-30 yrs comparable to study of Siddesh Mahadev Iyer et al 2016^[3] showed the incidence of VBAC was lesser if the age of the patient was more than 30 years^[87] in its study and Minsart et al 2013^[4].

21-30 years is the most fertile period for a woman. With the increasing age chances of VBAC were decreased while chances of repeat CS rate were increased.

History Of Previous Vbac And Present Pregnancy Outcome:

In the present study, 64.29% of study subjects had successful VBAC who had a history of prior vaginal delivery compared to 35.71% who had no prior vaginal birth comparable to study conducted by Patel S et al. 2016 36.36%^[10] Najma K P et al 2015 63%^[6], Siddesh Mahadev Iyer et al 2016^[3] showed 63% of patients who delivered vaginally had a history of the previous VBAC in their studies .

Prior vaginal delivery including prior successful VBAC, is the strongest predictor of a successful TOLAC and is protective against uterine rupture following TOLAC.^[92] The success increases when women had a prior VBAC (93%) rather than a vaginal delivery prior to the cesarean birth (85%).

Interdelivery Interval Distribution:

In the present study, 89.28% of patients of successful VBAC had an interval between previous cesarean and current pregnancy of more than 18 months. While only 10.71% of patients had a duration less than 18 months from the previous cesarean who had successful VBAC. Correlation of VBAC with inter-delivery interval was comparable with studies of **Kalisa et al 2017**^[5], **Patel S et al.2016**^[10], **Najma K P et al 2015**^[6], and **Siddesh Mahadev Iyer et al 2016**^[3].

The chances of vaginal delivery after cesarean were higher and risk of uterine rupture were lower if the interconceptional period was more than two years.

Influence Of Indication Of Previous CS:

In the present study, Primary CS done for non – recurrent indications (fetal distress, malpresentation such as transverse or oblique lie, breech presentation, severe preeclampsia, placenta previa, and abruptio placentae) had a successful VBAC rate of 69.64%, compared to women whose prior indication was recurrent (CPD, non-progression of labor) 30.35% similar findings were found in **Kalisa et al** study.^[5]

Hence the indication of previous CS is an important predictor of the success of the trial of labor.

Mode Of Delivery:

In the present study, TOLAC was given to 109 patients (28.38%) and Successful VBAC was achieved by 51.37% among TOLAC group. Published literature shows that there has been a 60-80% success in VBAC [4,6,7]. The rate of successful VBAC in various studies was found as **Kshama V et al 2020**(65.89%)^[12], **Kalisa et al 2017** (45.1%)^[5], **Siddesh Mahadev Iyer et al 2016**(42%)^[3], **Singh S et al. 2016** (61%)^[11], **Najma K P et al 2015**(62.63%)^[6]. Also in our study, 32 (57.14%) study subjects underwent spontaneous vaginal deliveries while in the rest 24 cases augmentation with Oxytocin and induction with chemical methods were used as delivery methods which was comparable with **Kshama V et al 2020**, **Najma K P et al 2015**^[6], **Anastasia Charitou et al 2017**^[9]. **Lekshmi Balachandran et al 2013**^[7] studies.

The success of VBAC reported in the tertiary center are much lower than those conducted in periphery centers. This is due to fact that the tertiary centers including our hospital mostly receive complicated and referred cases.

The present study showed women who labored spontaneously, had a higher percentage of successful VBAC than those who underwent induction of labor. Oxytocin augmentation had a lower rate of successful VBAC rather than any intervention.

Indication Of CS In Failed Tolac And Non-Tolac Group:

In our study, 47.16% (25 cases out of 53) of failed TOLAC were taken up for emergency CS due to scar tenderness followed by npol /2nd stage arrest 26.41% (14 cases), fetal distress 15.09% (8 cases), obstructed labor 5.66% (3 cases) and rupture uterus 5.66% (3 cases). A study conducted by **Lekshmi Balachandran et al 2013**^[7] showed Fetal distress (58%) was the main reason for emergency CS in failed TOLAC group followed by failure to progress (32%). **Kalisa et al 2017**^[5] also showed fetal distress 31.9% as the most common indication of failed TOLAC followed by non-progression of labor 31.9%, scar tenderness 15.3%, rupture uterus 3.1%. The most common indication for emergency repeat CS in non-TOLAC was scar tenderness 33.47% (77 cases) followed by HDP 9.56%, severe oligohydramnios 11.73%, CPD 8.26%, fetal distress 7.39% in our study.

Maternal Morbidity(Intraoperatively):

In the present study, the most common intraoperative finding was Adhesions between various layers of the abdominal wall and abdominal structure, between general and visceral peritoneum, around 38.02% that lead to difficulty and time in the opening abdomen. Intraoperative finding of adhesions of the various study was found as **Kshama V et al 2020** 13.67%^[12], **Najma K P et al 2015** 77.91% (374 cases out of 480)^[6], **Singh S et al. 2016** 26.92% (21 cases out of 78)^[11], **Siddesh Mahadev Iyer et al 2016** 17% (29 cases out of 172)^[3].

In our study, it was found that 101 patients (26.30%) had lower segment thickness <4mm, 19 patients (4.94%) had scar dehiscence, both encountered as intraoperative complication as significant finding in patients of scar tenderness with maternal tachycardia, 18 patients (4.68%) had scar site rupture which was a significant finding in patients with clinical finding correlating ruptured uterus (haematuria, loss of uterine contour, cessation of previously efficient uterine activity, features of shock, loss of fetal heart rate). In the various studies conducted scar dehiscence as shown by **Singh S et al. 2016**(7.69%)^[11], **Najma K P et al 2015** (2.08%)^[6], **Suman Poddar et al 2014** (9%)^[8].

Also in our study out of 384 cases, 35 cases (9.11%) accounted for maternal morbidity were due to APH. Cesarean hysterectomy done intraoperatively for Placenta previa with placenta Accrete / Increta / Percreta was 1.56% in our study which was comparable with studies of **Singh S et al. 2016**^[11] 1.5%, **Najma K P et al 2015**^[6] 0.83% Cesarean hysterectomy rate.

Maternal Morbidity (Post Operative Complications):

The post-delivery maternal complications requiring Blood transfusion (15.85%), hospital stay for more than 4 days (16.46%), sepsis (4.57%) requiring higher antibiotics, paralytic ileus (4.26%), and prolonged catheterization >3days (5.18%) was found to be more in repeat CS compared to VBAC in the current study which was comparable with **Kshama V et al 2020**^[12] study.

Conclusion:-

Successful VBAC has turned out as a boon for many women in terms of benefits of shorter hospital stay, lesser expenditure, and lower short term- long term morbidity, and as a bane in failed TOLAC resulting in repeat CS, where maternal-fetal morbidity is likely. But to increase its safety, we do stress that TOLAC should take place at facilities with 24-hour surgery services, and under continuous monitoring by a skilled professional.

Factors influencing the outcome of the trial of labor are maternal age, one prior vaginal birth particularly a prior VBAC, increasing parity, spontaneous onset of labor, average-sized babies, non-recurrent indication for previous cesarean section, longer inter-delivery interval (>18months) are positive predictors of successful VBAC. VBAC rates have ebbed and flowed from virtually none to a significant rise conflicting the dictum Once a Cesarean, Always a Cesarean.

Conflicts of interest:

There are none conflicts of interest.

References:-

1. Spaans WA, Sluijs MB, van Roosmalen J, Bleker OP. Risk factors at cesarean section and failure of subsequent trial of labor. *Eur J Obstet Gynecol Reprod Biol* 2002;100:163-6
2. Abdel-Aleem, H., Shaaban, O. M., Hassanin, A. I. & Ibraheem, A. A. Analysis of cesarean delivery at Assiut University Hospital using the Ten Group Classification System. *Int J Gynaecol Obstet* 123, 119–123, <https://doi.org/10.1016/j.ijgo.2013.05.011> (2013).
3. Dr Siddesh Mahadev Iyer et al *JMSCR* Volume 04 Issue 01 January
4. Minsart AF, Liu H, Moffett S, Chen C, Ji N. Vaginal birth after caesarean delivery in Chinese women and Western immigrants in Shanghai. *J Obstet Gynaecol.* 2017;37(4):446–9.
5. Kalisa et al. *BMC Pregnancy and Childbirth* (2017) 17:272
6. DR.NAJMA K P; DR. SMITHA B RAO: Volume : 4 | Issue : 1 | January 2015 • ISSN No 2277 – 8179
7. Lekshmi Balachandran et al., Pregnancy Outcome in Women with Previous One Cesarean Section; *Journal of Clinical and Diagnostic Research.* 2014 Feb, Vol-8(2):99-102
8. Poddar S. A study of the outcome of subsequent pregnancy following previous cesarean section. *Jour of Evol of Med and Dent Sci.* 2014;3(06):1466-73
9. Anastasia Charitou1, Dimitrios Charos1, Iliana Vamenou1, Victoria G. Vivilaki1: *Eur J Midwifery* 2019;3(April):8 :<https://doi.org/10.18332/ejm/10829>
10. Patel S, Kansara V, Patel R, Anand N. Obstetric and perinatal outcome in previous one cesarean section. *Int J Reprod Contracept Obstet Gynecol* 2016;5:3141-6.
11. Singh S, Dhama V, Chaudhary R, Karya U, Nanda K. Maternal and fetal outcome in pregnant women with previous one lower segment cesarean section. *Int J Reprod Contracept Obstet Gynecol* 2016;5:3815-9.
12. Vishwakarma K, Yadav G, Waddar P. Maternal and perinatal outcomes of delivery after previous one or two cesarean section. *Indian J Obstet Gynecol Res* 2020;7(3):308-314.