

Feto-Maternal Outcome In Case Of Previous Lower Segment Cesaerean Section

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Abstract

Introduction: The rate of cesarean section has been on a constant rise and pregnancy with a history of previous cesarean section is prevalent in modern obstetric practice. Offering a trial of labor after cesarean section and subsequent vaginal delivery will lead to reduction in the rate of cesarean section.

Caesarean birth has been a major source of interest & concern over the last few decades.

In the past 35 years, the rate of cesarean section has steadily increased from 5% to approximately 25%, so pregnancy with history of previous caesarean section is prevalent in present day obstetric practice. Precise quantification of the risk attributable to a prior caesarean section is difficult. However, the complications like uterine rupture; uterine scar dehiscence and scar ectopic makes it a matter of concern for the obstetricians.

Aim: To study the feto- maternal outcome in case of previous lower segment caesarean section.

Material And Methods: This was an observational, prospective study, conducted in the Department of

Obstetrics and Gynecology of SBKS Medical College, Dhiraj Hospital, Sumandeep Vidyapeeth University, Pipariya, Vadodara, Gujarat from June 2019 to Dec 2019. Data were collected and analyzed by SPSS version 17

Pregnant women with previous one caesarean section, singleton pregnancy, with >36 weeks gestation, attending antenatal clinic for confinement were included in the study group after obtaining due consent. Patients with other medical disorders, multiple gestation, <36 weeks gestation were excluded from the study.

Results: The study was done over a period of six months when there were 2000 deliveries in total; 1350(67.5%) had normal vaginal deliveries and 650(32.5%) patients underwent LSCS for various indications. Out of 650 patients, 422(64.92%) patients had repeat LSCS of which 22 (5.21%) patient came in labor and emergency lscs was done and rest 400(94.78%) had repeat elective lscs.

228(35.07%) were given trial of labor in which 120(52.63%) had successful vaginal delivery after caesarean (VBAC). The remaining 108 (47.36%) underwent emergency lscs.

The various indications for the cases that underwent emergency lscs {22+108=130} 130(6.5%) were unexplained maternal tachycardia 7 (5.38%), fetal heart rate abnormalities 28(21.53%), non-progress of labor 26(20%), scar tenderness in 56(43.07%) and failed induction of labor in 13 (10%).

Of 56 patients with scar tenderness, who were included in the study from the group of emergency lscs, intraoperative scar was intact in 33 patients (58.93%), scar was thinned out in 12 patients (21.43%), scar dehiscence in 10 patients (17.86%), rupture occurred in 1 patient (1.78%).

Out of 120 patients who had successful VBAC, the complications of VBAC like episiotomy hematoma 2(1.66%), perineal tear 1(0.83%) and cervical tear 1(0.83%).

No maternal death was recorded. Average hospital stay recorded was 6 days in the operative case and 4 days for VBAC patient. No perinatal deaths recorded.

Conclusion: The current study concludes that women with a prior caesarean are at increased risk for repeat caesarean section. Therefore, vigilance with respect to indication at primary caesarean delivery, proper counselling for trial of labor and proper ante-partum and Intra-partum monitoring of patients, are key to reducing the caesarean section rates. The

Ante-partum, intra-partum and postpartum complications are more in repeat caesarean section cases. There is no doubt that a trial of labor is a relatively safe procedure, but it is not risk free. Therefore, patient evaluation prior to trial of labor after caesarean section, careful observation throughout labor in a well-equipped unit with around the clock services for emergency surgery and availability of expertise is the backbone for successful vaginal birth after caesarean section.

Keywords: Repeat caesarean section, Previous lower segment caesarean section, VBAC- vaginal birth after caesarean. Scar dehiscence, Scar rupture

Introduction

The rate of caesarean section has been on a constant rise and pregnancy with a history of previous caesarean section is prevalent in modern obstetric practice. Offering a trial of labor after caesarean section and subsequent vaginal delivery will lead to reduction in the rate of caesarean section.

Caesarean birth has been a major source of interest & concern over the last few decades.

In the past 35 years, the rate of cesarean section has steadily increased from 5% to approximately 25%[1], so pregnancy with history of previous cesarean section is prevalent in present day obstetric practice. Precise quantification of the risk attributable to a prior caesarean section is difficult. However, the complications like uterine rupture; uterine scar dehiscence and scar ectopic makes it a matter of concern for the obstetricians[2].

A retrospective analysis of catastrophic complication of previous cesarean section by Cynthia Chazotte showed that 2.4% of the patient after one or more cesarean section had an extremely serious complication like uterine rupture & placenta previa , percreta, increta and accreta with accompanying haemorrhage[3].

Other complications like impending rupture, preterm delivery, operative interference & incidental morbidity can occur during pregnancy, labor & in repeat cesarean section[4].

Although maternal mortality after scar rupture is low, the major risk is to the fetus that can suffer from anoxic brain damage or die if not delivered urgently. Studies conducted in 1996 have shown that 30- 80% of women with one previous lower segment caesarean section can achieve vaginal delivery when trial of scar is done [5].

Some of the factors which influence a successful trial of labor in a woman with previous cesarean delivery are transverse incision, prior vaginal delivery, sufficient equipment and personnel, white race, spontaneous labor, prior fetal malpresentation, non recurrent indication and current preterm pregnancy to name a few[6].

The absolute risk of uterine rupture is 0.7 % compared to no reported uterine rupture in case of elective repeat cesarean section. Trial of labor after caesarean is associated with significantly higher rates of perinatal mortality rates compared with elective repeat caesarean section [7].

The perinatal rate is 0.13% with trial of labor after caesarean compared to 0.05% with elective repeat caesarean section and neonatal mortality rate is 0.11 compared to 0.06% respectively. Trial of labor after caesarean also appears to be associated with higher risk of Hypoxic Ischemic Encephalopathy than elective repeat caesarean delivery and Transient tachycardia of the newborn was found to be 4.2 % in case of elective repeat caesarean delivery versus 3.6% in case of trial of labor after caesarean [8].

The present study was conducted in the department of Obstetrics & Gynaecology at SBKS Medical College associated Dhiraj Hospital at Piparia, Vadodara, Gujarat, with the aim to study the fetomaternal outcome in case of previous one cesarean section.

Material And Methods

This was an observational, prospective study conducted in the Department of Obstetrics and Gynaecology of SBKS Medical College and associated Dhiraj Hospital, a tertiary care centre at Piparia, Gujarat from June 2019 to Dec 2019 after obtaining due approval by the Ethics Committee. Data were collected and analyzed by SPSS version 17.

The **inclusion criteria** were those singleton pregnant patients who had prior cesarean

section with regular antenatal check-up for safe confinement and with informed consent. a total of 2000 deliveries were noted during the period of study of which 1350(67.5%) delivered by normal vaginal delivery and 650(32.5%) delivered by caesarean section.

The **exclusion criteria** included those patients who had history of cesarean section for recurrent condition, patients with prior 2 or more repeat lscs, multiple gestation with previous lscs, classical lscs, gestational age <36 weeks, plantal praevia, placenta accreta, increta and percreta.

Detailed history was taken at the time of registration with respect to certain demographics and maternal characteristics like age, gravida, parity etc. A detailed past obstetric history was taken including indication, number of prior caesarean section, type and place of previous caesarean section scar, history of full term vaginal deliveries prior to or following previous caesarean section, birth weight of the babies and history of complications associated with previous section.

General examination, systemic examination and obstetric examination was carried out. Blood investigations were taken at the time of first antenatal visit and in the subsequent visits at regular intervals to assess the patient depending on the other maternal risk factors.. For fetal assessment, ultrasonography was performed at regular intervals and non-stress tests were done whenever indicated. These cases were regularly followed up in antenatal outpatient department. Pelvic assessment was performed at around 37 weeks. The points assessed were sacral curve, whether sacral promontory was reached or not, Sacro-sciatic notch, lateral pelvic walls, ischial spines and inter spinous distance, sub pubic angle, diagonal conjugate and transverse diameter of pelvic outlet and decision regarding the mode of delivery was taken.

The patients fulfilling the selection criteria for trial of labor after caesarean like definite history of prior one lower segment caesarean section, patient willing for trial of labor, gestation age >37 completed weeks, clinically adequate pelvis, single live fetus, vertex presentation, inter delivery interval >24 months were educated about the option of trial of labor after caesarean. The success rate of vaginal birth after caesarean, the risks and benefits associated with vaginal birth after caesarean section was thoroughly explained to the patient and their relatives with informed and written consent.

Patients not willing for trial of labor or those not fulfilling the criteria of trial of labor like not willing for trial of labor after counselling, unfavourable cervix, placental abnormalities like placenta previa, cephalo pelvic disproportion, non-vertex presentation, were planned for elective repeat cesarean section after 38 weeks.

Patients who gave consent for trial of labor after caesarean were monitored closely for the spontaneous labor to set in till 40 wks in the absence of any medical or obstetrical high risk factors. However, they were not allowed to go post EDD. High risks patients were induced earlier after 37 completed weeks.

Bishop score less than 4 were taken up for Elective repeat caesarean section in view of unfavorable cervix and Bishop Score of 4-6 were induced.

Indications of induction were medical disorders like-pregnancy induced hypertension, gestational diabetes; Obstetric disorders like-Rh negative, oligohydramnios, intra uterine growth restriction, premature rupture of membranes etc.

In patients with bishop score up to 6 cervical ripening was done with single PGE2 gel (cerviprime gel 0.5 mg in 3 mg base). Bishop score was reassessed after 6 hours followed by induction of labor with oxytocin of 3mU/min drip (2.5

unit of oxytocin in 500 ml of ringer lactate) and was titrated to double every 30 minutes.

In patients with bishop score more than 6 induction of labor was augmented with oxytocin based on standard protocol.

During labor, the previous histories were checked and complete examination including general and per abdominal examination were done to check the position of the baby Blood was sent for cross matching and kept ready in case of emergency as soon as patient set into labor.

Patients were carefully monitored during labor with regular checking of the vital signs like maternal pulse rate and blood pressure, development of any pain at the previous scar site. Fetal heart rate monitoring was done on a regular basis.

Cervical dilatation, effacement and station of the head noted serially for progress of labor.

Also character, duration and frequency of uterine contractions were monitored.

Early signs of scar dehiscence such as hypotension, tachycardia, abdominal tenderness, fetal heart rate alteration, loss of station of presenting part, palpation of fetal parts outside the uterus and symptoms such as acute abdominal pain and vaginal bleeding, were watched for.

All the patients were observed for complications like post partum hemorrhage, need for blood transfusion, infection, hematoma formation, pyrexia. Care of wound, breast and perineum given. Check dressing was done on day 2 and stitches were removed on day 8.

The Apgar score at 1min and 5min, sign of birth asphyxia, NICU admission, sign of hypoxic ischemic encephalopathy, evidence of birth trauma and perinatal mortality were noted. No perinatal mortality was recorded during the study.

Results

The study was done over a period of six months. A total of 2000 deliveries occurred during this time period in which 1350(67.5%) delivered by normal vaginal delivery and 650(32.5%) patients underwent LSCS for various indications. 422(64.92%) patients had repeat LSCS and 228(35.07%) were given trial of labor. 120(52.63%) of 228 had successful vaginal birth after caesarean section and the rest 108 of the 228 underwent emergency caesarean section. Of 56 patients out of 108, who underwent emergency lscs in view of scar tenderness, intraoperative scar was intact in 33 patients (58.93%), scar was thinned out in 12 patients (21.43%), scar dehiscence in 10 patients (17.86%), rupture occurred in 1 patient (1.78%).

Out of 120 patients who had successful VBAC, the complications of VBAC like episiotomy hematoma 2(1.66%), perineal tear 1(0.83%) and cervical tear was noted in 1(1.78%).

No maternal death was recorded. Average hospital stay recorded was 6days in the operative case and 4 days for vaginal birth after caesarean birth patients.

No post-operative complications of pyrexia, PPH, endometritis, need for blood transfusion was encountered in my study.

No perinatal deaths recorded. Fetal complications of transient tachypnoea of the newborn, meconium aspiration syndrome, and Babies with low APGAR of less than 7 at 5 min were also recorded; NICU admission was also taken into account to calculate the fetal outcome.

It was noted in the study that 400 patients who had elective repeat caesarean section, the APGAR scores at 1 min and 5 min were more than 7 in 100% of the babies.

In the emergency caesarean section group, 10% babies had an APGAR of 4-7 at 1 min and 4.61% had an APGAR more than 7 at 5 minutes. Those patients who underwent

successful vaginal birth after caesarean section only 3.33% of the babies had an APGAR between 4 and 7 at one minute and 100% had APGAR of >7 at 5 minutes. No perinatal mortality was recorded during the study.

Table 1: Demographic Distribution of Study Population

Demographic Factors	Number of Patients	Percentage (%)
AGE		
LESS THAN 20 yrs	260	1.3
21-25 yrs	1020	51
25-30 yrs	705	35.25
31-35 yrs	209	10.45
More than 35 yrs	40	2
Socio economic status		
Rural	1560	78
Urban	440	22

Table 2: Mode of Delivery in The Study Group:

Mode Of Delivery		Number Of Patients	Percentage (%)
Repeat Caesarean Section (Elective And Emergency)		422	64.92
Trial of Labor	Successful Vbac	120	52.63
	Unsuccessful VBAC (Emergency LSCS)	108	47.36
Emergency CS (Includes Previous CS In Labor And Failure Of TOLAC)		130	20
Normal Vaginal Delivery		1350	67.5

Total number of deliveries in our hospital during the study= 2000

Total number of normal vaginal delivery= 1350

Total number of patients who underwent lscs= 650

Total number of emergency lscs(patient in labor and the patient who underwent trial of labor and ended up with emergency lscs = 130

Total number of elective lscs= 400

Total number of successful TOLAC= 120

Table 3: Complications in Various Modes of Delivery:

Parameters	Number	Percentage (%)	
EMERGENCY LSCS (Total = 130)			
1. Unexplained Tachycardia	7	5.38	
2.Fetal Heart Rate Abnormalities	28	21.53	
3.SCAR Tenderness 56(43.07%)	SCAR INTACT	33	58.93
	SCAR THINNED OUT	12	21.43
	SCAR DEHISCENCE	10	17.86
	SCAR RUPTURE	01	1.78
4.Failed Induction Of Labor	13	10	
5. Non Progression Of Labor	26	20	
SUCCESSFUL VBAC (TOTAL= 120)	Episiotomy Hematoma	2	1.66
	Perineal Tear	1	0.83
	Cervical Tear	1	0.83

56 patients who underwent emergency lower segment caesarean section in view of scar tenderness, 58.93% had an intact scar, 21.43% had a thinned out scar, 17.86% had dehiscence and 1.78% had rupture of the scar. No maternal mortality was encountered in the study.

In the patients who underwent successful vaginal birth after caesarean section, the few complications encountered were episiotomy hematoma (1.66%), perineal tear (0.83%) and cervical tear(0.83%).

Table 4: Apgar score Association with Mode of Delivery:

APGAR SCORE		ELECTIVE LSCS	EMERGENCY LSCS	SUCCESSFUL VBAC
AT 1 MINUTE	4-7	00	13 (10%)	04 (3.33%)
	>7	400 (100%)	117 (90%)	116 (96.67 %)
AT 5 MINUTE	4-7	00	06 (4.61%)	00
	>7	400 (100%)	124 (95.38%)	120 (100 %)

It was observed in the study that those patients who underwent elective repeat caesarean section, the APGAR score of the babies at 1 and 5 minutes were more than 7.

Those who had emergency caesarean section, 90% had an APGAR score of more than 7 at 1 minute and 95.38% had an APGAR of more than 7 at 5 minutes.

The babies born by successful vaginal birth after caesarean section, 96.67% had an APGAR of more than 7 at 1 minute and 100% of them an APGAR of more than 7 at 5 minute.

Discussion

The Lower socio-economic status, social taboos and low % of education results in early marriages. Hence early reproduction in rural areas is seen, which is catered by our tertiary care hospital. 1934 patients in my study belonged to the age group between 21 and 35 years and represented the reproductive age group. The study conducted by Dr. Srinivas showed that as the maternal age increases the chances of trial of labor to be successful decreases. Our hospital is a tertiary care hospital so patients from nearby rural areas get referred to our hospital which makes the rural percentage to be 78%. Similar was the observation by Dr. Gonen who did a study in 2004 [9].

Out of 650 patients who underwent lower segment caesarean section, trial of labor was given in 228 patients (35.07%) which was similar to the study done by Landon et al (39.90%) and 30.66% of the patients in the study by Nigamananda Mishra and colleagues.

In the present study, 52.63% had successful vaginal birth after caesarean section which was similar to study done by Nigamananda Mishra and colleagues who had 52.17% successful vaginal birth after caesarean. Landon [10] and associates quoted a success rate of 73.41% and Gonen et al reported success rate of 79.66%. The lower success rate in the present study could be due to the fact that very few

patients who opted for trial of labor had a history of prior vaginal deliveries.

In the current study, who had successful vaginal birth after caesarean, no case of uterine rupture was reported similar to study by Gonen et al and Nigamananda Mishra[11].

Tan et al and Ball et al reported that there was an increased risk of neonatal morbidities and development if hypoxic ischemic encephalopathy in cases with unseccessful trial of labor after caesarean section [12, 13]. In another study by Abdelazim et al, it was reported that there was significant admission into the neonatal intensive care unit in the babies born to mothers with failed vaginal birth after caesarean section due to birth asphyxia, meconium aspiration syndrome and sepsis than those with successful vaginal birth after caesarean section [14].

The mean hospital stay for those undergoing caesarean section in the present study was 6 days and those having successful vaginal birth was 4 days which was consistent with the study conducted by Abdelazim et al where the mean hospital stay for caesarean section was 6.97 and 2.92 in successful vaginal birth after caesarean

In the study by Gupta et al, it was observed that incidence of scar dehiscence was more in the cases of trial of labor in comparison to repeat elective caesarean section (9.62% versus 1.62%). In the present study 17.86% of the patients who underwent emergency caesarean section had scar dehiscence [15]. This was due to the fact that many patients with prior history of caesarean section had come to the hospital in labor with pain and tenderness at the scar site.

The present study did not have any major complications of obstetric hysterectomy, massive blood transfusion, pyrexia, post partum hemorrhage or post- op ileus. Only 3 cases had minor complications of episiotomy hematoma, cervical tear and perineal tear.

Limitations to the Study

The main limitations in the present study were since our hospital caters mainly rural population, the patients lack the adequate understanding about the trial of labor after caesarean and thus reduce the number of patients in the trial group.

As the patient from rural population is referred to our tertiary centre, at many instances the patients come in active labor with no previous antenatal records. In such an instance, the placental position and the presence of placenta accreta, increta and percreta cannot be anticipated.

The strict hospital protocol regarding the selection of candidate for the study under the trial group is reduced.

Conclusion

The current study concludes that women with a prior cesarean are at increased risk for repeat cesarean section. Therefore, vigilance with respect to indication at primary cesarean delivery, proper counselling for trial of labor and proper antepartum and intrapartum monitoring of patients, are the key to reduce the cesarean section rates. The antepartum, intrapartum and postpartum complications are more in repeat cesarean section cases.

The major maternal and fetal morbidities are also documented on higher side. There is no doubt that a trial of labor is a relatively safe procedure, but it is not risk free. Therefore, patient evaluation prior to TOLAC, careful observation throughout labor in a well-equipped unit with around the clock services for emergency surgery and availability of expertise is the backbone for successful VBAC. A large number of patients declined a trial for labor in spite of being eligible for it.

There were no maternal deaths that was recorded due to timely management and care observed at our hospital, with continuous fetal monitoring and identifying any abnormality at the earliest and managing the patient

promptly. Our hospital being a tertiary care centre, patients with any complication from the nearby rural areas get referred to our hospital.

Hence it is essential to counsel patients with a history of prior LSCS, ideally during the antenatal period, regarding the benefits and the risks (both maternal and perinatal) of the VBAC. This enables them to make an informed choice early and probably bring down the repeat cesarean rate, with a low maternal and perinatal morbidity. Vaginal deliveries have much safer outcome than repeat cesarean deliveries.

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