



ORIGINAL RESEARCH PAPER

Gynaecology

A DESCRIPTIVE STUDY OF MATERNAL OUTCOME FOLLOWING TRIAL OF LABOR AMONG PATIENTS WITH PREVIOUS CESAREAN SECTION

KEY WORDS: Cesarean section, Scar dehiscence, Trial of labor

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ABSTRACT	Aims: To assess the maternal outcome following trial of labor(TOL) after previous cesarean section(CS).
	Materials and Methods: This was descriptive type of observational study conducted in SMS Medical College, Jaipur. 75 well dated pregnant ladies with singleton pregnancy were enrolled in the study as per inclusion/exclusion criteria. TOL was given to all selected cases and outcome was studied in relation to demographic profile, prior vaginal delivery, interval between previous CS and present pregnancy, bishop score, maternal morbidity and mortality.
	Results: In the present study, 73.33% cases had a successful vaginal delivery and 26.67% underwent a repeat CS due to failed TOL. The incidence of scar dehiscence was 1.33% in the present study. There was no maternal mortality.
	Conclusion: TOL after previous CS in selected cases has great importance in the present era of the rising rate of primary CS.

Introduction

Cesarean section is defined as "an operative procedure whereby the fetuses after the end of 28th week are delivered through an incision on the abdominal wall and uterine wall." Cesarean section originally evolved to save a maternal life during difficult child birth and is procedure of choice for delivery in high risk situations.

Cragin's much quoted phrase "once a cesarean, always a cesarean"¹ from the article " But this approach was questioned and challenged throughout the 20th century because with a classical incision, incidence of uterine rupture during trial of labor is about 4-9%.² But in modern obstetrics, because of improved technique of lower segment cesarean section, liberal use of antibiotics, effective blood banking, enhanced maternal and fetal surveillance and better judgment in the selection of cases, incidence of scar rupture are minimal about 0.2-1.5%.^{1,2} Due to the advanced health care system, incidence of cesarean section has greatly increased this has become considerable health issue due to increased morbidity and delivery cost. Hence Cragin dictum needs to be modified. The present day dictum revolves around "The optimum management after a previous cesarean section."

Various studies have proved the relative safety of trial of labor in most women after a low transverse cesarean section and show that 60-80% patients with previous cesarean section can be delivered vaginally, particularly if the previous cesarean section has been a low transverse section, for a non-recurrent indication and the patient has had a smooth postoperative recovery.^{1,2,3} Less morbidity is encountered in women with successful Vaginal birth after cesarean section (VBAC) versus those with elective repeat cesarean delivery. Patient who undergo successful trial of labor experience fewer blood transfusion, less postoperative morbidity, shorter hospital stays, financial savings, emotional and psychological satisfaction to the mother.⁴ VBAC also eliminate the possibility of iatrogenic prematurity and hyaline membrane disease which occurs more commonly in the patients delivered by cesarean section.

Hence, the present study was undertaken to assess the success and safety of VBAC in selected cases of one previous lower segment cesarean section (LSCS) and to evaluate the maternal outcome in these cases

The current guidelines state that this risk should neither dissuade women from choosing VBAC nor prevent service providers from offering trial of labor (TOL) to women who choose this option. With present techniques and skill, the incidence of cesarean scar

rupture in subsequent pregnancies is very low. The strength of the uterine scar and its capacity to withstand the stress of subsequent pregnancy and labor cannot be completely assessed or guaranteed in advance. These cases require the assessment and supervision of a senior obstetrician during labor.

Methods

This descriptive type of observational study was a hospital based study conducted in Department of Obstetrics and Gynaecology, SMS Medical College, Jaipur from April 2014 to November 2015. 75 well dated pregnant ladies with singleton pregnancy were recruited in the study as per inclusion / exclusion criteria after taking informed written consent. Sample size was calculated statistically at allowable error 10% at 95% confidence limit. Inclusion criteria: Cases with previous one lower segment cesarean section, singleton live pregnancy, cephalic presentation, estimated fetal weight ≤ 3kg, gestational age ≥ 37 weeks, having spontaneous onset of labor. Exclusion criteria: Previous classical or inverted T-shaped incision on the uterus, history of previous uterine scar along with cesarean section, history of previous rupture uterus / perforation, contracted pelvis or cephalopelvic disproportion, cases with other medical or obstetrical complications associated with pregnancy. The information was collected using a structured questionnaire containing maternal socio demographic, past and present obstetric experience, mode of delivery and birth outcomes variables. General physical and systemic examination was done. The findings were confirmed by ultrasound. Cases were evaluated according to: previous obstetric history, interval between previous cesarean and present pregnancy, bishops score at the time of admission, estimated fetal weight, scar thickness. Trial of labor was given to all selected cases. Close intrapartum monitoring was done by plotting a partogram. Maternal outcome was assessed in terms of mode of delivery, duration of labor, indication of cesarean section, scar dehiscence or rupture, PPH - primary or secondary and postpartum complications.

Observations and discussion

Analysis was carried out from data of 75 patients. In the attempted trial of labor group, rate of successful trial of labor was 73.33% and 26.67% had failed to deliver vaginally. The incidence of successful TOL in our study 73.33% which is comparable to that of Troyer and parisi⁵ et al 72.7% ,Vidyadhar B Bangal⁶ et al 85%, Cowen⁷ et al 81%. Baseline demographic characteristics, result for successful trial of labor in relation to parity, interval between both deliveries, association with previous vaginal delivery, degree cervical dilatation at admission and modified bishop score have depicted in table 1,2,3,4,5 and 6.

Table1. Distribution of cases according to demographic parameters

Demographic Parameters		Failed TOL		Successful TOL		Statistical Significance	
Age	<21	3 (42.86%)	4 (57.14%)	Non Significant			
	22-29	16 (27.58%)	42 (72.42%)				
	30-33	7 (14.29%)	6 (85.71%)				
	34 & above	0 (0%)	3 (100%)				
Residence	Rural	7(29.17%)	17(70.83%)	Non Significant			
	Urban	13(25.49%)	38(74.51%)				
Religion	Hindu	17(30.36%)	39(69.64%)	Non Significant			
	Muslim	3(15.79%)	16(84.21%)				
	Others	03 (4.29%)	16(84.21%)				
Literacy status	Literate	17(33.33%)	34(66.67%)	Non Significant			
	Illiterate	3(12.50%)	21(87.50%)				
Socio-economic status	Upper (I)	2(50.00%)	2(50.00%)	Non Significant			
	Upper Middle (II)	2(50.00%)	2(50.00%)				
	Middle/ Lower Middle (III)	11(30.56%)	25(69.44%)				
	Upper Lower (IV)	2(20.00%)	8(80.00%)				
	Lower (V)	3(14.29%)	18(85.00%)				

Table 2. Distribution of cases according to parity

Parity	Failed TOL		Successful TOL		Total	
	No	%	No	%	No	%
1	18	40.00	27	60.00	45	60.00
2	2	8.70	21	91.30	23	30.67
3	0	0	4	100	4	5.33
4 & above	0	0	3	100	3	4.00
Total	20	26.67	55	73.33	75	100.00

$\chi^2 = 10.435$ with 3 degrees of freedom; $P = 0.0195$

Similar results were reported by Hibbard⁸ et al. They reported that with rising parity, the success after trial of labor were much higher.

Table 3. Distribution of cases according to interval between previous cesarean section and present pregnancy

Interval between previous cesarean section and present pregnancy	Failed TOL		Successful TOL		Total	
	No	%	No	%	No	%
18 mth-23 mth	5	71.43	2	28.57	7	9.33
24 mth-29 mth	12	41.38	17	58.62	29	38.67
30 mth-35 mth	1	11.11	8	88.89	9	12.00
36 mth-41 mth	1	5.26	18	94.74	19	25.33
42 mth& above	1	9.09	10	90.91	11	4.00

$\chi^2 = 17.684$ with 4 degrees of freedom; $P = 0.0015$

The success of trial of labor was directly proportional to the duration between previous cesarean section and present pregnancy. This was probably due to better scar strength. Similar results were reported by Bujold⁹ et al, they concluded that inter delivery interval of <24 months was associated with a 2-3 fold increased in the risk of uterine rupture, compared with an interval of >24 months.

Table 4. Successful trial of labor in relation to previous vaginal delivery

Relation of vaginal delivery with previous LSCS	Failed TOL		Successful TOL		Total	
	No	%	No	%	No	%
No prior vaginal delivery	18	40.00	27	60.00	45	60.00
Vaginal delivery after LSCS	1	6.67	14	93.33	15	20.00

Vaginal delivery before LSCS	1	9.09	10	90.91	11	14.67
Vaginal delivery before and after LSCS	0	0	4	100.0	4	5.33
Total	20	26.67	55	73.3	75	100

$\chi^2 = 20.617$ with 2 degrees of freedom; $P < 0.0015$

Similar results were reported by Vidhyadhar B Bangal⁶ et al. that cervical dilatation (>3cm) is an important predictor in success rate of trial of labor at the time of admission.

Table 5. Distribution of cases according to Modified Bishop Score at the time of admission

Modified Bishop Score	LSCS		Vaginal delivery		Total	
	No	%	No	%	No	%
6	4	100	0	0	4	5.33
7	7	38.89	11	61.11	18	24.00
8	4	25	12	75	16	21.33
9	5	18.52	22	81.48	27	36.00
10	0	0	10	100	10	13.33
Total	20	26.67	55	73.33	75	100

$\chi^2 = 16.951$ with 4 degrees of freedom; $P = 0.0025$

Lehmann¹² et al also reported that a score of less than 7 was associated with poor outcomes for vaginal delivery.

The commonest indication of primary cesarean section in the attempted trial of labor group was fetal distress followed by failure to progress. Duration of hospital stay was much less in successful trial of labor group as compared to failed trial of labor group. The incidence of maternal morbidity was 6.67%. It was more in failed trial of labor group (20%) than in successful trial of labor group (1.82%). The incidence of scar dehiscence in study group was 1.33% that was comparable to results of Paul¹³ et al 0.80%, Jadeja¹⁴ et al 0.90%, Dayal¹⁵ et al 1.70% of scar dehiscence. No case in study had true rupture of uterus. Cesarean was done for scar tenderness and on laparotomy dehiscence was noted. No maternal mortality was encountered in cases attempting trial of labor.

With the significant rise in the incidence of primary CS for various indications, an increasing proportion of the pregnant women coming for antenatal care report with a history of a previous CS. These women belong to a high-risk group due to the risk of a scar rupture. The obstetrician is always in a dilemma regarding the mode of delivery in these cases. Assessment of the individual case with regard to the possibility of a successful VBAC is necessary while taking the decision but the advantage which the vaginal delivery imparts largely outweighs the risks associated with a repeat CS.

CONCLUSION

“Once a cesarean, always a cesarean” is no longer an appropriate dictum, perhaps it should be “once a cesarean, always a hospital delivery.” Hence a proper selection, counseling and monitoring for successful trial of labor after cesarean section, that takes into account the different significant parameters concerning current pregnancy and past cesarean section is very effective in reducing the rate of repeat cesarean section, without increasing the rate of maternal and perinatal morbidity and mortality.

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