

A study of vaginal birth with previous caesarean pregnancies

Fatima Zahra Shaik Mohammed^{1,*}, Juveria Jahangir²

^{1,2}Assistant Professor, Dept. of Obstetrics & Gynecology, Dr. VRK Women's Medical College, Hyderabad

***Corresponding Author:**

Email: fatimazahwa@gmail.com, juvz4u@yahoo.com

Abstract

Objective: To study and analyse the vaginal birth with previous caesarean section and its out come

Methods: A study of 100 cases of post caesarean pregnancies with induction of labour carried out. Trial is given with one previous lower segment caesarean section with no obstetric contraindication and scoring system to predict the success in trail of labour with the inclusion criteria including singleton pregnancy presenting with vertex, with adequate pelvis without any antenatal complications. The exclusion criteria included classical or unknown uterine scar type, past history of uterine rupture, past history of corporeal surgery, severe myopia complicated by retinal detachment, incompatible with safe vaginal delivery and multiple pregnancy.

Results: In our study we found that out of 100 cases, 61% had vaginal delivery and 39% underwent caesarean section. Out of 61 cases delivered vaginally, 45 cases had FTND with episiotomy, 07 FTND without episiotomy, 04 FTND with first degree perianal tear, 11 cases were by outlet forceps with episiotomy and 5 cases were delivered by low forceps.

Conclusion: conclude that predicting the score for VBAC and giving trial of labour helps in decreasing the number of repeat caesarean sections in selected cases where there is no contraindication for vaginal delivery. The high probability of success and minimum risk of uterine rupture, favours the use of trial for vaginal delivery in women with previous caesarean section.

Keywords: Vaginal birth with previous Caesarean section.

Introduction

“Once a caesarean, always a caesarean” from the time they had spoken in 1916 of the New York Association of Obstetricians & Gynecologists over the ensuing 50-60 years, these words reflected on most of the obstetricians management of patients with a prior caesarean delivery. By 1988, the overall caesarean delivery rate was 25% rising from less than 5% in early 1970's. Only 3% of live-born infants were delivered vaginally after the mother had undergone prior caesarean delivery.

Although attempts at trial of labour after a caesarean birth have become accepted practice, the rate of successful vaginal birth after caesarean delivery (VBAC) as well as the rates of attempted VBACs, has decreased during the past 10 years. Whereas 40-50% women attempted VBAC in 1996, as few as 20% of patients with prior caesarean delivery attempted a trial of labour in 2002. This number is drifting down towards the 10% mark with fewer than 10% of women achieving successful VBAC in 2005.

Several factors have contributed to this decline. As practitioners experience complications related to managing patients undergoing trials of labour after caesarean delivery, they are less likely to allow new patients to undergo trial of labour. In addition, 1999 guidelines from the American College of Obstetricians and Gynecologists (ACOG) clearly stated that patients undergoing a trial of labour after caesarean delivery requires the presence of an Obstetrician, an anesthesiologist and / or a staff capable of performing on emergency caesarean delivery throughout the patients active phase of labour.⁽³⁾

In spite of above statistics, in an appropriate clinical setting and properly selected group of women, VBAC is safe and effective.^(39,36) All post caesarean pregnancies do not require repeat caesarean section and majority of them may have uncomplicated vaginal delivery.⁽⁴⁰⁾

A trial of vaginal birth after a previous caesarean section (VBAC) is considered safer than a routine repeat caesarean section.⁽²⁹⁾ VBAC offers distinct advantages over a repeat caesarean section since the operations risks are completely eliminated, the hospital stay in much shorter and expenses involved are much less. However, several factors increase the likelihood of a failed trial, which in turn might lead to increased maternal and perinatal morbidity and mortality rates.⁽¹⁰⁾ In view of this trial of vaginal delivery in women with post caesarean pregnancy remains controversial and continuous critical audit of the trends is imperative. Women and their relatives should be informed and counseled regarding the safety and risk involved in both the modes of delivery.

The American College of Obstetricians & Gynecologists (2004) for selecting appropriate candidates for VBAC are

- One prior low transverse caesarean delivery.
- Clinically adequate pelvis.
- No other uterine scar or previous rupture.
- Physician immediately available throughout active labour capable of monitoring labour and performing on emergency caesarean delivery.
- Availability of anesthesia and personnel for emergency caesarean delivery.

Material and Method

This is a prospective case control study done in Department of Obstetrics & Gynecology, Dr. V.R.K Women's Medical College, Aziz Nagar, Hyderabad from August 2013 to August 2015, where Trial is given with one previous lower segment caesarean section with no obstetric contraindication with scoring system to predict the success in trail of labour with inclusion criteria included singleton pregnancy presenting with vertex, with adequate pelvis without any antenatal complications. The exclusion criteria included classical or unknown uterine scar type, past history of uterine rupture, past history of corporeal surgery, severe myopia complicated by retinal detachment, fetal malpresentation incompatible with safe vaginal delivery and multiple pregnancy.

The following scoring system devised by Daniel Weinstein et al was used to predict the success of VBAC.

Scoring system for prediction of successful vaginal birth after caesarean section

Factor	No	Yes
Bishop score > 4	0	4
Viginal Delivery before caesarean section	0	2
Past Indication Grade-A Mal presentation Pregnancy-induced hypertention, Twins	0	6
Grade – B Placenta previa or abruptio placentae Prematurity Premature rupture of membranes	0	5
Grade – C Fetal distress Cephalopelvic disproportion or failure to progress, cord accident	0	4
Grade – D Macrosomia IUGR	0	3
Total score		

In women who had a Bishop score > 4, four points were awarded. If a women had a vaginal delivery before caesarean delivery, two points were awarded. Finally, points were awarded for past obstetric indication.

Bishops Scoring System

Factors	Score			
	0	1	2	3
Cervix				
Dilatation (cm)	Closed	1-2	3-4	5+
Effacement (%)	0-30	40-50	60-70	80+
Consistency	Firm	Medium	Soft	-
Position	Posterior	Central	Anterior	-
Head				
Station	-3	-2	-1,0	+1,+2
Total Score				

Results

100 pregnant women at term with previous one transverse lower segment caesarean section were randomly selected and studied during August'2013 to August'2015.

Out of 100 cases studied 39 cases under went repeat caesarean section (39%) for failed trial of labour and 61 (61%) patients had vaginal deliveries. All the cases were term pregnancies.

Age Group

Age	No. of Cases	Percentage
20-25	57	57
26-30	34	34
31-35	09	09

Gravida

Gravida	No. of Cases
02	64
03	25
04	08
05	02
06	01

Patiry

Parity	No. of Cases	Percentage
01	73	73
02	24	24
03	02	02
04	01	01

Vaginal Delivery

Vaginal deliveries	Number
FTND	07
FTND with RMLE	34
FTVD with I ⁰ perineal tear	04
FT outletforceps with episiotomy	11
Low forceps with episiotomy	05
Total	61

Indication for primary caesarean section, repeat C.S. and VBAC (100 cases)

Primary indication	Total	Repeat CS	%	VBAC	%
Foetal distress	38	15	40.5	23	59.4
Malpresentation	27	10	37.4	17	62.9
Failure to progress	08	04	50	04	50
Severe PE and Ante-partum eclampsia	14	07	50	07	50
PROM	09	03	33.3	06	66.6
IGUR	02	01	50	01	50
Cord prolapse	02	-	-	02	100
Total	100	39	39	61	61

Failed trial of Labour: Among the 100 cases subjected for vaginal delivery 39 cases ended with repeat caesarean section. Labour was terminated by emergency lower segment caesarean section due to foetal distress.

Zelop At al⁽⁵⁰⁾(2001) compared the outcome of almost 2750 women undergoing a trial of labour of whom 1.1 percent had uterine rupture. The rate increased - - albeit not significantly with increase in weight - 1.0 percent for < 4000 gm, 1.6 percent > 4000 grms and 2.4 percent for > 4250 gms.

Elkauskys and Colleagues (2003) reported that for women attempting VBAC who had no previous vaginal deliveries, the relative risk of rupture is doubled if birth weight was > 4000 gms.

Present study: 100 cases

Total Score	Total Case	Repeat C.S.	%	VBAC	%
> 4-5	06	05	83.33	01	16.67
> 6-7	08	06	75	02	25
> 8-9	45	20	44.44	25	55.56
> 10-11	32	08	25	24	75
> 12	09	02	22.2	07	77.7
Total	100	39		61	

In my present study of 100 cases were given trial for vaginal delivery, the repeat C.S. rate and VBAC success rate as per total score as follows.

Total > 4-5 = 16.67%, score > 6-7 = 25%, score > 8-9 = 55.56%, score > 10-11 = 75%, and score > 12 = 77.7%. This showed that increased score had a high VBAC success rate.

Trial for Vaginal Delivery: Each case is individually assessed. Trial for vaginal delivery was given to those patients who were term with one previous low transverse C.S. scar with a non-recurrent indications. Bishop score > 4 was considered favourable for vaginal delivery, vaginal delivery prior to caesarean section was also considered.

Good scar without evidence of infection is considered better for delivery but infection in the post-operative period is not depended solely for elective repeat section.

During trial for vaginal delivery, the scar integrity was monitored by routine monitoring techniques such as suprapubic pain, bleeding or tenderness on palpation of scar area. If scar rupture anticipated, labour was terminated by C.S.

In my study 61 cases had successful vaginal deliveries after trial of labour and 39 went for repeat C.S. My study correlates with the study by Durnwald 2004 whose VBAC success rate was 66%.

Peter Jakobi had a success rate of 83.3% in whom there were vaginal deliveries prior to C.S, Hendler⁽¹⁶⁾ 2004 had 81.8% success rate where as in my study 77.78% delivered successfully after trial of labour. The indication for caesarean section in other 4 cases were, foetal distress.

Nil vaginal delivery prior to C.S : Peter Jakobi had a VBAC success rate of 82.1% in whom were no vaginal delivery prior to C.S. Hendler⁽¹⁶⁾ had a success rate of 70.1% in whom there were no vaginal delivery prior to C.S. AND WHERE as in my study, 75 cases of previous caesarean section did not have previous vaginal deliveries. In them, 42 (56%) delivered vaginally.

Previous successful VBAC: Peter Jakobi had 100% success rate in cases who had previous successful VBAC, Hendler had 93.1% success rate and in my study 71.5% is success rate.

In my study most of the cases had foetal distress 38 cases and malpresentations 27 cases as primary indications for C.S.

In my study there were 38 cases among whom 23 cases had successful VBAC (60.5%) and 15 cases (39.4%) went for repeat C.S.

The cases who had foetal distress as the primary indication for C.S. had a high success rate of VBAC when given trial for vaginal delivery.

Malpresentations: In my study, there were 27 cases with malpresentations as primary indications for C.S. among whom 65.38% had successful VBAC and 34.62% went for repeat C.S. Out of 27 cases of malpresentations, 17 cases were breech, 6 were transverse lie, 2 cases face presentation and 2 were occipito posterior presentation.

Out of the 16 cases of breech, 12 cases had successful VBAC (75%) and 4 cases (25%) went for repeat C.S. The indications for repeat C.S. were CPD (2 cases), foetal distress (1) and PROM (1).

Ophir et al, COG June 1998, Vol.41; No.2 attempted trial of labour in 47 cases of breech deliveries, among whom 31 (78.7%) delivered vaginally.

My study correlates with the study by Ophir et al where the VBAC success rate among breech as primary indication for C.S. was 75% and 78.7% respectively.

In present study there were 6 cases of transverse lie and 2 cases of face presentations as primary indication for C.S. Three cases of transverse lie as primary indication for C.S. went for repeat C.S. for indication of foetal distress. Both case of face presentation as primary indication for CS delivered vaginally.

There were 2 cases of occipitoposterior as primary indications for C.S. Both the cases went for repeat C.S. The indication for repeat C.S. was failure to progress due to cervical dystocia.

Above study shows that those cases who had malpresentations as primary indication for C.S. had a high VBAC success rate when given trial for vaginal delivery.

Failure to progress: In my study, there were 8 cases with failure to progress as the primary indication for C.S. among whom 4 cases (50%) had successful VBAC and 4 (50%) went for repeat C.S. The indications for repeat C.S. was PROM in 2 cases and foetal distress in 2 case. My study showed VBAC success rate of 50%.

Pregnancy induced hypertension (PIH): In my study there were total 14 cases among whom 9 cases were severe pre-eclampsia and 4 cases were antepartum eclampsia as the primary indication for C.S. Among them, 7 cases delivered vaginally (50%) and 7 cases went for repeat C.S. (50%). The indications for repeat C.S. were foetal distress in 5 cases and PROM in 2 case.

PROM: In m study, there were 9 cases of PROM whom 6 (66.6%) delivered vaginally and 3 (33.3%) had repeat C.S. The indications for repeat C.S. were CPD, foetal distress and threatened rupture. My study showing high success rate of VBAC in cases where PROM was the primary indication for caesarean section.

IUGR: In my study, there were 2 cases among whom 1 went for repeat C.S. (50%) due to foetal distress and another delivered vaginally (50%). Here the study shows, IUGR as primary indication for C.S. had a low success rate of VBAC when given trial for vaginal delivery.

Indications for Repeat C.S.: (Present study)

Indication for repeat C.S.	Number	Percentage
Foetal distress	20	51
CPD	10	25.64
Abruptio placentae	01	3.2
Threatened rupture	01	3.2
Failure to progress	05	12.82
PROM	03	7.69

In the present study, the majority of the cases had foetal distress 51% CPD 25.64%, failure to progress 12.82% as the indication for repeat C.S, whereas Shah Jitish Mafatlal 2009, the commonest indication was fetal distress 47.3%, followed by non-progress of labour 27.3% and scar tenderness 21.0%.

Bishop Score: Bishop score >4 was the strongest and most significant predictor for successful VBAC. Several studies had found that cervical dilatation >4 cm had a successful trial for vaginal delivery.

Present Study (100 Cases)

	No. of patients allowed trial	No. of patients successful	% of success
Dilatation (cms)			
0-3	61	37	60.6%
4-10	39	32	82.0%
Effacement (%)			
0-80	38	23	60.5%
90-100	62	46	74.1%
Consistency			
Firm	15	2	13.3%
Medium	36	22	61.1%
Soft	49	45	91.8%
Position			
Anterior	52	42	80.7%
Central	34	23	67.6%
Posterior	14	4	28.5%
Station of head			
- 3 to -2	57	35	61.4%
- 1 to +2	43	34	79.0%

Bishop score > 4 increased the score in the admission scoring system giving a high success rate of VBAC (Am J Jan.1996).

In my study, the cervical dilatation of >4 cms had VBAC success rate of 82.0% and effacement of >80% had VBAC success rate of 74.1% compare to Flamm Bruce et al 75% VBAC and (Obst. & Gyn J. Dec. 1997).

Augmentation of labour: Among the 100 cases, 28 cases had ARM done and in 14 cases labour as accelerated with 2.5 units of syntocinon drip.

	Total cases	No. of cases with syntocinon drip	Percentage
Weinstein et al ⁽⁴²⁾	471	30	6.4
Present study	100	14	14

In maternal – fetal medicine unit network study reported by Landon and Colleagues (2004): uterine rupture was more frequent in those women induced with oxytocin alone 1.1 percent compared with those in spontaneous labour 0.4 percent.

The table shows the VBAC success rate with respect to total score as per the scoring system devised by Weinstein et al.

Total score	Weinstein et al (471 cases) 1996 VBAC %	Present study (100 cases) VBAC %
> 4-5	58	50
> 6-7	67	62.5
> 8-9	78	66.6
> 10-11	85	75
> 12	88	77.7

The above study shows, increasing score had a high VBAC success rate in the trial for vaginal delivery.

Exploration of Scar: Exploration of the scar was not done routinely.

Maternal Mortality: There was no maternal deaths in our study.

Perinatal Morbidity and Mortality: In the present study of 100 cases the 5 minute apgar score above 8 was 91%. Of the 9% of cases who had Apgar score less than 8, there was no perinatal deaths.

Conclusion

A trial for vaginal delivery after one caesarean section should be encouraged. An attempt is made to identify the possible prognostic factors like Bishop score, history of vaginal delivery prior to previous caesarean section and the past indications of primary caesarean section at the time of admission. Scoring system will help to identify women with a greater chance for vaginal delivery, and reduce the repeat caesarean section rate.

References

1. American Academy of Paediatrics and the American College of Obstetricians and Gynecologists: Guidelines for Perinatal Care, 6th ed 2007.
2. American College of Obstetrician and Gynaecology: Committee on Obstetrics Practice: Introduction of labour for vaginal birth after caesarean delivery. ACOG committee opinion No.342, 2006.
3. American College of Obstetrician and Gynaecology Practice bulletin. Vaginal birth after pervious caesarean delivery. No.5 July1999. Clinical management guidelines for Obstetrician – Gynecologists. ACOG Int. J Gynaecal Obstet. 1999;66:197-204 (Medline).
4. American College of Obstetrician and Gynaecology: Vaginal birth after previous caesarean delivery. Practice Bulletin No.54 July'2004.
5. Cahill AG, Waterman BM, Stamito DM, et al: Higher maximum doses of oxytocin are associated with an unacceptability high risk for uterine rupture in patients attempting vaginal birth after caesarean delivery. Am J. Obstet. Gynecol 199; 32 et, 2008.
6. Flamm BL, Geigu AM. Vaginal birth after caesarean delivery: An admission scoring system. Obstet. Gynecol. Dec 1997;90(6):907-10 (Medline).
7. Flamm BL, Newman LA, Thomas SJ, et al: Vaginal birth after caesarean delivery: Result of a 5 year multicenter collaborative study. Obsetet. Gynecol 76:750,1990.
8. Hendler I, Gauthier RJ, Bujold F: The effects of prior vaginal delivery compared to prior VBAC on the outcome of current trial of VBAC (Abstract 384). J Soc. Gynecol Investig 11:202A, 2004.
9. Hibbard JV, Ismail MA, Wang Y, Tec, Karison T, Ismail MA, Failed VBAC; How risky it is? I. Maternal morbidity. Am J. Obstet Gynecol 2001;184:1364-71: discussion 1371-3 9Level II-2).
10. Hook B. Kiwi R, Amini SB, Funacereff A. Hack M. Neonatal morbidity after elective repeat caesarean section and trial of labour. Paediatrics 1997;100:348-53. (Level II-2).
11. Hoskins IA, Gomez JL. Correlation between maximum cervical dilatation at caesarean delivery and subsequent vaginal birth after caesarean delivery. Obstet. Gynecol 1997;89:591-3 (Level II-2).
12. Landon MB, Leindecker S, Spong CY et al: The MFMU caesarean registry: Factor affecting the success of trial of labour after caesarean delivery Am J Obstet Gynecol 193:1016,2005.
13. Mukherjee SN. Rising Caesarean Rate. J. Obstet. Gynaecal India 2006;56:298-300.
14. Rageth JC, Juzi C, Grassenbacher A. Delivery after previous caesarean: a risk evaluation. Swiss working group of Obstetrics and Gynaecologic Institutions. Obstet. Gynaecal 1999;93:332-7 (Level-III).
15. Ravasia DJ, Wood SL, Pallard JK: Uterine rupture during induced trial of labour among women with previous caesarean delivery. Am J. Obstet Gynecol 183:1176, 2000.
16. Rosen MG, Dickinson JC, Westhoff CL Vaginal birth after a caesarean: A meta – analysis of morbidity and mortality. Obstet. Gynecol. March 1991;77(3):465-70.
17. Shah Jitesh Mafatal, Mehta Mighava Narendabhai: Analysis of mode of delivery in women with previous one caesarean section. J. Obstet Gynecol India Vol. 59, No.2: March / April 2009.
18. Shah SR. Prasad P. Outcome of labour in previous lower segment caesarean section cases. Asian J. Obstet Gynecol Pract. 2006;10:7-11.
19. Tripathi JB. Doshi HV. Pattern of cervical dilation in women with previous caesarean section. J. Obstet. Gynecol India 2005;55:125-7.
20. Uygue D, Gun O, Kelekci S, Oztuk A, Ugaur M, Mungan T. Multiple repeat caesarean section: is it safe? Ul J. Obstet Gynecol Reprod Biol 2005;119 ejab 2006,07,022 [Medline].
21. Weinstein D. Benschushan A, Tauas V. Zilbustein R, Rajansky N. Predictive score for vaginal birth after caesarean section Am J. Obstet Gynecol. Jan 1996;174 (1 pt 1): 192-8 [Medline].
22. Zelop CM, Shipp TD, Cohen A, Repke JT, Liberman E. Trial of Labour after 40 weeks gestation in women with prior caesarean. Obstet. Gynecol 2001;97:391-3 (Level II-2).
23. Zelop CM, Shipp TD, Repke JT, et al: Effect of previous vaginal delivery on the risk of uterine rupture during a subsequent trial of labour. Am J Obstet. Gynaecol 183:1184, 2000.
24. Zelop CM, Shipp TD, Repke JT, et al: Outcome of trial of labour following previous caesarean delivery among women with fetuses weighing > 4000 gm. Am. J. Obstet. Gynecol 185:903,2001.