

VAGINAL BIRTH AFTER CAESAREAN VERSES ELECTIVE REPEAT CAESAREAN SECTION- A COMPARATIVE STUDY

Tanya Salim¹, Rinku Girija², Sujatha Yesoda³

¹Assistant Professor, Department of Obstetrics and Gynaecology, Government Medical College, Trivandrum.

²Assistant Professor, Department of Obstetrics and Gynaecology, Government Medical College, Trivandrum.

³Professor, Department of Obstetrics and Gynaecology, Government Medical College, Trivandrum.

ABSTRACT

BACKGROUND

The caesarean section rate has seen an upward trend in the past few decades. Women with previous caesarean section contributes 40-50% of these. So a decrease in this group can go a long way in reducing the caesarean section rate.

AIM

To compare the maternal and perinatal morbidity and mortality between cases of vaginal birth after caesarean and elective repeat caesarean section.

MATERIALS AND METHODS

A prospective comparative study was carried out in a tertiary care centre for a period of nine months.

RESULTS

The neonatal morbidity was comparable in the two groups as evidenced by the Apgar scores and NICU admissions. Though there was no significant difference in major causes of maternal morbidity between the two groups, the duration of hospital stay was significantly greater in the elective caesarean groups.

CONCLUSION

VBAC is a safe and better alternative in most women with history of prior caesarean delivery instead of subjecting her to a repeat caesarean.

KEYWORDS

VBAC, Elective Repeat Caesarean Section, Trial of Labour, Scar Rupture.

HOW TO CITE THIS ARTICLE: Salim T, Girija R, Yesoda S. Vaginal birth after caesarean verses elective repeat caesarean section- a comparative study. J. Evid. Based Med. Healthc. 2017; 4(7), 342-346. DOI: 10.18410/jebmh/2017/65

BACKGROUND

The principle of "once a caesarean, always a caesarean" was first put forward by Dr. Edwin Cragin.¹ in an article in New York medical journal in 1917. His intention had been to advise against increasing incidence of primary caesarean by pointing out the significant risk for the subsequent pregnancy. However this phrase set a dictum in obstetrics that set a trend of repeat caesarean section.

Any programme which aims to reduce the unnecessary caesarean deliveries should be focused on educational efforts and peer review encouraging a trial of labour after a previous lower segment transverse caesarean and restricting caesarean for labour dystocia to women who meet strictly defined criteria. The present dictum is once a caesarean section always an institutional delivery in a well-equipped

hospital with facilities for emergency caesarean section. The reason for this change in dictum has been improved modes of foetal monitoring and facilities for emergency caesarean section. This study was undertaken to assess the safety and feasibility of VBAC in selected women with previous one caesarean section and compare their maternal and perinatal outcomes with women who underwent elective repeat caesarean. Though American College of Obstetricians and Gynecologists had first published its guidelines on vaginal birth after caesarean in 1982, wide variations in vaginal birth after caesarean rate exist between hospitals. This study was conducted with idea of encouraging more physician and women to opt for a vaginal delivery instead of undergoing a repeat caesarean section.

AIMS AND OBJECTIVES

To compare the maternal and perinatal morbidity and mortality between cases kept for vaginal birth after caesarean and elective repeat caesarean section.

MATERIALS AND METHODS

This was a prospective comparative study conducted in Sree Avittom Thirunal Hospital, Thiruvananthapuram, which is a tertiary care teaching centre over a period of 9 months. Ours

Financial or Other, Competing Interest: None.

Submission 31-12-2016, Peer Review 07-01-2017,

Acceptance 20-01-2017, Published 21-01-2017.

Corresponding Author:

Dr. Tanya Salim,

Shadi Manzil, Attinkuzhy,

Kazhakuttom, Trivandrum,

Kerala-695582.

E-mail: drtanyasharmad@gmail.com

DOI: 10.18410/jebmh/2017/65



is a referral centre where around 9000 deliveries take place annually. Because of the high referral rate, we also have a high caesarean section rate of 45% of which around 40-45% are constituted by cases of previous caesarean section.

This study included 100 women who were cases of previous one transverse lower segment caesarean section. Group I included 50 women who were taken for Vaginal birth after caesarean and Group II included 50 women who had an elective repeat caesarean section. Cases with suspected cephalopelvic disproportion, birth weight less than 2 kg and more than 4 kg, intrauterine death, preterm, malpresentation and other obstetrical complications were excluded from the study. In the vaginal birth after caesarean group we took patients who presented in spontaneous labour. The patient and relatives were counselled regarding the advantages of vaginal delivery over caesarean and also about risk of scar dehiscence and need for emergency caesarean section. The patients consent was given utmost importance and an informed consent was taken. During this study period elective induction of labour was done for previous caesarean section only in cases of intrauterine death in our institution. They were not included in the study group. All cases were examined by a senior obstetrician and monitored carefully with a continuous cardiotocography with look out for evidence of scar dehiscence. Progress of labour was monitored using a partogram. All cases were provisionally kept ready for caesarean section and emergency caesarean was done in case of signs of scar tenderness, foetal distress or delayed progress of labour. During this period there were 1369 repeat caesarean sections of which 50 were included in group II.

Statistical Analysis

The data regarding maternal and fetal parameters in the two groups were collected using a structured proforma and compiled and analysis was performed. All values are expressed in proportions and percentages and significance determined.

RESULTS

In this study majority of women in both groups fall in the age group 25 to 29 years. In the vaginal birth after caesarean group there were no women of age more than 35 years while 4% of women in the elective caesarean group were aged more than 35 years. Majority of women in both groups had an education up to 10th standard which reflects the admission statistics of our institution. 76% of women in the VBAC group and 62% women in the caesarean group had an income of <1000. Most of the women in both groups were unemployed. The women in both groups were comparable in term of age, education, occupation and income. Among the women in VBAC group, 6% had history of abortion while in the elective caesarean section group 30% gave history of abortion. The P value was <0.05 and the difference was statistically significant. 30% of women kept for VBAC had history of previous vaginal delivery either before or after the caesarean section, While only 10% women delivered by repeat elective caesarean gave a similar

history. The difference between the two groups was found to be significant. Presence of a previous vaginal delivery is one of the most important predictive factors of successful VBAC.

Previous Vaginal Delivery	Group I		Group II	
	Number	%	Number	%
Present	15	30	5	10
Absent	35	70	45	90
Total	50	100	50	100

Table 1. Distribution According to History of Previous Vaginal Delivery

$$\chi^2=6.3, df=2, P<0.05$$

There was no significant difference in presence of antenatal complications in the two groups. Hypertensive disorders accounted for maximum number of maternal morbidity in VBAC group (8%) while GDM topped the list in the elective caesarean group (10%)

Outcome	Number	%
Normal delivery	35	70
Vacuum	10	20
Forceps	3	6
Emergency caesarean	2	4
Total	50	100

Table 2. Mode of Delivery

Of the 50 cases kept for a trial of labour, only two had a failed trial and emergency caesarean section had to be done. One was done for foetal distress and the other for non-progression of labour. All the women kept for VBAC had spontaneous onset of labour and had presented in active phase of labour. The success rate of VBAC in this study was 96%. Of this 35 i.e. 70% had normal delivery, vacuum extraction was done in 10 cases (20%) and forceps application in 3 (6%). The mean birth weight in the VBAC group was 2.86 and in group II was 2.91. This slightly higher weight was not statistically significant.

There were no cases of still birth or neonatal death in either group. The perinatal morbidity in each group was assessed by comparing the Apgar score at 5' and the rate of admission to the neonatal intensive care unit.

Apgar Score	Group I		Group II	
	Number	%	Number	%
Apgar>7	49	98	49	98
Apgar<7	1	2	1	2
Total	50	100	50	100

Table 3. Distribution According to Apgar

One baby in each group had an Apgar of <7 and was mildly asphyxiated at birth. Both babies recovered after resuscitation. In the VBAC group, it was the baby of the woman who had a failed trial, due to foetal distress who was asphyxiated.

Neonatal ICU Admission	Group I		Group II	
	Number	%	Number	%
No Admission	48	96	45	90
Admission	2	4	5	10
Total	50	100	50	100

Table 4. Distribution According to Neonatal ICU Admission

$$\chi^2 = 0.61, P < 0.05$$

In the VBAC group, 4% of neonates had to be admitted while in the elective CS group, 10% had to be admitted to the neonatal ICU. The χ^2 test was conducted and P value was >0.05 . Thus with regard to Apgar scores and neonatal ICU admission, the study found no significant difference in perinatal morbidity in babies of women kept for VBAC and those who had an elective caesarean section.

The maternal complication in the intrapartum and postpartum period were analysed. There was no case of scar dehiscence in either group.

Complication	Group I		Group II	
	Number	%	Number	%
No complications	48	96	49	98
Complication	2	4	1	2
Total	50	100	50	100

Table 5. Distribution of Intrapartum Complications

$$\chi^2 = 0.31, P > 0.05$$

In the VBAC group 96% did not have any complications during delivery. One woman who delivered vaginally had a cervical tear which had to be sutured and another woman who had an emergency caesarean section developed atonic post-partum haemorrhage. Blood transfusion had to be given in both the patients. Among the women who underwent elective caesarean section, one developed postpartum haemorrhage and required blood transfusion. There was no statistically significant difference in intrapartum complications in the two groups. All the women in the study were followed up in the postnatal period till discharge from the hospital.

Postpartum	Grade 1		Grade 2	
	Number	%	Number	%
Uneventful	49	98	41	82
With morbidity	1	2	9	18
Total	50	100	50	100

Table 6. Distribution According to Postpartum Morbidity

$$\chi^2 = 2.8, P > 0.05$$

Postpartum Morbidity	Group I		Group II	
	Number	%	Number	%
Fever	1	2	3	6
Respiratory infection	0	0	3	6
Urinary infection	0	0	2	4
Wound infection	0	0	1	2
Total	1	2	9	18

Table 7. Distribution According to Postpartum Morbidity

The postpartum morbidity was lesser in the VBAC group ie 2% versus 18% in the elective CS group. Only one women in the VBAC group developed fever. This was the woman who had underwent emergency caesarean section for non-progression of labour and also received one pint blood transfusion. In the caesarean group, maximum morbidity was due to fever and respiratory tract infection. The Z test was conducted and P value was found to be >0.05 . Thus according to this study, there was no statistically significant difference in major causes of maternal morbidity in the two groups.

	Group I	Group II	
Mean	2.95 days	7.42	T=34.4
Standard deviation	0.6	0.7	df = 98
			P<0.001

Table 8. Duration of Hospital Stay

Duration of hospital stay reflects both postpartum morbidity as well as cost involved in a delivery. The mean and SD was calculated for each group. The women in VBAC group had an average duration of hospital stay of 2.95 days while those in the elective CS group had 7.42 days. The t test was applied $t = 34.4$, P value was <0.001 which showed a very significant association.

DISCUSSION

This study tries to focus our attention on the importance of VBAC as an effective choice in the management of most women with history of previous caesarean section instead of subjecting them to an elective repeat caesarean section. It also tries to enlighten us regarding the lower rates of maternal morbidity and lesser hospital stay in women undergoing VBAC compared to elective caesarean section.

A strong association was noted between history of previous vaginal delivery and chances of VBAC. Schneider et al in a study had described prior vaginal deliveries as an excellent predictive indicator of successful VBAC² as had Chaudhari DR, Schinde Sm et al at 2003.³ Prior vaginal delivery is also said to have a protective effect against risk of scar rupture as described by George A et al⁴ and Brian M Marcus MD et al⁵. The caesarean section group contained significantly higher number of women who had a previous abortion. This may reflect the obstetricians fear that abortion may weaken a caesarean scar.

As a hospital policy, induction in a case previous caesarean section is resorted to in only case of intrauterine death in our institution. So all cases in group I had presented with spontaneous labour and most of them in active phase. Oxytocin augmentation was done where thought necessary. In this study group, only two women had a failed trial of labour and the success rate of VBAC was 96%. This is higher than that demonstrated by most studies which fall between 68 to 83%.^{6,7} Several studies have shown that spontaneous onset of labour in one of the positive predictive factors for a favourable outcome in VBAC. Landon et al had also reported a cervical dilatation of more than 3 cm to be a favourable factor in promoting vaginal delivery.⁶ These factors together may be responsible for the higher success rate for VBAC in this study. Several investigators all over the world have studied and recommended the use of induction of labor in women with previous LSCS, the only necessity being close monitoring of the patient. American College of Obstetricians and Gynecologists recommends close monitoring with continuous cardiotocography and intrauterine pressure monitoring.

There were no cases of maternal mortality or scar dehiscence in either group. The American College of Obstetricians and Gynecologists has estimated a risk of scar rupture in previous lower segment caesarean section to be 0.2–1.5%.⁸ Careful monitoring, early detection and immediate caesarean delivery can prevent any catastrophic maternal and perinatal morbidity and mortality associated with scar rupture. Studies by Phelan et al, Catherine Y Spong, Mank B Landon et al have all shown low rates of scar rupture in VBAC.^{9,10} The intrapartum complications in the two groups were comparable. The risk of postpartum hemorrhage and blood transfusion were more in the caesarean group though not statistically significant. Though clinically insignificant the women who underwent elective repeat caesarean section had higher postpartum morbidity in the form of mainly respiratory infection and febrile morbidity. Intrapartum complications in the two groups were comparable. Similar studies by Miler et al, De Muylder et al also support that women who delivered vaginally had an earlier postpartum recovery. Guise J.M. et al found no significant difference in overall infection risk associated with trial of labour and less risk of haemorrhage and transfusion compared to elective caesarean 0.9% to 1.2%.¹¹ The association of fever was seen with women who had a caesarean section either elective or following failed VBAC thus suggesting surgery as a risk factor for febrile morbidity.

There was no perinatal mortality in either group. Neonatal morbidity in the form of low Apgar was seen in 1% babies in each group. The percentage of babies who required neonatal ICU admission was slightly higher in the elective caesarean group, 10% versus 4%. Studies by Landon et al and Phelan et al did not show any absolute increase in risk of neonatal morbidity following VBAC.^{9,6}

The duration of hospital stay was predictably higher in the caesarean section group. The women who had a successful trial were discharged on 2nd or 3rd day similar to any woman who had a vaginal delivery while those who had

an elective caesarean section were discharged on day 6 or 7 even if they had no complications. Similar observation were made by other workers.^{12,13} The post-partum morbidity, expenses of surgery and increased hospital stay all contributed to the increased expenditure associated with delivery in the caesarean section group.⁸

It has to be noted that in the present study in the VBAC group, it is mainly the women who had a failed trial of labour and had an emergency caesarean section who contributed to the intrapartum, postpartum and neonatal morbidity. Hence the importance of proper selection, counselling, monitoring and early decision making. In the present scenario of litigations, shared decision making is important. Proper selection of patients involving a balance between risk and success in acceptance to both patients and clinicians is important.

Limitations of the study: Induction of labour was not resorted to in any of the women. We have been highly selective in choosing the candidates for VBAC and most were in active phase of labour.

CONCLUSION

With integrated efforts of the physicians, the patient and all other staff in the labour room and availability of facilities for monitoring and for performing emergency caesarean section, it is definitely possible to bring down the rate of caesarean sections.

REFERENCES

- [1] Cragin EB. Conservatism in obstetrics. NY Med Journal 1916;104:1-3.
- [2] Schneider J, Gallego D, Benito R. Trial of labour in patients with a prior caesarean section and an intervening vaginal delivery. Australia New Zealand Obstet Gynecol 1987;27(3):178-179.
- [3] Chaudhary DR, Shinde SM. Clinical profile and outcome of labour in cases following previous caesarean section. International Journal of Health Sciences and Research 2012;2(9):1-12.
- [4] Macones GA, Peipert J, Nelson DB, et al. Maternal complications with vaginal birth after caesarean delivery: a multicentre study. Am J Obstet and Gynecol 2005; 193(5):1656.
- [5] Mercer BM, Gilbert S, Landon MB, et al. Labor outcome with increasing number of prior vaginal births after caesarean delivery. Obstet Gynecol 2008;111(2 Pt 1):285-291.
- [6] Landon MB, JC Hauth, Leveno KJ, et al. Maternal and perinatal outcome associated in the trial or labor after prior caesarean delivery. New England Journal of Medicine 2004;351(25):2581-2589.
- [7] Saraogi R, Vaidya PR. Partogram in case of previous caesarean section. J Obstet Gynecol India 1979;29:745-749.

- [8] ACOG practice bulletin. Vaginal birth after previous caesarean delivery No. 2, Oct 1998. Clinical management guidelines' for obstetrician-gynaecologists. ACOG. Int J Gynaecol Obstet 1999;64(2):201-208.
- [9] Phelan JP, Clark SL, Diaz F. Vaginal birth after caesarean. Am J Obstet Gynecol 1987;157(6):1510-1515.
- [10] Spong CY, Landon MB, Gilbert S, et al. Risk of uterine rupture and adverse perinatal outcome at term after caesareans delivery. Obstet Gynecol 2007;110(4):801-807.
- [11] Guise JM, Eden K, Emeis C, et al. Vaginal birth after caesarean-new insights. Evidence report and Technology assessment No.191. (prepared by the Oregon Health and Science University Evidence based practice centre 2010).
- [12] Traynor JD, Peaceman AM. Maternal hospital charges associated with trial of labor versus elective repeat caesarean section. Birth 1998;25(2):81-84.
- [13] Gibbs CE. Planned vaginal delivery following caesarean section. Clin Obstet Gynecol 1980;23(2):507-515.