

A study on mode of delivery and conduct of labour in women with vaginal birth after caesarean section in Dhulikhel Hospital

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ABSTRACT

Vaginal birth after caesarean section is the delivery of a baby through the vagina after a previous cesarean delivery. For this to be conducted safely and responsibly emergency obstetric care must be available. To study the different modes of delivery in Dhulikhel Hospital (DH), evaluate the frequency of attempted and successful vaginal birth after caesarean section and, in the VBAC group, to identify those factors that may influence outcome and safety. The study was a retrospective study of all women who were delivered via different routes and the subgroup who underwent attempted vaginal birth after caesarean section in DH from January 2007 to December 2009. In this study factors associated with the successful VBAC were also analyzed. During the study period a total of 4215 deliveries conducted in DH and a total of 890 lower segment caesarean sections (21.1% of all deliveries) were performed. Of the 890 caesareans performed, 743 were primary and 147 were repeat (69 were repeat elective and 78 were repeat emergency). In this period an additional 33 women with previous lower segment caesarean sections had a successful vaginal delivery. Hence 18.3% (33/180) vaginal birth after caesarean sections was conducted successfully among women with previous caesarean. The results of this study indicate that vaginal birth after caesarean section is a clear feature of obstetric practice in DH. This is possible because of the vigilance in managing these women and the availability in this hospital setting of resources for immediate cesarean section.

Keywords: Vaginal birth after caesarean section, cephalo pelvic disproportion, uterine rupture.

INTRODUCTION

Vaginal birth after caesarean section (VBAC) is the delivery of a baby through the vagina after a previous cesarean delivery. A previous caesarean section (CS) is one of the main factors in the decision making process for elective CS in multiparous women.¹ Generations of obstetricians were brought up with the proverb 'once a caesarean, always a caesarean' coined by Cragin in 1916,² ironically in an effort to stress that one of the risks of a primary caesarean section was the more dangerous repeat operation. Over the last two decades, CS rates have been rising in many parts of the world, leading to a significant population of women with previous CS.³

In the early 1980s, less than 10 percent of women with previous CS were allowed a trial of labour⁴, with the concern being that of risk of rupture of the scar in the uterine scar. Given the high national rate of caesarean delivery in current obstetric practice, patients considering VBAC in subsequent pregnancies are frequently encountered.⁵

However, in 1980 a National Institute of Health Consensus Development Conference panel questioned

the necessity of routine repeat cesarean deliveries and outlined situations in which VBAC could be considered. The option for a woman with a previous cesarean delivery to try to labor and deliver vaginally rather than plan a cesarean delivery was thus offered and exercised more often from the 1980s through the early 1990s. Any strategy aimed at reducing CS rates, must encourage vaginal delivery where appropriate. About 70 percent of women with previous CS may have a trial of vaginal delivery, with about 80 percent succeeding. This implies that the overall rate of subsequent vaginal delivery in these women is about 55.0%.⁶

Several studies performed in the 1960s and 1970s⁷ along with larger studies performed in the 1980s^{8,9} confirmed the safety of vaginal delivery after previous caesarean section (transverse lower segment uterine incisions). Likewise no significant increase in maternal and infant mortality and morbidity were associated with women having vaginal delivery subsequent to cesarean birth as compared to those with repeat caesarean section. These findings were derived from the two Asian teaching hospitals, one in Jakarta, Indonesia and the other in Colombo, Sri Lanka), in spite of the different medical care delivery systems in their countries.¹⁰

MATERIALS AND METHODS

This retrospective study of women was conducted in Dhulikhel Hospital (DH) (Kathmandu University Hospital) from January 2007 to December 2009 and looked at total delivery rates and modes of delivery. Additionally factors associated with the successful attempts of VBAC were also analyzed.

All cases with a history of one caesarean delivery without a clear contraindication for vaginal delivery were counselled on risk and benefit of VBAC and taken verbal consent for VBAC. These cases were monitored closely with the use of partogram and continuous CTG (Cardiotocography). Forceps and vacuum were available for use to cut short second stage of labour and cervix was checked for tear soon after delivery of placenta. None of the VBAC cases were induced but 5 were postdated when they presented to the hospital in active stage of labour. All successful VBAC cases were admitted in the hospital for a minimum of 72 hours to exclude any complications.

RESULTS

There were 4215 deliveries in the study period of which 890 were caesarean. There were also 140 instrumental deliveries during the same period.

Among the 890 caesarean cases 743 were primary caesareans, 69 elective repeat caesareans and 78 emergency repeat caesareans. It is clear that most of the caesarean cases were primary and were done for foetal distress, primi breech and contracted pelvis (Fig. 1).

Over the study period 33 women had successful VBAC out of 180 cases with history of one previous caesarean who could be considered for vaginal delivery.

Among them there were 21 second gravida, 8 third gravida and 4 fourth gravida. In most of the cases previous caesarean was done for foetal distress (14 cases) followed by breech (10 cases) and antepartum haemorrhage (4 cases). The remainders were for non-progress in labour, transverse lie and pregnancy induced hypertension.

Of the 33 women with successful VBAC 26 received regular antenatal checkup in DH, 9 cases had a previous history of either one or more VBAC or vaginal births and 2 had preterm deliveries (one twin pregnancy and one case with an intrauterine death due to cord prolapse).

Most of the women who subsequently progressed to successful VBAC presented to the hospital in the active stage of labour and delivered within expected time period. During delivery process, vacuum was used in 10 cases and forceps in 5 to cut short the second stage

of labour (Fig. 2 and 3). All the babies born were of good weight (Table-1).

DISCUSSION

In 1999, the American College of Obstetricians and Gynecologists advocated a policy that surgical capability be "immediately available" for women in labor attempting VBAC.¹¹ DH is equipped with the resources required for an immediate cesarean section along with obstetric, paediatric, anaesthetic and nursing staff.

A total of 4215 deliveries were conducted in DH and with 890 caesarean sections (21.1%) consistent with it being a tertiary care hospital. As a referral centre, significant numbers of cases were referred from peripheral or neighbouring district based government institutions for emergency obstetric care contributing to the higher primary caesarean delivery rate.

The success rates for vaginal delivery after caesarean section when all indications for the primary operation are considered, is up to 75.0%.^{8,9,12} In DH 33 women had successful VBAC. In the same period 147 women had repeat caesarean.

The risk of uterine rupture is approximately 1.0% with a low transverse uterine incision, while it may be as high as 10.0% with a prior classical uterine incision and thus in the latter group trial of labour is generally contraindicated. In order to make trial of labour safer, it is important to have a high index of suspicion such that detection of uterine rupture is not delayed and early detection is followed by rapid intervention to improve maternal and fetal outlook. We operated on 19 women in the planned VBAC group for scar tenderness but none of them were found to have scar rupture or dehiscence except few cases with thin lower uterine segment peroperatively.

Large studies looking at prostaglandin gel,¹³ and oxytocin,¹⁴ have indicated that they are safe to use in women with a previous caesarean section. It is deemed prudent to exercise caution when inducing or augmenting labour in patients with a uterine scar. None of our VBAC cases were induced but there was selective use of oxytocin for augmentation purpose in few cases.

In the literature it is reported that the VBAC success rate can rise incrementally from 63.3 to 91.6% in patients that had from zero to four or more prior successful VBACs. Uterine rupture and peripartum risks decreased by 50.0% after the initial successful VBAC and did not increase with increasing prior VBAC number. Neonatal morbidity did not increase with increasing VBAC number.¹⁵ In fact, in patients with a prior vaginal delivery; VBAC appears to be safer from the maternal standpoint

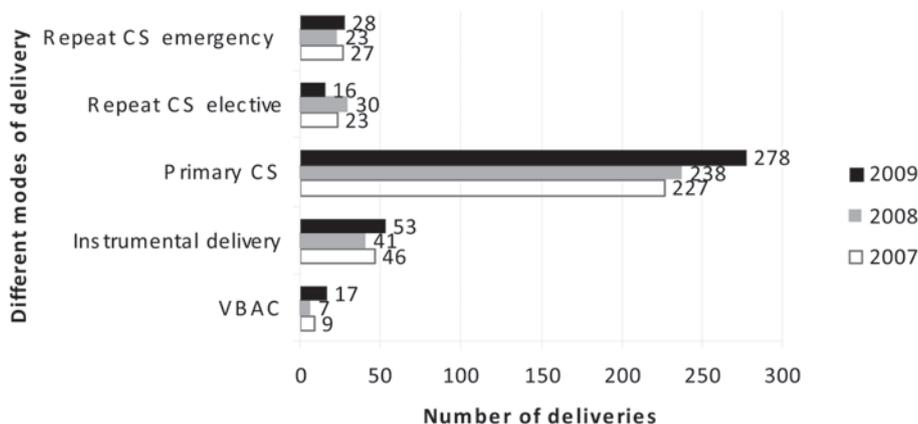


Fig. 1. Different modes of delivery (except normal vaginal delivery) in Dhulikhel Hospital (DH) from 2007 – 2009

than repeat caesarean.¹⁶ Women with no prior history of vaginal delivery are considered less favorable, the vaginal birth after caesarean success rate may be even lower if the indication for previous primary caesarean delivery was failure to progress, and may be associated with increased risk of uterine rupture.¹⁷ Previous CS for suspected CPD, dystocia or failure to progress in labor are associated with lowest chance of subsequent successful trial if vaginal delivery.^{6,18} In this study, out of 33 cases, 11 cases had a previous history of either one or more VBAC or vaginal births.

In a review of 102 women with one previous lower uterine segment caesarean section showed a successful vaginal delivery rate of 72.5%. The cervical dilatation rate, average cervical dilatation rate and the alert line were found to be significant predictors of the outcome of labour in VBAC.¹⁹

Women with caesarean for non-recurrent indications who achieved a cervical dilatation ≥ 8 cm may be the best candidates for VBAC, with the greatest likelihood of a successful VBAC. Among 1148 enrolled women, 956 (83.3%) achieved a successful VBAC. Birth weight, previous indication for caesarean delivery and oxytocin

augmentation were significantly associated with VBAC outcome.²⁰ Most of the women who subsequently progressed to successful VBAC presented to the hospital in the active stage of labour and delivered within expected time period.

Decisions around the next birth after CS are complex. Efforts to keep the first birth normal and support women who have had a CS to have a normal birth need to be made. More research to predict which women are likely to achieve a successful VBAC and the most effective ways to facilitate a VBAC is essential.

The results of this study indicate that VBAC is a clear feature of obstetric practice in DH. This is possible because of the vigilance in managing these women and the availability in this hospital setting of resources for immediate caesarean section.

We conclude that a checklist should be made for each patient when she is admitted for a trial of labor after a previous caesarean delivery. Complications of both procedures should be discussed and an attempt made to individualize the risk for uterine rupture and the likelihood of successful VBAC. Hence the elements of the checklist should guarantee the preparedness of the organization, compliance with national standards, and the consent of the patient for attempted VBAC.



Fig. 2. Forceps being used to cut short second stage of labour in a woman with attempted VBAC in Dhulikhel Hospital



Fig. 3. This figure clearly shows the previous vertical scar in the abdomen

Year	Parity	Indication of previous caesarean	Any previous Vaginal birth	Booked/ supervised/ unsupervised	Period of gestation	Cervical dilatation and duration of labour	Any use of instruments	Birth weight
2007	Gravida 2-5 Gravida 3-4	Foetal distress - 5 Breech- 2 NPOL - 1 APH - 1	Prev 1 VBAC - 2 Rest - none	6 cases booked 2 cases supervised 1 case unsupervised	1 case preterm 1 case postdated Rest cases term	Avg Cx dilatation >- 6 cm Avg duration of labour 7.40 hrs	No use of instruments - 4 Forceps - 4 Vacuum - 1	Avg birth wt - 2978 gram Max birth wt - 4250 gram
2008	Gravida 2-5 Gravida 4-2	Breech-4TL-1 Oligohydramn-1 Foetal distress-1	Prev 2 VBAC - 1 Prev 1 VBAC - 1, VB - 1 Prev 1 VB - 1 Prev 1 VBAC - 1 Rest - none	All booked	1 case preterm Rest cases term	Avg duration of labour - 6.33 hrs	No use of instruments-5 Vacuum - 2	Avg birth wt - 2701 gram Max birth wt - 3770 gram
2009	Gravida 2-11 Gravida 3-4 Gravida 4 - 2	Foetal distress-8 Breech - 4 APH - 3 PIH - 1 Oligohydramn-1	Prev 1 VBAC - 4 Rest - none	11 cases booked Rest supervised	4 cases post dated Rest cases term	Avg Cx dilatation >- 5 cm Avg duration of labour - 7.01 hrs	No use of instruments - 6 Vacuum - 7 Forceps - 1	Avg birth wt - 2776gram Max birth wt - 3900 gram

Table-1: Analysis of VBAC conducted in Dhulikhel Hospital (DH) from 2007 – 2009

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