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Vaginal Birth after Cesarean Delivery : Variables affecting Outcome

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Abstract

In this retrospective study, case records of 156 women with previous one cesarean who underwent trial of labour were analysed. Use of oxytocin, previous vaginal delivery and indication of previous cesarean were studied as predictive factors for success. One hundred out of 156 (64.1%) women with previous cesarean section delivered vaginally. 2.56% of women experienced uterine rupture. The only variable that predicted successful outcome was previous vaginal delivery. Use of oxytocin and indication of previous cesarean did not affect the success rate of vaginal birth after cesarean.

Key Words

Cesarean section; Vaginal delivery.

Introduction

Cesarean section rates have been steadily increasing in most countries of the western world, accounting for a quarter of infants delivered (1). In India too, depending on the institution, the cesarean rates varies from 7 to 25%. Despite the evidence from a large number of studies attesting the safety of vaginal birth after cesarean section (VBAC) and ACOG recommendations, only a small fraction of women with previous cesarean (12.6%) give birth vaginally in the United States (2). Data regarding Indian women who are allowed VBAC is scarce. In our hospital it is a policy to allow VBAC in all women who meet the eligibility criteria.

Several factors like cervical dilatation at previous cesarean, gestational age, indication of previous cesarean, need for oxytocin have been considered for predicting success in women undergoing VBAC. In this retrospective study we have tried to analyse some of these variables.

Material and Methods

In this retrospective study 156 consecutive women with previous cesarean who experienced trial of labour in a single clinical unit between Jan 1995 to Dec 1997 were included. Women with previous classical uterine incision, previous uterine rupture, unrepaired dehiscences, obstetric contraindication to labour were excluded. No attempt was made to screen candidates based on relative likelihood of success. Each patient was counselled about the risks and benefits of undergoing trial of labour and delivering vaginally. Data was analysed by going through the case sheet of each patient.

The use of oxytocin, previous vaginal delivery and indication of previous cesarean delivery were studied as predictive factors. Attention was also given to the incidence of uterine rupture and maternal and perinatal morbidity resulting from uterine rupture. The status of uterine scar was not routinely assessed by manual

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exploration after vaginal delivery. A note of presence or absence of scar dehiscence was made at the time of repeat cesarean.

During the first half of study period electronic monitors were not available, thus the fetal heart was monitored by intermittent auscultation. While during the second half of study electronic fetal monitors were used for all patients. Decisions regarding patient management was made by one of the three attending physicians.

Data was analysed using Normal test for proportion (Z=2, significant) or student's chi square test (p< .05, significant) as applicable.

Results

One hundred of 156 (64.1%) women with previous cesarean delivered vaginally, of these 16 (16%) were assisted deliveries with low forceps. Two patients out of 156 had undergone 2 previous cesareans, both delivered vaginally.

Eighty seven patients had spontaneous onset of labour. Of these 54 (62.1%) delivered vaginally. Oxytocin was used in patients deemed to have an inadequate labour patterns or those for whom induction of labour was required. In 45 cases labour was induced using oxytocin with 66.67% vaginal delivery rate, similarly 66.67% of 24 patients who required oxytocin for augmenting labour delivered vaginally (Table 1). These values were not statistically significany, Z=1.57.

Table 1

Oxytocin and labour outcome in women undergoing trial of labour after previous cesarean

N = 156

		Vaginal Delivery	Cesarean Section
Spontaneous labour (87)		54 (62.1%)	33 (37.9%)
Oxytocin use (69)	Induction (45)	30 (66.67%)	15 (33.33%)
	Augmentation (24)	16 (66.67%)	8 (33.33%)

Normal Test for proportion Z = 1.57, NS

Patients who had previous vaginal delivery had a higher success rate of vaginal delivery after previous cesarean vs those who had none (84.2% vs 57.6%, p<.001, Normal test).

We examined the indications for previous cesarean section on a case by case basis to assess the influence on success rate of VBAC. Some patient had more than one indication , the most appropriate was taken for analysis. The indication for previous cesarean was not known in 12 cases. Two patients with 2 cesareans had different indications for both cesareans and were excluded to avoid bias. The most common indications were fetal distress, non progress of labour (NPOL) and breech presentation (Table 2).

Table 2

Indication for primary cesarean and mode of delivery

N = 154

	Vaginal Delivery	Cesarean Section
Fetal distress (48)	29 (58%)	19 (42%)
Breech/Malptn. (29)	20 (71.4%)	9 (28.6%)
NPOL (23)	14 (63.63%)	9 (36.37%)
CPD (7)	3 (42.85%)	4 (57.15%)
Others (35)	22 (63.14%)	13 (36.86%)
Not known (12)	9 (75%)	3 (25%)

(P = NS, Chi. Square test)

Patients who had cesarean for failure to progress had a 63.63% success rate for completing trial of labour. This is comparable to overall success rate for vaginal delivery (64.1%) and the success rates for other indications (Table 2). Those with previous indication of fetal distress delivered vaginally 58% of time, breech and other malpresentations had a success rate of 71.4%. There was no statistically significant difference in rate of VBAC when different indications for previous cesarean were compared. The most common indications for failed trial were fetal distress, non progress of labour and suspected scar dehiscence (Table 3).

Table 3

Indications for present cesarean

N = 56

Fetal distress	14 (25%)
NPOL	13 (23.21%)
NPOL + fetal distress	2 (3.57%)
Suspected scar dehiscence	10 (18%)
Uterine rupture	2 (3.57%)
Meconium stained liquor	9 (16.7%)
Deep transverse arrest	2 (3.57%)
Cephalo-pelvic disproportion	1 (1.8%)
Severe PIH	1 (1.8%)
Failed induction	1 (1.8%)
Obstructed labour	1 (1.8%)

Four of our patients (2.56%) experienced true uterine rupture. In all four cases, uterine rupture involved the previous scar. In 2 of these, the manifestation was severe bradycardia, both the neonates died of severe birth asphyxia. In the third case laparotomy was performed for severe postpartum haemorrhage and scar rupture detected on opening the abdomen. The fourth patient had intrauterine death and received prostaglandin E2 gel thrice for cervical ripening followed by oral prostaglandin tablets and then oxytocin. She required breech extraction, vaginal palpation of scar revealed defect and she was taken up for laparotomy. Three of these patients required blood transfusion.

Ten cesarean sections were done for suspected scar dehiscence, all of these patiants had scar tenderness on abdominal examination and two had vaginal bleeding. On cesarean, scar dehiscence was confirmed in only those two cases who also had associated vaginal bleeding, No case of silent scar dehiscence was noted on repeat cesarean.

Ninety two percent of the infants born to patients, who were given trial of labour, had Apgar score > 8. Three newborns had Apgar score < 8, two were delivered at laparotomy following uterine rupture and in the third case there was scar dehiscence. In those women who delivered vaginally no infant had Apgar score <8 at 5minutes.

Discussion

Our 64% success rate for trial of labour after previous cesarean compares with 60 - 90% success rate reported in various studies (3-10). Most of the patients delivering vaginally had unassisted delivery. The rate of true uterine rupture (2.56%) in our study is high, there could be a bias because of small study sample. Two of the uterine ruptures occurred before we started using electronic fetal heart monitoring (EFM), in both of these the early sign was fetal bradycardia followed by vaginal bleeding. These two catasatrophic events could have been detected earlier and the neonates saved if EFM was used. This fact emphasises the importance of continuous FHR monitoring in women allowed trial of labour after previous cesarean section. We observed that fetal bradycardia and vaginal bleeding are diagnostic signs of uterine rupture. Tenderness over lower uterine segment on palpation is not accurate for predicting scar dehiscence.

Oxytocin was used frequently for both augmentation and induction of labour. In a meta-analysis, Rosen & Dickinson (3) noted that in 9 out of 10 studies the VBAC were lower when oxytocin was used. Our 66.67% success rate in both labour induction and augmentation group (Table 1), is not statistically significant from success rate in patient who had spontaneous onset of labour. Oxytocin was effective in expediting delivery in patients attempting a trial of labour. Though the 3 cases of uterine rupture, who had received oxytocin for induction/augmentation underscores this point.

There are divergent views in the literature on the use of oxytocin in women undergoing VBAC. A recent study stated a policy of not using oxytocin on a scarred uterus (11). In contrast a recent comprehensive review concluded that there was no contraindication to either oxytocin or prostaglandin to induce labour after one previous cesarean delivery and its judicious use with careful fetal and maternal monitoring seems to be safe (12).

In our study, indication for previous cesareans was not a factor predicting success rate in trial for vaginal delivery (Table 2). In a meta analysis Rosen and Dickinson (3) found that one of the strongest predictors for trial of labour success is a previous cesarean for the indication of breech presentation. Women with a previous cesarean for cephalopelvic disproportion had the lowest success rates of trials of labour.

In our study the only variable that predicted successful outcome in VBAC was previous vaginal delivery. Turner (13) also reported that the single most important factor in determining whether a patient with one previous cesarean will be delivered vaginally is whether she had had a vaginal delivery and proposed that all the studies on VBAC should be analysed accordingly. In a meta-analysis 11 out of 12 studies found that a previous vaginal delivery improved the possibility of a successful trial of labour (3).

We believe it is quite safe and often desirable for patients who have had previous one cesarean to be allowed vaginal delivery in subsequent pregnancies. Uterine rupture is dreaded event entailing maternal and fetal morbidity, this can be prevented to a certain extent by careful and continuous FHR monitoring and maternal monitoring. Women should be provided clear explanation of the risks and benefits of another cesarean vs vaginal delivery.

The indication for prior cesarean should not influence the decision for vaginal delivery as in our study we found an equal success rate in all groups (Table 3). Previous vaginal delivery certainly is a predictor for success. Oxytocin is a double edged weapon to be used with caution. Although its use in women with previous scar is still controversial we found it helped in expediating labour.

'Cesarean section should be performed to protect mother or the fetus', does not hold good (14). In fact in properly selected patients, a trial or labour after previous cesarean delivery constitutes the best and safest form of obstetric management (15). 'Once a section, always a section', is no longer appropriate.

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