Original Article *นิพนธ์ต้นฉบับ*

Vaginal Birth After Cesarean Section (VBAC) at Yasothon Hospital: A12 Year Descriptive and Retrospective Analytic Study

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Abstract Fifty two cases of vaginal birth after cesarean delivery (VBAC) were retrospectively analyzed during october 1, 1995 - september 30, 2007. Comparisons were made with 92 singleton pregnant women (non-VBAC) as a control group, employing descriptive statistics, t-test and chi-square. There was no any serious maternal complication except a case of neonatal death. Yet no strong indication against or for VBAC emerged. However, once the outcomes were positive VBAC showed more significant advantages on less blood loss and length of postpartum maternal and baby hospital stay. Further study is needed in order to develop effective medical indications.

Key words: **vaginal birth after cesarean delivery - VBAC, thailand**

Introduction

For most of this century, “once a cesarean, always a cesarean” was the rule in the United States. In the 1980s, vaginal birth after cesarean grew in popularity and the pendulum began to swing away from routine repeated cesarean delivery. Recently, the wisdom of this transition has been questioned. As the 20th century comes to a close, the management of patients with a prior cesarean delivery remains controversial.[1]

The rate of cesarean delivery in the United States in 1996 was 20.6 percent after reaching a peak of 24.7 percent in 1988. In Thailand, the rate of cesarean delivery in 1987 was 14.8 percent then reaching a high of 22.1 percent in 1993 and 20.7 percent in the year 1999.[2]

One-third of these operative deliveries were repeated cesareans. The United States Department of Health and Human Services set a national health objective to reduce the overall rate of cesarean delivery to 15 percent by the year 2010.[3] Vaginal birth after cesarean delivery (VBAC) may be one of that policy. Cesarean

deliveries increased as a proportion of all deliveries in the United Kingdom during the past decade, and the proportion of vaginal delivery after prior cesarean decreased. Still, the proportion of cesarean deliveries is lower and the proportion of vaginal deliveries after prior cesarean is higher in the United Kingdom than in the United States.[4] Possible benefit of VBAC is decreasing the rate of cesarean delivery, but rupture of uterine incisional scar may occur, resulting in maternal and neonatal death.

In the last 12 years at Yasothon hospital, in northeastern Thailand VBAC plan had not been recommended in any pregnant women who had history of prior cesarean delivery. The cases of VBAC however, had delivered in many patterns. The obstetricians have had different opinions in the group of these patients as the practice still remains controversial. These cases were selected and counseled case by case.

This retrospective study was aimed to describe epidemiology and analyze maternal and neonatal outcomes comparing the group of VBAC with the group of pregnants who had history of prior cesarean delivery and continued to deliver by cesarean section.

Methodology

A retrospective analytic study was conducted at Yasothon hospital during October 1, 1995 and September 30, 2007. Data collection was based on database and medical records of the hospital, between october 1995 and september 2007 including 40,084 pregnants delivered at 28 weeks of gestation or more. Singleton or multifetal pregnants who had been diagnosed with low transverse incision previous cesarean section and had vaginally delivered were selected.

Medical records of these women were reviewed. Data collection included maternal age, gestational age, parity, previous indication of the previous cesarean section, delivered in hospital or birth before arrival (BBA), interval between labor room admission and the time of delivery, cervical dilatation at the time of labor room admission, duration of different stages of labour, forceps or vacuum extraction, intrapartum maternal complications, Apgar scores, perineonatal conditions, peripartum maternal conditions, fetal birth weight, estimated blood loss, fetal presentation, and length of hospital stay of both mother and baby.

Descriptive statistics were used to describe the patient's characteristics. Student-t test and chi-square test were used in the comparison between the two groups as appropriate at 0.05 level of significance.

Inclusion criteria

Cases consisted of

1. Delivered at 28 weeks of gestation or more
2. Singleton pregnants who had diagnosed low transverse incision previous cesarean section and had vaginally delivered.

Exclusion criteria

1. Birth before arrival (BBA)
2. Multiple pregnancy
3. Fetal anomalies
4. Intrauterine fetal death

Controls consisted of the other 92 singleton pregnant women who had history of previous cesarean section and delivered by cesarean sections at the time of delivery before and after the time of delivery of the cases (2:1, controls : cases).

Descriptive statistics and chi-square were employed in data analysis.

The present study was reviewed and approved by the Ethics Committee, Yasothon hospital.

Results

There were 52 cases of vaginal birth after cesarean delivery (VBAC) during the period of this study accounting for 12.97 per 10,000 deliveries. Most were second parity (45 cases), while 6 were third pariy only one of fourth parity. None ever had prior vaginal birth after cesarean delivery (VBAC).

Table 1 Maternal Characteristics

	Means	SD	Min-Max
Age (years)	25.65	3.25	21 - 39
Gestational age (weeks)	37.5	2.41	29 - 42
length of time at labor room admission to the time of delivery (minutes)	94.93	71.46	2 - 300
Estimated blood loss (mls)	322.82	95.28	200 - 700
Fetal birth weight (grams)	2,448.04	321.99	1,250 -3,150
Length of maternal hospital stay (days)	2.13	0.859	1 - 5
Length of hospital stay of baby (days)	2.13	0.859	1 - 5

All patients with VBAC did not have postpartum explorlaparotomy to identify uterine scar. The clinicians examined intrauterine scars by vaginal approach and finding showing no trace of scar rupture. Three cases had postpartum hemorrhage (defined as more than 500 ml) due to uterine atony and were managed by oxytocin.

Baseline characteristics of pregnant women showed maternal age of 25.65, 3.25 years, gestational age 37.5, 2.41 weeks. Length of time at labor room admission to the time of delivery 94.93, 71.46. (Table 1)

Most of prior indications of the previous cesarean section were failure to progress 46.15 percent, followed by premature rupture of the membrane, abnormal fetal presenting, hypertensive disorder and other indication (Table 2).

It was reported that birth before arrival (BBA) was 7.69 percent and duly excluded. Cervical dilatation at the time of admission at labor room 8-10 cms was 50 percent. (Table 3) Normal delivery was reported in 50 percent of the cases while instruments assisted delivered about 46 percent. (Table 4)

After the exclusion of the 4 BBA and 2 cases with multiple pregnancy the 46 singleton pregnant women VBAC were included to compare with the controls of 92 pregnant women. Only blood loss, length of maternal hospital stay and length of hospital stay of baby of hte cose differed significantly from those of the control.

Table 2 Prior indications of the previous cesarean section

Prior indication of the previous cesarean section	n (cases)	Percent
Failure to progress	24	46.15
Premature ruptured of the membrane	15	28.84
Abnormal fetal presenting	6	11.53
Hypertensive disorder	5	9.61
Other	2	3.84
Total	**52**	**100.00**

Table 3 Cervical dilatation at the time of admission at labor room

	n (cases)	Percent
3 cms or less	10	19.2
4 - 7 cms	12	23.07
8 - 10 cms	26	50.00
Birth before arrival (BBA)	4	7.69
Total	**52**	**100.00**

Table 4 Types of delivery

	n (cases)	Percent
Normal delivery	26	50.00
Vacuum assisted	23	44.24
Breech assisted delivery	2	3.84
Forceps assisted	1	1.92
Total	**52**	**100.00**

Table 5 Comparison of the maternal and neonatal characteristics

Characteristics	Cases (n=46)	Controls (n=92)	p-value
Maternal age (years) mean, SD	25.65, 3.25	26, 3.66	0.586
Gestational age (weeks) mean, SD	37.5, 2.42	38.35, 2.65	0.063
Estimated blood loss mean, SD (ml)	322.82, 95.28	797.82, 39.16	<0.01
Apgar score at 1 min < 7*	4	6 0.791	
Neonatal death* (cases)			
yes	1	0 0.156	
no	45	92	
Fetal birth weight mean, SD (g)	2,448.04, 321	2,560.76, 443	0.092
Sex of newborn*			
- female	24	50 0.809	
- male	22	42	
Length hospital stay mean, SD			
maternal	2.13, 0.86	4.09, 0.44	<0.01
baby	2.13, 0.86	4.09, 0.44	<0.01

Differences of meang compared by t-test
***Chi-square test**

Discussion

This study showed the characteristics and epidemiology of VBAC in Yasothon province hospital. Case - control study comparing VBAC and the group of cesarean delivery in pregnant women with prior cesarean scar showed significant better maternal and neonatal outcomes in terms of less blood loss and shorter lengths of hospital stay for both mothers and newborns.

Studies on the success rates of vaginal birth after cesarean delivery (VBAC) in pregnant women with prior cesarean scar in many hospitals have been reported.[5-6] The pregnants who had prior vaginal delivery have had more success of a trial of labor in vaginal birth after cesarean delivery (VBAC). Several cesarean deliveries could be avoided by the VBAC policy.[5] A study showed the patient's advocacy rate for VBAC was 66.7 per cent and the success rate of VBAC after trial of labor was 54.4 per cent. Unlike other previous reports, the failure rate of VBAC was rather high. This was associated with many factors such as change of mind due to labor pain.[6]

With increasing cesarean section rates in every countries[1-4,7,8] vaginal birth after cesarean delivery (VBAC) was focus as a choice for pregnant women. A meta-analysis had argued for trials of labor for more women after a cesarean birth.[9] A study, to determine opinions of obstetrician-gynecologists regarding vaginal birth after cesarean section(VBAC) and elective cesarean section showed fifty-nine percent of physicians would perform a primary elective cesarean section, and sixty-seven percent would perform a primary elective cesarean section specifically to prevent pelvic floor disorders.[10]

Hypoxic-ischemic encephalopathy was diagnosed in 3 neonates and one neonate died in a study of 23 cases of complete uterine rupture among 2233 trials of labor after a previous low transverse cesarean delivery. They concluded that prompt intervention did not always prevent severe metabolic acidosis and neonatal morbidity.[11]

At Yasothon hospital, physicians have had different opinions and clinical experiences in the group of these

patients. This study showed the mean length of time at labor room admission to delivery was only about 37 minutes compared to that of the other study reporting at about 300 minutes.[12] It was shown that the team was still much more concerned about rupture of uterine scar and serious complications compared to some study.[11,13] As such, at Yasothon hospital women after a cesarean birth were selected and counseled case by case. As a result, there was no maternal mortality from VBAC within the 12 years. No difference in neonatal death between the two groups could be observed (p-value 0.156, table 5). However a larger prospective or controlled trial in this hospital was still not possible.

In a recent study the authors concluded that at term pregnant, the risk of uterine rupture and adverse perinatal outcome for women with a singleton and prior cesarean delivery was low (3 per 1,000 women) regardless of mode of delivery. Maternal complications occurred in 3-8 percent of women within the five delivery groups.[13] Many studies about the predicting factors and success rates of trial of labor have been presented.[14-17]

In Thailand, two pioneer studies on VBAC included 66 cases of a eligible women underwent trials of labor[12] and 118 cases VBAC in the more recent prospective descriptive study[6]. The success rates were at 76 and 54.4 percent. No uterine rupture or serious complications were reported in both.

There were oxytocin used in the former study, instrument assisting delivery used at second stage of labor only at 40 percent[11], lower than over 46 percent at Yasothon hospital.

This study demonstrated basic characteristics of the success VBAC without maternal complications. It could not strongly demonstrated the factors to be considered in options VBAC or non - VBAC. It had shown the statistical differences of less blood loss and shorter length of postpartum maternal hospital stay of the success VBAC group.

In thailand, systematic non-directive counseling concerning VBAC was given to the pregnant women who had previous history of cesarean delivery by many clinicians.[6] If the cesarean section rates were to be decreased, together with better of the maternal psychological health, the pregnant women should discuss and be counseled about VBAC with their physicians.

A prospective multicenter comparison study concluded labor after previous cesarean delivery has a 75 percent success rate, with a risk of uterine rupture of less than 1 percent. Neither repeat cesarean delivery nor trial of labor is risk-free. With careful supervision, trial of labor eliminates the need for a large proportion of repeat cesarean operations.[18] Likewise this retrospective study in a small general Yasothon hospital which had no serious maternal complications endorses such noble attempts.

Conclusion

This descriptive and case - control comparison study had presented some useful information, the significances were less blood loss and less in the length of postpartum maternal and baby hospital stay, of the success VBAC group. Any large controlled trial study to settle the controversial case of VBAC should be attempted.

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บทคัดย่อ **การคลอดทางช่องคลอดในสตรีตั้งครรภ์ที่เคยผ่าตัดคลอดบุตรทางหน้าท้อง (VBAC) ที่โรงพยาบาลยโสธร อุบัติการและวิเคราะห์เปรียบเทียบย้อนหลัง 12 ปี**

วิทยา วัฒนเรืองโกวิท

สูติศาสตร์นรีเวชวิทยา โรงพยาบาลยโสธร, ยโสธร

วารสารวิชาการสาธารณสุข **2551; 17:SIII676-82.**

ในอุบัติการและการวิเคราะห์ย้อนหลัง 12 ปีของการคลอดทางช่องคลอดในสตรีตั้งครรภ์ที่เคยผ่าตัดคลอดบุตรทางหน้าท้อง (VBAC) ที่โรงพยาบาลยโสธร 52 ราย เปรียบเทียบกับกลุ่มควบคุม (non-VBAC) 92 ราย โดยใช้สถิติเชิงพรรณนา การทดสอบค่าทีและไคสแควร์ ไม่พบภาวะแทรกซ้อนทางมารดาที่ร้ายแรงแต่อย่างใด พบการตายของทารกปริกำเนิด 1 ราย จากการเปรียบเทียบศึกษากับกลุ่มควบคุมแม้ข้อมูลยังน้อยที่จะชี้ว่าผู้ป่วยที่เคยคลอดบุตรโดยวิธีผ่าตัดคลอดทางหน้าท้องสามารถคลอดทางช่องคลอดได้อย่างปลอดภัยทั้งมารดาและทารกเพียงใด แต่พบว่าถ้าคลอดทางช่องคลอดได้สำเร็จ จะมีข้อได้เปรียบทางสถิติที่น่าสนใจคือ การสูญเสียเลือดและระยะเวลาการพักฟื้นระยะหลังคลอดทั้งมารดาและทารกในโรงพยาบาล อย่างไรก็ตามควรมีการศึกษาปัจจัยต่าง ๆ ของเรื่องอย่างกว้างขวาง

คำสำคัญ: **การคลอดทางช่องคลอดในสตรีตั้งครรภ์ที่เคยผ่าตัดคลอดบุตรทางหน้าท้อง,วิเคราะห์เปรียบเทียบย้อนหลัง, ประเทศไทย**