ORIGINAL ARTICLE

Maternal outcome in cases of vaginal deliveries after one Cesarean section

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Abstract

Objective: To evaluate maternal morbidity and mortality in cases of vaginal deliveries after one prior cesarean section. To reduce repeat cesarean rate in selective cases. To construct guide line for trial of cesarean scar.

Study design: Descriptive prospective study.

Setting: Department of obstetrics and Gynecology Unit 1 Civil hospital Karachi.

Duration of Study: Two years study from 1st October 2005 to 30th September 2007.

Methodology: During two years period women with previous one cesarean delivery due to non recurrent cause were selected. Excluded cases underwent elective cesarean sections. Women with no medical disorder having singleton term pregnancy, vertex presentation and adequate pelvis were enrolled for trial of labour. All the women were allowed to go into spontaneous labour. No augmentation of labour was done. Careful monitoring was done during labour.

Results: During two years period One hundred & eighty eight women presented with previous one cesarean section for nonrecurrent cause .Out of one hundred & eighty eight women seventy eight decided to have elective cesarean section for some obstetric reason. One hundred & ten women were selected for study, Out of these One hundred & ten women thirty four (30.9%) ended in emergency cesarean section (Non progress of labour, 41.17%, fetal distress 29.41%, impending rapture 17.64%. where as seventy six (69.09%) women had successful vaginal deliveries. Of sventy six women delivering vaginally twenty (26.31%) women had instrumental vaginal deliveries and fifty two (73.68%) women had spontaneous vaginal deliveries. There was no maternal mortality. No case of uterine rapture occurred. Partial scar dehiscence was found in 2.6% cases. Postpartum hemorrhage occurred in 5.2%cases due to atonic uterus. Duration of hospital stay was 2 – 3 days following vaginal deliveries where as it was 7 – 8 days following cesarean section.

Conclusion: With well defined protocol, trial of labor after one prior cesarean delivery is safe and most often successful and reduces the rate of repeat cesarean section.

Key words: Previous cesarean section, trial of labor.

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Introduction:

The overall rate of cesarean delivery has risen world wide. In USA the cesarean birth rate has increased from 5. 5% to 15. 2% during eight year interval.[1] A major reason for this dramatic change in practice is due to the concomitant decline in the rate of Vaginal Birth After Cesarean (VBAC section). This decline may be attributed to several reports from US showing an increase in the frequency of maternal and perinatal morbidity associated with trial of labor after previous cesarean section as compared with planned cesarean section[2]. These factors together with a medico legal fears have led to recent decline in clinician offering & women accepting planned VBAC in UK & North America. [3]

The decline in VBAC with subsequent rise in cesarean section has its adverse clinical implication like placenta accrete[4]. National institutes of Health held a consensus conference in Sept 1980 concluded that vaginal birth after cesarean delivery was an appropriate way to reverse the trend in the increasing cesarean section rate as it was observed that prior cesarean delivery was one of the two major reason cited for cesarean birth accounting for 25-30% increase in cesarean rate between 1970 &1978. However an appropriate selection criteria for VBAC is lacking which leaves the obstetrician in management dilemma[5].

As the management of women with previous cesarean delivery in our department seems to be more conservative or cautious we expect better maternal outcome following vaginal birth after prior cesarean delivery and would be able to construct guideline for trial of scar in order to safely reduce repeat cesarean section in selected cases.

Methodology:

We perform descriptive prospective study from 1st October 2005 to 30th September 2007 in Gynecology & Obstetric department at CHK. This is a tertiary care university hospital. The annual number of deliveries is approximately 2471 and the cesarean section rate is 32%. At all times there are trainee obstetrician, midwives, staff nurse, a neonatologist and an anaesthetist in our hospital and a senior obstetrician, neonatologist and anaesthetist are on call.

During two years period all pregnant women with one previous cesarean delivery were evaluated for mode of delivery. these include both booked and non booked & referred cases which were seen in OPD or in emergency room in pre labour or labour l. Inclusion & exclusion criteria were followed.

We counseled and took informed consent of all women with a prior single lower segment cesarean delivery. Singleton cephalic presentation to undergo trial of labor unless repeat cesarean delivery is indicated.

Inclusion criteria include women with previous cesarean section due to non recurrent cause like relative fetopelvic disproportion, non progress of labor, fetal distress, placenta previa, placental abruption, breech presentation, transverse or oblique lie, twin pregnancy, postdate pregnancy & prematurity. In present pregnancy singleton pregnancy, adequate pelvis, average size baby (2.5-3.8 kg) no medical or obstetrical problem & spontaneous onset of labor were the selection criteria for the trial of labor.

Exclusion criteria were contracted pelvis, previous more than one cesarean section, previous classical cesarean section, postterm pregnancy with unfavorable cervical score, malpresentation and medical complication.

Maternal outcome was measured in terms of occurrence of partial scar dehiscence, blood transfusion, puerperal pyrexia,wound sepsis, UTI, uterine rupture, hysterectomy & maternal death. Uterine rupture was defined as tear of uterine muscle & visceral peritoneum. Uterine dehiscence was defined as a disruption of uterine muscle with intact serosa. Febrile morbidity was defined as a temperature of 38 C or more on atleast 2 occasions atleast 6 hours apart excluding the first 24 hours after delivery.

Protocol for the pregnant women for VBAC is to wait for spontaneous labor till 42 weeks gestation. We did not induce or augment the labor and recommend cesarean delivery if the cervix is unripe. On admission to labor room all women were re-evaluated by a resident to assess whether they comply with requirement for a trial of labor. One unit of packed blood cell arranged. Once in active labor I/v line with wide bore cannula & partogram were maintained. Fetal monitoring was done with stethoscope &intermittent CTG. Adequate intravenous analgesia given. Sign of impending rupture were monitored by pulse, scar tenderness & bleeding per vaginum. Vaginal delivery were conducted with or without episiotomy by registrar & trainees & instrumental vaginal delivery were considered whenever indicated.

If there were signs of impending rupture ,fetal distress , non progress of labour or any obstetric or medical indication trial of VBAC was abandoned in favour of emergency cesarean section.

After delivery baby was seen by paediatrician & mother observed in ward for any complication. Women with VBAC were usually discharged on second day of delivery whereas women with cesarean section were discharged on seventh day of operation after removal of stitches. All facts are recorded in the proforma designed for this purpose.

All result were analyzed by computer soft ware SPSS 15.

Results:

During two year period total number of admission in labor room was 4952. Women with previous one cesarean section due to non recurrent cause were 188. Of these 78 had elective cesarean section due to different obstetrical reasons and 110 women were selected for trial of labor. Out of study group of 110 women 66 were non-booked & 44 were booked cases.34 women out of110 were ended in emergency cesarean section during trial of scar due to non progress of labor, fetal distress, impending rupture and on woman, s request. 76 (69.09%) out of 110 selected for the study had vaginal deliveries. Of these women 20 (26.3%) had instrumental vaginal deliveries and 56 (73.68%) had spontaneous vaginal deliveries. Out of 110 women of the study group 24 women had primary LSCS due to cephalo pelvic disproportion. Of these 16 had emergency LSCS where as 8 women delivered vaginally.8 patient having repeat LSCS had primary LSCS due to non progress of labor. Maternal outcome in the study group showed partial scar dehiscence in two (1.82%) cases, postpartum haemorrhage in 6 women (5.45%). 4 (3.69%) women need blood transfusion. Wound sepsis was noticed in 4 (3.69%). Puerperal pyrexia occurred in 8 (7.27%) women. The hospital stay in the study group was 2-3 days in cases of VBAC & 7-8 days in emergency cesarean section& little longer in complicated cases.

Discussion:

Vaginal birth after cesarean section is reasonably safe in selected women as shown in our study and should be more widely available. Ron Gonen et al[6]had shown the same result as study from Pakistan[7]. Most of the women in our study were non booked or referred from other hospital with no prior antenatal counseling for VBAC or elective repeat cesarean section The national institute of clinical excellence guideline for cesarean section published in 2004[8] states that decisions about mode of birth after cesarean should consider maternal preferences and priorities and discussion of risk.

We counseled & took informed consent & carefull selected women for VBAC.

We were able to achieve successful vaginal deliveries in 69.09% of women and 30.9% women ended in emergency cesarean section. This success rate compared well with result of Javed Iqbal[9]of 72% vaginal deliveries &28 % repeat cesarean section. More promising result of 80% success rate has been shown in the study of Ron Gonen etal[6] who also recomeded augmentation of labour.

Details of vaginal deliveries showed that instrumental vaginal deliveries had saved women from cesarean section in 20 (26.32%) cases (Figure 1). Hence resident should have expertise of performing instrumental vaginal deliveries. Figure 2 showed that 66% women who had relative cephalopelvic disproportion as cause of primary LSCS had successful vaginal deliveries

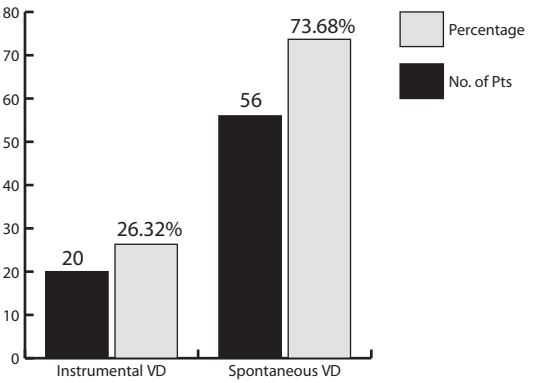

Figure 1: *Details of vaginal deliveries VD=Vaginal Delivery*

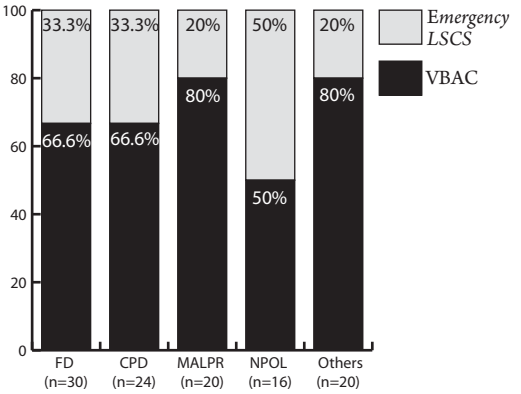

Figure 2: *Indication of primary caesarean section FD:Foetal Distress; CPD: Cephalopelvic disproportion; MALPR:Malpresentation; NPOL: Non-progress of labour*

hence women with this indication should be encourage to attempt VBAC & obstetrician particularly those working in private sector & are more afraid of litigation should considered it in properly selected cases. VBAC success ratio was comparatively low in group with non progress of labor as primary cause of cesarean section as half of this group was able to achieve vaginal deliveries. Similar lower rate of VBAC success had been shown in other studies[10]. Women with non recurrent cause of previous cesarean section like malpresentation & fetal distress had successful vaginal deliveries as shown in other studies. [11]

Several large studies have identified the risks of maternal morbidities associated with VBAC and the risk of uterine rupture in particular improving the counseling & management of these patients[12 ,13]and directly impacting the American college of obstetrician recommendation for VBAC management[14,15].

The VBAC statistic looked optimistic from 1992 till 1996 in US when VBAC rate rose from 22. 6% to 28. 3% but trend changed following two studies one of which published in the New England Journal of Medicine in 1996.

Risk of uterine rupture and its consequences for the mother and fetus following VBAC had been among main concerned in many studies[16]. Researchers showed that women attempting a VBAC had 1.6 per thousand chance of uterine rupture. (This translates to 0.08 or less than 1% per hundred). Even though this was a very small percentage, it caught people's attention. Secondly it was not clear to average person that this study did not measure the rate of uterine rupture in women with spontaneous labour which is likely to have less risk of rupture compare to women who had induction of labour which is known to cause strong & intense uterine contraction and the question of VBAC safety went to the forefront again.

During four year period the VBAC rate fall from 20.7%. in the year 2001 to a mere 9% in 2004. Most of the obstetrician especially in private sector & those working in country side hospital are not offering VBAC's since they do not have in-house anesthesia. It is therefore even more crucial for women today to have facts about the benefits and risks as well as the safety of VBAC to support their decision for a trial of labor.

Rochelle et al in a population based retrospective cohort analysis in Washington state concluded that for women with one previous delivery the risk of uterine rupture is higher among those whose labor is induced with either prostaglandins or oxytocin than among those with either spontaneous labor or repeat cesarean delivery without labor. [17, 18]. We therefore did not induce or augment labor with oxytocin or prostaglandin and were successful in minimizing complications following VBAC.

Maternal outcome jn our study group showed no uterine rupture, where as it was up to 5 per

Table 1: *Maternal Outcome in study group*

	VBAC (n=76)		**Emergency Cesarean section (n=34)**		
	Number	**%**	**Number**	**%**	**P Value**
Partial Scar Dehiscence	0	0	2	8	
PPH	2	2.6	4	11.7	0.072
Blood Transfusion	0	0	4	11.7	
Puerperal Pyrexia	2	2.6	6	11.64	0.01
Wound Sepsis	0	0	4	11.7	
UTI	2	2.6	6	11.6	0.01
Uterine Rupture	0	0	0	0	
Hysterectomy	0	0	0	0	
Maternal Death	0	0	0	0	

thousand in studies where induction of labor was performed and 1. 4% in Ron Genon et al study who did not induce labor but did augmentation of labor with syntocinon. There was no case of hysterectomy or maternal death in our study. Complications which occurred were minor and less frequent in women with VBAC even not much higher in women with emergency cesarean section as shown in Table 1.

Hence with well-defined protocol the trial of labor is in fact a safer overall option for women who had previous cesarean birth and should be considered as the frequency of placenta accrete has increased tenfold over last 50 years with associated maternal morbidity including postpartum hemorrhage & postpartum hysterectomy. Women wanting large family size should particularly be counsel for VBAC as rate of complication are more with multiple cesarean deliveries.[19, 20]

Hospital stay in VBAC was short due to quicker recovery time following delivery cost effective & more satisfying for patient, attending obstetrician& medical staff compared to emergency cesarean section. Stay was however long in women who ended in emergency cesarean section particularly with wound infection fortunately this complication was infrequent.

Conclusion:

With well defined protocol, trial of labor after one prior cesarean delivery is safe and most often successful and reduces the rate of repeat cesarean section.

We recommend a well defined protocol should be formed for VBAC in each hospital Women should be involved in decision making after proper counseling.

Resident should be taught art of instrumental vaginal delivery. Obstetrician particularly in private sector should be motivated to offer VBAC in carefully selected women with previous one cesarean section.

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