

A study of the maternal and fetal outcome in vaginal birth after previous one caesarean section

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Abstract

Background: Vaginal Birth After Caesarean Section (VBAC) is an important dilemma on obstetric practice. Caesarean section has its complications. Proper monitoring of mother and baby during labour can increase the chances of VBAC and reduces post operative complication of caesarean section. **Aim and objective:** To study the maternal and fetal outcome in vaginal birth after previous caesarean section **Methodology:** Present study was a prospective study carried out in 261 patients. Trial of labour was given in labour rooms to those who have undergone spontaneous labour or who have been induced. Careful monitoring of labour was done by recording maternal pulse, Blood Pressure and plotting the partogram and fetal Heart monitoring. Patients requiring LSCS were shifted to operation theatre. Remaining delivered by normal vaginal delivery or assisted delivery. Data was collected with pretested questionnaire. It included sociodemographic data. Outcome of the delivery noted. Perinatal death rate, birth weight of baby, APGAR score at 1 min and 5 min were noted. **Results:** The overall success rate of VBAC in our study was 74%. The perinatal Death rate in present study was 1.5%. Birth weight and mode of delivery were significantly associated. Bad APGAR scores were not much associated with the mode of delivery at the end of 5 minutes.

Key Word: maternal and fetal outcome, vaginal birth, caesarean section

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INTRODUCTION

The indications for cesarean delivery have been undergoing a gradual change over the last few decades. This change has been in the form of an increase in the number of indications rather than anything else, as caesarean births have become safer. This is not to imply that they have become safer than normal uncomplicated

vaginal deliveries but that they have become safer than they used to be. The major contributors to making caesarean delivery safer were improvement in techniques of anesthesia, advent of powerful and effective antibiotics, availability of blood transfusion and last but not the least, improvement in surgical techniques and operative skills. The initial list of indications for caesarean delivery included conditions where it was done mainly for maternal interest when a further trial of labor was considered hazardous. More recently, however, the health of the fetus has played a significant role in making the decision for a caesarean birth. This has become increasingly pronounced after the advent of high-resolution ultrasound, Doppler ultrasound and electronic fetal monitoring. What contributed to the increasing list of indications for caesarean section was the safety of caesarean birth in certain high-risk pregnancies. There also has been a definite trend in some centers towards a planned caesarean birth for women who have conceived following assisted

reproductive techniques. Of late, the safety of an elective caesarean birth has prompted some obstetricians in the developed world to consider and allow for the feasibility of an elective caesarean section based on maternal request. Caesarean birth has been definitely instrumental in decreasing the maternal and perinatal morbidity and mortality. Even though caesarean birth has become safer than it used to be, still it is not without morbidity. Therefore, the decision for the mode of delivery must be made with judicious caution. Repeat caesarean sections account for the major share of the present day indications for caesarean sections. In India, it ranges from 8.48% to 41.9 %^{1,2} A study³ reveals that repeat cesarean sections account for 35% of all cesarean sections in u.s.A, 23% in Norway and 8% in Hungary. In the past decade there has been much focus on the issue of vaginal birth after caesarean section. It has been argued, "The most remarkable change in obstetric practice over the past decade was management of the woman with a prior caesarean delivery." Schmitza reported 62 out of 448 women with a history of previous caesarean section, who underwent vaginal delivery at Lewis Memorial IVLaternity Hospital. Schmitz reasoned that if the risk of uterine rupture was 40/o and the maternal mortality from rupture was 11% then the maternal mortality (0.44%) is less with trial of Labor.

Though the practice of VBAC increased significantly, there have been several reports⁴⁻⁸ published that suggest that VBAC may be riskier than anticipated. Such reports raised concern about the safety of VBAC and have contributed to heightened controversy. world wide success rate of trial of labor after cesarean is about 75-80%; while risk of uterine rupture in such trial is 0.5-1% the current study is also an endeavor with the objective in mind of estimating risks and trends in VBAC.

Aim and objective: To study the maternal and fetal outcome in vaginal birth after previous caesarean section

MATERIAL AND METHODS

Present study is a prospective study carried out in government medical college Nagpur. Total 261 patients underwent the study in the labor room of department of obstetric and gynecology. Study was conducted for one year from August 2005 to July 2006. The cohort for this study was formed by total number of patients delivering at Government Medical College and Hospital Nagpur during the study period. Total 12,591 women delivered during this period. The total caesarean section rate for this was found to be 23.74 within this period.

Inclusion criteria: 1. Patients with only one previous caesarean 2. All vertex presentations 3. Singleton gestations

Exclusion criteria: 1. Patients with known classical or inverted T incision during previous caesarean section. 2. Any uterine incision with extension into body (upper uterine segment) of uterus in prior section. 3. Lower vertical scar in previous section 4. Patients with presentations/lie apart from vertex i.e. patients with transverse lie/oblique lie, breech, face, brow presentation. 5. Patients with twin pregnancy/multiple gestation 6. Patients having upper segment hysterotomy scar 7. Patients having previous scar of myomectomy. Study was approved by ethical committee of the institute. A valid written consent was taken from the patients after explaining study to them. Subjects were the patients admitted in labour rooms for trial of labour. These consisted both those booked cases who have visited before in the antenatal clinics and those who have visited directly in emergency. Lower uterine segment thickness was measured by ultrasound examination in patients after they have completed 36 weeks of gestation. But lower uterine segment thickness was not done in those patients who were in labour though have passed their 36 weeks of gestation. Pelvic Assessment was done to assess the adequacy of pelvis. Emergency preparedness measures like availability of surgeon, anaesthesia provider, operating room personnel and sufficient blood was always ensured. Trial of labour was given in labour rooms to those who have undergone spontaneous labour or who have been induced and labour augmentations by Pitocin in IV drip was done in those who required. Careful monitoring of labour was done by recording maternal pulse, Blood Pressure and plotting the partogram for each patient over INDIAN NOMOGRAM FOR CERVICAL DILATATION and fetal Heart monitoring by intermittent auscultation by stethoscope and Doppler.

Vigilant watch was kept for symptoms and signs of scar dehiscence such as maternal and fetal tachycardia, hypotension, fetal bradycardia, per vaginal bleeding; lower uterine segment tenderness or change in uterine contour especially when labour was induced or augmented. Patients who developed fetal distress, who crossed the action line on partogram, who developed signs and symptoms of scar dehiscence were shifted for emergency LSCS. Data was collected with pretested questionnaire. It included sociodemographic data. Outcome of the delivery noted. Perinatal death rate, birth weight of baby, APGAR score at 1 min and 5 min were noted Data analysed with appropriate statistical tests.

RESULTS

Total 261 patients were given trial of labour. Out of those 193 patients i.e. 74% delivered vaginally without assistance while only 5 patients i.e. 1.9% required assistance with forceps. About 24.2% of patient (n= 63)

required repeat caesarean section due to various reasons. Most of the patients who needed repeat C.S. were shifted because they developed fetal distress i.e.61% (n= 39) while 10 patients needed repeat C.S. because they failed to progress in labor accounting for 15.8o/o. Suspected dehiscence was indication in 8 patients while 6 patients had their latent phase of labor prolonged. Most of the patients were in age group 20-25 yrs i.e. (n= 149) and 25.30 yrs i.e. (n= 78). Only 28 patients were above 30 yrs of age. The need for repeat cesarean section was more in 20-25 yrs age group i.e. 282% (n= 42) followed by in 25-30 yrs i.e. 25.6% (n=20). Only 1 patient above 30 yrs of age required repeat C.S. There was highly significant rate of vaginal delivery in patients above 30 yrs of age. (table1) Patients having birth weight more than 3.5 kg were 3. All needed repeat C.S. while patients having birth weight < 2.5 kg also needed more no. of C.S. than having babies with birth weight between 2.5 - 3.5 kg i.e.35.4% Vs 17.8%. P value was infinitely significant when causative association of increasing birth weight to failed trial was studied; but even value showing increased rate of C.S. among smaller babies

(< 2.5 Kg) was also highly significant. (table2) Babies borne with poor APGAR scores were 24 at 1 min, out of them 3 had sustained bad APGAR scores even at the end of 5 min.; while 258 babies could be revived at 5 min. The bad APGAR scores were highly significantly associated with the mode of delivery at 1 minute. But bad APGAR scores were not much associated with the mode of delivery at the end of 5 minutes. (table 3) There were total 4 perinatal deaths. One baby was borne asphyxiated. The patient was taken for repeat C.S. with the suspicion of scar dehiscence and intra operatively the scar has found to have given up. The baby was also LBW. second perinatal death was also death due to intrapartum asphyxia. The indication for repeat c.S. was failure to progress. Third case was a still born vaginal delivery. This death was also caused by birth asphyxia. The last perinatal death was in patient delivered by forceps applied because of signs of fetal distress in second stage of labor. The could be revived at 5 minutes with APGAR score 7 from APGAR Score 5 at 1 minute. But baby developed meconium aspiration syndrome and died on 2nd day of life.

Table 1: Distribution of patients according to Age grouped mother and type of delivery

Sr no	Age group (years)	Vaginal delivery	Forcep delivery	LSCS	Total
1	< 20	06	00	00	06
2	21-25	104	03	42	149
3	26-30	57	01	20	78
4	30-38	26	01	01	28
5	Total	193	05	63	261

P=0.0045 RR = 0.76(0.68-0.84)

Table 2: Distribution of patients according to birth weight of baby and type of delivery

Sr no	Birth weight (kgs)	Vaginal delivery	Forcep delivery	LSCS	Total
1	< 2.5 kg	06	00	00	06
2	2.5-3 kg	104	03	42	149
3	>3 kg	57	01	20	78
5	Total	193	05	63	261

P<0.05 RR= 0.78 (0.65-0.83)

Table 3: Distribution of patients according to APGAR score in baby and type of delivery

Sr no	Time	APGARscore	Vaginal delivery	Forcep delivery	LSCS	Total
1	1 minute	0-6	08	01	15	24
2		7-10	185	04	48	237
3		Total	193	05	63	261
4	5 minutes	0-6	01	00	02	03
5		7-10	192	05	61	258
6		Total	193	05	63	261

P=0.14 RR=0.43 (0.08-2.1)

DISCUSSION

In our study Total 261 patients were given trial of labour. Out of those 193 (74%) delivered vaginally without assistance while only 5 (1.9%) required assistance with forceps. About 63 (24.2%) patients required repeat caesarean section due to various reasons. Bujold *et al.*⁹ found that advanced age was associated a higher rate of failed TOL in patients with a prior caesarean section. In addition, older patients were more likely to have had a prior successful vaginal delivery .the rate of successful VBAC in these patients is more than 80%.However,he found no association between the maternal age at the time of prior C.S.and risk of uterine rupture. Shipp *et al.* (2002)¹⁰ addressed these issues by including only women having one prior cesarean delivery and no prior vaginal deliveries, and also have shown that maternal age has a statistically significant independent association with symptomatic uterine rupture. Uterine incisions after cesarean delivery appear to heal by scar formation as opposed to myometrial regeneration as has been previously suggested. Increasing age is a critical factor in the risk for abdominal wound dehiscence. Although it is possible that factors related to healing could contribute to the increase in uterine rupture, the specific factors responsible for the higher rate of uterine rupture with increasing maternal age remain to be elucidated. Patients having birth weight more than 3.5 kg were 3. All needed repeat C.S. (100%). When compared to older studies, in study done by Elkousy¹¹ in 2003 success rate with no previous vaginal births and EFW of > 4,000 gms was <50o/o, while the uterine rupture rate in this group with infants > 4,000 gms was 3.6%. In a record review of women at term with one PCS Zelop *et al.*¹² in 2001 repeat C.S. rate was 40 % for infants larger than 4000 grams.

In our study we observed High APGAR score in 1.1% babies. Similar findings were seen in Jarrell *et al.* where they observed 1.3% depressed babies. Lieberman *et al.*¹³ also observed 1.03% depressed babies. In studies like Saldana *et al.*¹⁴ (3.2%) and Rosen *et al.*¹⁵ (3.8%) this percentage was more than our study. The percentage of babies being depressed at birth was more, probably because of the absence of foetal monitoring devices for early diagnosis during labour. The overall success rate of VBAC in our study was 74%. Various other study shows comparable results like Rageth *et al.*¹⁶ 73.3%, Sims *et al.*¹⁷ 77%, Elkousy *et al.*¹¹ 74% and Bujold *et al.*⁹ 78 %. The success or failure, as in the cases of the present study, cannot be, thereby, attributed to the presence of a scar alone, but to the labour various maternal characteristics collectively, which precedes the repeat C.S. The repeat C.S. results due to failure of this labour. The perinatal Death rate in present study was 1.5%. Saldana *et al.*¹⁴ observed perinatal death rate of 0.7%. Jarrell *et al.*¹⁸ and

Rosen *et al.*¹⁵ had not recorded any death in their study. Stone *et al.*¹⁹ and Rageth *et al.*¹⁶ found perinatal death rate of 0.4% and 0.6% respectively. Out of the 4 babies that died, only 2 deaths could be attributed to factors relating to a trial and failure of vaginal labor i.e. only 0.75%. Deaths were due to foetal distress. In spite of over judicious care in the absence of monitoring facilities, 4 babies were lost, implicating that the facilities are a 'must as advised by ACOG guidelines for high risk patients like the present study group.

CONCLUSION

Use of fetal monitoring techniques along with more liberal use of induction methods would help to achieve greater number of successful VBAC trials without increasing maternal or fetal morbidity.

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