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TRIAL OF VAGINAL BIRTH AFTER CESAREAN SECTION IN PATIENTS OF PREVIOUS LOWER UTERINE SEGMENT CESAREAN SECTION AND ASSESSMENT OF FETOMATERNAL OUTCOME

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ABSTRACT

Introduction: Vaginal birth after cesarean delivery (VBAC) has been proposed as a viable measure to reduce cesarean delivery rates.

Objective: The objective of present study was to assess the safety and success rate of VBAC, to assess the fetal and maternal outcome

Method: This prospective study conducted on 200 women at Government Medical College, Nagpur from November2017 to August2018 which included patients with one previous transverse lower segment cesarean section**. Results-The success rate of VBAC is 78% and incidence of uterine rupture is 1%. Young maternal age, gestational age<40 weeks, neonatal birth weight<3kg, admission in active phase of labor, previous cesarean for fetal distress, malpresentation were associated with successful VBAC.The commonest indication of repeat cesarean section was also fetal distress followed by failure to progress. There was one neonatal death and maternal mortality.**

Conclusion-There is definite increase in neonatal and maternal morbidity in patients with failed trial of labor. The trail of scar in patients with previous caesarean section for non-recurrent causes is safe and often successful, and by such practice, we can reduce the rate of caesarean section.

KEYWORDS : Trial Of Scar/labor, VBAC, Maternal And Neonatal Morbidity, Uterine Rupture.

INTRODUCTION

Vaginal birth after cesarean (VBAC) was first reported in 1923 when Schell described the successful vaginal delivery of 34 infants to 23 mothers who had previous cesarean sections. A trial of labor (TOL) after cesarean section should be considered in every woman presenting for care, discussing the risks and benefits of VBAC while planning the birth. The success rate of TOL ranges from 50 -86%.[1]

The dictum "once a cesarean, always a cesarean," espoused by Craigin in 1916, was revised in many countries, and a trial of labor in women with history of cesarean section was proposed as an attempt to reduce cesarean section rates.[(2)]

Studies have shown that 30 - 80% of women with one previous lower segment caesarean section can achieve vaginal delivery when trial of scar is done. [(10,11)] One point is clear though "**once a cesarean, always a hospital delivery".**[(5)]

AIMS AND OBJECTIVES:

1. To assess the safety and success rate of VBAC.
2. To assess maternal morbidity and mortality.
3.. To assess the fetal morbidity and mortality.

METHODOLOGY

Study design: Prospective observational study

MATERIALS AND METHODS

A prospective observational study was carried out among 200 patients with previous 1 transverse cesarean section. Antenatally booked patients were advised admission to hospital 1 week prior to their EDD and those patients who reported directly in labor (unbooked) were assessed for trial of labor.

All patients who fulfilled the inclusion criteria were enrolled in the study. All participants and their close relatives were explained about the advantages of VBAC over elective C- section. Written informed consent was obtained. Patients in active labor were clinically assessed per abdominally for amount of liquor, fetal weight, scar tenderness followed by internal PV examination 4 hourly or as needed. The trial of vaginal delivery was continued till there was satisfactory progress. All cases received broad spectrum antibiotics as per institutional policy.

Exclusion criteria:

a. Bad obstetric history
b. Previous J or inverted T shaped incision.
c. Malpresentations.
d. Multiple pregnancies.
e. Patients refusal to undergo trial.
f. History of two or more previous LSCS.
g. History of any medical or obstetric complications.
h. History of uterine rupture and /or any uterine anomaly.
I. History of hepatic, renal, neuro-muscular, hematological disorder**.**

OBSERVATION AND RESULTS

Patients with age of 26 to 30 years had more successful VBAC (34.5%). Those undergoing LSCS belong to age group of 36-40 years (7.5%) followed by age group 26-30 (6%) years. In booked and unbooked patients, the rate of successful VBAC is 46.5% and 31.5% respectively (p=0.09). VBAC is more successful with gestational age of 35-37 weeks of gestation (35.5%) and less with gestational age of 38-40 weeks (11.5%). Successful VBAC is more in patients where indication of section was fetal distress and malpresentation. Interpregnancy internal was not significantly associated with rate of successful VBAC. In induced patients' rate of successful VBAC is only 19.5% in comparison to 58.5% of successful VBAC where labor is not induced. Only 19% of patients with cervical dilatation <3cm had successful VBAC.8(4%) patient had scar dehiscence. Incidence of scar rupture is 1% with 1 neonatal mortality. In LSCS group the rate of blood transfusion is more (4.5%). Due to maternal complications like episiotomy hematoma (0.5%), cervical exploration (0.5%) the duration of hospital stay was more than 5 days. The LSCS rate is more in patients where labor was induced (19.5%) while rate of successful VBAC is only 18.5% in induced patients. Among 10 patients with assisted vaginal delivery 9 were delivered by vacuum and 1 required forceps application.

Table no1: showing rate of VBAC on basis of

Gest. Age (weeks)	Mode of delivery			
	LSCS		VBAC	
	No.	%	No.	%
32-34	1	0.5	48	24
35-37	10	5	71	35.5
38-40	23	11.5	34	17
>40	10	5	3	1.5

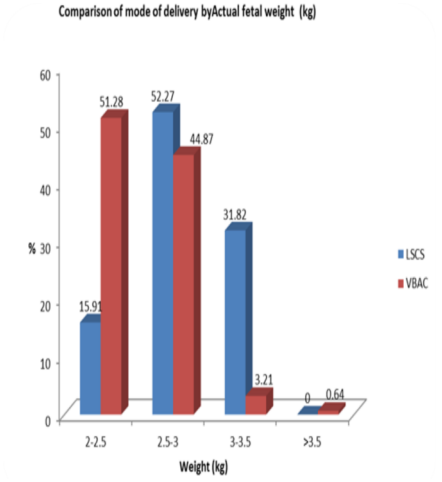
Total	**44**		**156**	
P value: 0.001				

induction of labor

Induction labor	Mode of delivery			
	LSCS		VBAC	
	No.	%	No.	%
Yes	37	18.5	39	19.5
No	7	3.5	117	58.5
Total	**44**		**156**	
P value: 0.001				

Table no.3 SHOWING COMPARISON OF MODE OF DELIVERY AND NEONATAL OUTCOME:

Neonatal outcome	Mode of delivery			
	LSCS		VBAC	
	No.	%	No.	%
No complications	41	20.5	152	76
Birth Asphyxia*	2	1	4	2
Stillbirth**	1	0.5	0	0
Total	**44**		**156**	
P value : 0.131				



Discussion

Factors that negatively influence the likelihood of successful VBAC are believed to be cases with labor augmentation and induction, maternal obesity, gestational age beyond 40 weeks, birth weight greater than 4000 g, and inter-delivery interval of less than 19 months [21] The rate of successful VBAC in our study of 200 patients is 78% which is more than the studies conducted by Mondal et al [18] (70%), Rizwan and Dars et al [17] (60-80%) ,Lalwani et al [20] (71%) and Chhabra et al [21] (71.2%) and similar to Dhall et al [13] (76%) who recommended augmentation of labor with failed TOLAC rate of 22 % in our study and 29% in study performed by Lalwani et al [20] and 28.8 % in Chhabra et al [21]. The discrepancy reflects the inherent differences in the obstetric population and criteria used for selection of cases. In patients where cervical dilatation was more than 3 cm 59% patients had successful VBAC similar to study conducted by N. Shaheen et al [15] and only 4% had repeat LSCS. This observation matches well with our study. The most common age group with successful VBAC in our study belong to 26 – 30 years of age of women 34.5%similar to study performed by Renu et al [6] (52.77 %) and Mondal et al [18] and Lalwani et al [20].

The maximum rate of repeat LSCS was more among the age group of 36-40 years that is 15/200 (7.5%) which is similar to study performed by Mondal et al [18] and 3/200 (1.5%) patient belong to age group of >40 year. Hence, we can conclude that age group of patients who are more than 40 years have more chances of undergoing LSCS similar to studies performed by Curtin SC et al [12], Landon MB et al [8], Clark SL et al [11].

There was no significant difference in the mode of delivery on the basis of booking status (p=0.09) that is booked patient had 46.5% of successful VBAC rate similar to study performed by KS, Begum et al [16] (57%) and 63 (31.5%) unregistered patients have successful VBAC although the rate of repeat emergency LSCS was more in unbooked cases but the difference is not significant contradict to study performed by B. Ks et al [16] Successful VBAC (156) is more in the patients with gestational age of 35-37 weeks 45.5% similar to study conducted by Curtin SC et al [11], Landon MB et al [8], Clark et al [12]. The incidence of repeat cesarean section is more in patients of gestational age 38-40 weeks and more than 40 weeks of gestation. Similar to women who undertake TOLAC beyond 40 weeks of gestation [20,21,23]

Nonrecurrent indications for previous caesarean section are associated with high rate of success in VBAC similar to Kashif Khalil S et al [25]; Bangal et al [22].The successful VBAC is more among the patients where indication of their previous LSCS was fetal distress (43%) similar to study conducted by Lalwani et al [20] (54.28%) ,Mondal et al [18] with 64%, Latika et al [24], where fetal distress was the most common (36.3%) indication of repeat caesarean section and followed by malpresentation (12.18%). However, the most common indication for repeat LSCS in our study is also fetal distress (7%) similar to study by Lalwani et al [20], followed by failure of induction (5%) in comparison to Lalwani et al [20]. Hence, maximum number of cases taken for LSCS (failed VBAC) were due to failed induction and fetal distress.

Successful VBAC is only 19.5% where patients were induced.

Out of 200 patients 58.5% (117/200) had successful VBAC where labor was allowed to progress spontaneously where 54/117 (46.15%) patient had history of prior vaginal delivery which is comparable to 50% of patients in study of Landon et al [8] and 71% in study of Lalwani et al [20], which is more than study of Mondal et al [18]. Hence, previous vaginal delivery was considered a favorable factor and is associated with a higher rate of successful trial of labor and according to R Jain et al [6]

In this study 10 patients who required instrument delivery 9/10 were delivered by vacuum (4.5%) and 1 was delivered by forceps application which is less than studies from Pak J et al [10] where 23.31% delivered by application of instruments and in study by Mondal et al [18] (21.12%).

In our study birth weight < 3 kgs is associated with more chances of successful VBAC similar to studies conducted by Renu et al [6] while vaginal delivery occurred in only 10 % women when birth weight was >3 kg. Birth weight >3 kg increases the chances of caesarean section (90%), while in our study more than half patients with actual fetal weights between 3-3.5 kg, (14/19) had emergency repeat LSCS and rate of successful VBAC is only 3% which depicts successful TOLAC is less for fetal weight of > 3-3.5 kg similarly in a study by Doshi et al [23], the success rate of VBAC was significantly higher in women who had infants weighing < 3 kgs.

However, in our study 1 patient with baby weight of >3.5 kg delivered successfully as patient was in advanced labor but had a vaginal laceration along with cervical tear where blood transfusion was required which shows maternal morbidity increases with increase in actual fetal weight. In this study, among 200 patients, 18% of patient had repeat LSCS with cervical dilatation of below 3cm and only 4% of patient had repeat LSCS with cervical dilatation of above 3 cm. Similar finding was reported in studies by Bangal et al [22] and by Birara et al [30] and Renu et al [6] where women who were in active phase of labor at the time of admission had better chances of vaginal delivery (71.42%) like our study where women with cervical dilatation above 3 cm resulted in 59% (118/200) of successful VBAC.

Among 200 patients, only 8 (4%) had scar dehiscence which is more than studies from Pak J et al [10] where evidence of scar dehiscence was 2.6%.

their was 1%(2/200 participants) incidence of scar rupture which is more than study conducted by Gupta et al [28]and similar to study from khalil et al [25] Hence, according to study conducted by J .Renu et al [6]. Induction (particularly in women with an unfavorable cervix) /augmentation of labor in these women are associated with 2-3 fold increased risk of uterine rupture and around a 1.5-fold increased risk of caesarean delivery compared with spontaneous VBAC labor [29]

In our study incidence of uterine rupture was 1% which is less as compare to study conducted by Pembe et al [26] and Zelop et al [27], reported the rate of uterine rupture among women with no previous vaginal delivery as 1.1%, in comparison with 0.2% among women with previous vaginal delivery[22].

In 193/200 patients, there were no neonatal complications and there were 6 (3%) NICU admission, (1) birth asphyxia, (4) preterm IUGR and (1) respiratory distress due to prolonged labor and there was only 1 still birth (0.5%) attributed to scar rupture in emergency LSCS group similar to results of Mishra et al.[13]

The rate of NICU admission and still birth was more in patient with repeat LSCS comparable to study from Renu et al [16] where rate of NICU admission in VBAC group was 2.77% and it was more in LSCS group 7.03%.

In 183/200 patients, there was no maternal morbidity, out of 9 patients (4.5%) 1 had vaginal and cervical laceration (0.5%), and fourth degree perineal tear (0.5%) each, 3 (1.5%) had cervical laceration, 4 (2%) had vaginal laceration, of which 1 patient required vaginal and cervical exploration. And another 6 patients (3%) had hematoma, 4 (2%) had broad ligament hematoma, 1(0.5%) had lower segment uterine hematoma, and 1 (0.5%) patient required re-exploration and ICCU admission due to postpartum hemorrhage.

In our study only 3(1.5%) patients had postoperative sepsis which is more than study from R. Jain et al [6].

Among, 200 patients 16 patient required blood transfusion (8%) 13 due to PPH (13/200-6.5%) complicated by maternal morbidities and 3/16 due to anemia (1.5%).

In LSCS group the rate of transfusion required was more that is in 9/44 patients in comparison to patients with successful VBAC in 7/156 patients in which 13 patients (6.5%) went into postpartum hemorrhage which is more than studies from Pak j et al [10] (5.2%) who require blood transfusion.

There was no maternal mortality in our study similar to study conducted by Pak J et al [10]and Lalwani et al [20], Renu et al [16]Gupta et al[28].

CONCLUSION

This study adds stronger evidence that VBAC is a reasonable and safe choice for the majority of women with prior cesarean.

As Elective Repeat Cesarean Delivery is associated with a lower neonatal morbidity overall when compared with TOLAC, the decision on whether a woman is a candidate for VBAC principally rests on what will result in the lowest morbidity for both mother and fetus

The trail of scar in patients with previous caesarean section due to non-recurrent causes is safe and often successful, and by such practice, we can reduce the rate of caesarean section.

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ETHICAL APPROVAL: The study was approved by the institutional **Ethics** committee.

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