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RESEARCH ARTICLE

MATERNAL AND FETAL OUTCOMES IN PATIENTS WITH PREVIOUS CAESAREAN SECTION UNDERGOING TRIAL OF VAGINAL BIRTH

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Abstract

Background: Vaginal birth after cesarean section (VBAC) is one of the strategies developed to control the rising rate of cesarean sections (CSs). It is a trial of vaginal delivery in selected cases of a previous CS in a well-equipped hospital. In 1916, Cragin popularized the dictum, "once a caesarean section, always a caesarean section". That was the era of the classical CS. In the present era of lower segment caesarean section (LSCS), cesarean-related morbidity and mortality are significantly reduced. The dictum now is "once a caesarean section, always an institutional delivery in a well-equipped hospital". The reasons which led to the reversal of the old dictum are based upon the newer concepts of the assessment of scar integrity, fetal well-being, and improved facilities of emergency Cesarean Section. Successful vaginal birth after cesarean section is more comfortable than repeat emergency or elective cesarean section. Antenatal examinations are important in selection for trial of labor, while birth management can be difficult when the patients present at emergency condition. But there is an increased chance of vaginal birth with advanced cervical dilation.Nevertheless, a previous CS does cast a shadow over the outcome of future pregnancies. With present techniques and skill, the incidence of cesarean scar rupture in subsequent pregnancies is very low. The strength of the uterine scar and its capacity to withstand the stress of subsequent pregnancy and labor cannot be completely assessed or guaranteed in advance. These cases require the assessment and supervision of a senior obstetrician during labor. Hence, the present study is undertaken to assess the success and safety of VBAC in selected cases of one previous LSCS and to evaluate the maternal and fetal outcome in these cases.

Methods: This prospective observational study was conducted over a period of 18 months from 1st August 2019 to 28th February 2021 at the department of obstetrics and Gynaecology, tertiary care hospital Pune, Maharashtra, India. After achieving ethic committee approval, informed consent of patients enrolled for the study taken, a thorough history and physical examination was done as per proforma. Cases were evaluated thoroughly to collect maternal age, gestational age at admission, association of success rate of VBAC and Parity, Mode of delivery, whether instrumentation was required, indication of previous LSCS, indication of caesarean section in repeat emergency caesarean

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section, history of prior vaginal delivery, interpregnancy interval. Maternal and fetal outcomes in both successful VBAC and emergency caesarean section were observed.Data collected in structured pro-forma, entered in Microsoft Office Excel format, and statistical analysis was performed using SPSS software. The data so collected was presented with graphical representation.

Results: Out of 65 patients undergoing TOLAC, a total of 51 patients had successful vaginal birth and for 14 patient's emergency caesarean section was needed. Therefore, the success rate of VBAC in this study in 78%. The most common indication of failed TOLAC was fetal distress. Factors affecting success of TOLAC seen in the study were inter-pregnancy interval, fetal weight and previous caesarean section done for non-recurrent indications. No significant fetal or maternal morbidity was observed in this study. There was no fetal and maternal mortality.

Conclusion: Trial of labor after one caesarean section should be undertaken in selected patients in well-equipped hospitals where facilities to deal with emergencies are available.Despite the risks, trial of labor after caesarean remains safer option for many patients as there are fewer complications with less maternal morbidity and will lead to a successful outcome in a high percentage of cases.

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Introduction:-

Vaginal birth after caesarean section (VBAC) is one of the strategies developed to control the rising rate of caesarean sections (CSs). It is a trial of vaginal delivery in selected cases of a previous CS in a well-equipped hospital. In 1916, Cragin popularized the dictum, "once a caesarean section, always a caesarean section".[1] Women undergoing caesarean section have a higher morbidity and mortality rate than those having vaginal birth, such as massive postpartum haemorrhage, need for blood transfusion, anaesthesia-associated complications, surgical risks (intestinal obstruction, wound dehiscence, wound scars, infection, etc.), and obstetric complications in subsequent pregnancies. To curb the increasing rate of caesarean birth, both the National Institutes of Health (NIH) and the American College of Obstetricians and Gynaecologists (ACOG) issued statements encouraging obstetricians to support a trial of labor in patients who had undergone a prior caesarean delivery.[2]

That was the era of the classical CS. In the present era of lower segment caesarean section (LSCS), caesarean-related morbidity and mortality are significantly reduced. The dictum now is "once a caesarean section, always an institutional delivery in a well-equipped hospital".[3] The reasons which led to the reversal of the old dictum are based upon the newer concepts of the assessment of scar integrity, fetal well-being, and improved facilities of emergency CS.[3]Successful vaginal birth after caesarean section is more comfortable than repeat emergency or elective caesarean section. While vaginal delivery has less chances of infection, can be performed without general or spinal anaesthesia, provide early ambulation and early discharge, results in better bonding and early breast feeding.[4]

Antenatal examinations are important in selection for trial of labor, while birth management can be difficult when the patients present at emergency condition. But there is an increased chance of vaginal birth with advanced cervical dilation.[5]

When considering which patients should be offered a trial of labor after caesarean, ensure that compliance with ACOG recommendations can be met. Once compliance is established, routinely counsel patients early in the pregnancy regarding the risks and benefits of trial of labor. Many practices and institutions have adopted a separate consent for patients wishing to undergo an attempt at VBAC. While this consent helps to formalize counselling, documentation of the overall risks quoted to the patient, specifically mentioning the individual's risk factors, is all that is necessary.

When examining the literature regarding trial of labor after caesarean, 2 specific outcomes of interest have been well investigated successful VBAC and uterine rupture. Certainly, other outcomes are of interest, including neonatal outcome, hysterectomy, and maternal mortality.

Nevertheless, a previous CS does cast a shadow over the outcome of future pregnancies. With present techniques and skill, the incidence of caesarean scar rupture in subsequent pregnancies is very low.[6] The strength of the uterine scar and its capacity to withstand the stress of subsequent pregnancy and labor cannot be completely assessed or guaranteed in advance.[6] These cases require the assessment and supervision of a senior obstetrician during labor. Hence, the present study is undertaken to assess the success and safety of VBAC in selected cases of one previous LSCS and to evaluate the maternal and fetal outcome in these cases.

Aims And Objectives:-

1) To evaluate success rate of VBAC
2) To find out factors which favours VBAC
3) To identify maternal and fetal outcomes in patients with previous caesarean section undergoing trial of vaginal birth.

Materials And Methods:-

A hospital based prospective observational study was conducted with 65 patients to determine maternal and fetal outcomes in patients with previous caesarean section undergoing trial of vaginal birth.

Study design:
Prospective observational study

Period of study:
18 months- August 2019 to February 2021

Study setting:
Conducted in tertiary care in department of obstetrics and Gynaecology.

Sample size:
All patients from antenatal outdoor patient department and those directly reporting to labor ward, who fulfil inclusion criteria.

Sample size criteria:
Among the study population those who have given consent for the study. Study was conducted after obtaining clearance from the ethical committee.

Inclusion criteria:
1) Previous single lower uterine segment caesarean section.
2) Singleton pregnancy with gestation age ≥36 weeks with adequate pelvis.
3) Vertex presentation with estimated fetal weight ≤3.5kgs in spontaneous labor.
4) Women willing to participate in the study.

Exclusion Criteria:
1) Cases with previous classical or inverted T-shaped incision on the uterus.
2) Cases with previous two or more LSCS with other uterine scars.
3) Cases with history of previous rupture of the uterus or scar dehiscence.
4) Cases with previous caesarean with present intra-uterine fetal death.
5) Patient with cephalopelvic disproportion and contracted pelvis.
6) Uterine Anomalies.
7) Fetal macrosomia.
8) Associated with medical or obstetrics complications.

Methodology:-

After achieving ethic committee approval,informed consent of patients enrolled for the study taken, a thorough history and physical examination was done as per proforma.Cases were evaluated thoroughly to collect maternal age, gestational age at admission, association of success rate of VBAC and Parity, Mode of delivery, whether instrumentation was required, indication of previous LSCS, indication of caesarean section in repeat emergency caesarean section, history of prior vaginal delivery, interpregnancy interval. Maternal outcome in both successful VBAC and emergency caesarean section was observed with the help of parameter like Perineal tears, requirement of blood transfusion, post-partum haemorrhage, prolonged catheterization, dehiscence of scar, post-operative fever and surgical site infections. For fetal outcome, parameters used were based on need of NICU admission and indications for NICU admission.

Data collected in structured pro-forma, entered in Microsoft Office Excel format, and statistical analysis was performed using SPSS software. Qualitative data were analysed using Chi-square test (X2) and Fischer's exact test; p value less than 0.05 means statistically significant; p value less than 0.001 means highly significant; p value more than 0.05 is insignificant.

Results:-

During the study period, out of the total 294 of patients with previous caesarean section admitted to the hospital, 256 patients fulfilled the inclusion criteria. After acquiring informed consents 65 patients were willing to undergo trial of labor and 191 patients opted for elective repeat caesarean section. Out of 65 patients undergoing TOLAC, a total of 51 patients had successful vaginal birth and for 14 patient's emergency caesarean section was needed. Therefore, the success rate of VBAC in this study in 78%.

Table 1:- Age wise distribution of study sample.

Sr. No.	Age (years)	Cases (n=65)		VBAC		Em. LSCS	
1.	20-24	16	25%	15	29%	1	7%
2.	25-29	29	45%	24	47%	5	36%
3.	30-34	18	27%	11	22%	7	50%
4.	>=35	2	3%	1	2%	1	7%

Table 2:- Case distribution according to parity.

Parity	VBAC (n=51)		Em. LSCS (n=14)		Total (n=65)	Chi square p value
2	39	76%	7	52%	46 (71%)	
3	9	18%	4	30%	13 (20%)	
>=4	3	6%	3	18%	6 (9%)	< 0.03

Most of the women belonged to 25-29 years of age (29 cases, i.e., 45%). 18 patients (27%)belongedto30-34yearsofage.16patients(25%)belongedto20-24yearsofage. 2 patients (3%) belonged to above 35 years ofage

Most patients in the present study were of parity 2 (71%). 13 patients (20%) were of parity 3 and 6 patients (9%) patients were of parity 4 and above.

Table 1:- Mode delivery in TOLAC patients.

Characteristics	No. of cases	%
Trial of labor	65	
Successful vaginal birth (VBAC)	51	78.5%
Failed trial requiring emergency section	14	21.5%

51 patients had successful vaginal birth after caesarean section and 14 patients(21.5%) required emergency caesarean section. Therefore, the success rate of VBAC in this study in 78%.

Table 4:- Type ofdelivery.

Mode of delivery	Cases (n=65)	Percentage
Vaginal Delivery	51	78.46%
Spontaneous	22	33.85%
Instrumental	29	44.61%
Vacuum	16	24.61%
Forceps	13	20%
Caesarean Section	14	21.54%

22 patients (33.85%) underwent spontaneous vaginal delivery and 29 patients(44.61%) requiredinstrumental vaginal delivery. Out of the 29 patients requiring instrumental delivery, 13 patients (20%) required outlet forceps and 16 patients (24.61%) needed vacuum delivery.

Table 2:- Indications of instrumental deliveries.

Sr. No	Characteristics	Vacuum (n= 16)		Forceps (n=13)		Total (n=65)
1.	Prolonged second stage	13	78%	8	64%	21 (72%)
2.	Fetal distress	2	12%	2	16%	4 (14%)
3.	Severe anemia (Prophylactic instrumental application)	1	6%	3	20%	4 (14%)

13 patients (82%) from Vacuum group and 8 patients (64%) from forceps group required instrumentation for prolonged second stage. 2 patients (12%) from Vacuum group and 2 patients (16%) from Forceps group required instrumentation for fetal distress. Prophylactic instrumentation for severe anemia was applied for 6% cases in vacuum delivery and 20% cases in forceps delivery.

Table 6:- Indication of Caesarean section in this pregnancy - Failed TOLAC.

Sr. No.	Indication of CS	No. of Patients (n=14)	Percentage
1.	Fetal Distress	9	64.3%
2.	Non- Progress of labor	1	7.1%
3.	Scar Tenderness	4	28.6%

Out of 65 patients given TOLAC, 14 required emergency caesarean section. Fetal distress cases were 9 in number (64.3%). In 4 women (28.6%) scar tenderness was the indication. In one patient non-progression of labor was the cause of indication for emergency caesarean section.

Table 7:- Indication of Caesarean section in Previous Pregnancy.

Sr. No	Indications of LSCS	No. of cases (n=65)		VBAC (n=51)		Em. LSCS (n=14)		Fischer's exact test p value
1.	Fetal distress	55	84%	45	88%	10	72%	
2.	Malpresentations	5	8%	4	8%	1	7%	
3.	Non-Progress of labor	4	6%	1	2%	3	21%	
4.	CPD	1	1%	1	2%	-	-	0.007

In patients with TOLAC, the most common indication for previous caesarean section was fetal distress (84%) followed by malpresentations (8%), non-progress of labor and Cephalopelvic disproportion (1%). The success rate of VBAC increases with non- recurrent indication of previous caesarean section.

Table 8:- Prior Vaginal delivery.

	Total	VBAC (n=51)		Em. LSCS (n=14)		Success rate
History of prior vaginal delivery	**19**	**12**	**24%**	**7**	**50%**	**85.71%**
No history of prior vaginal delivery	**46**	**39**	**76%**	**7**	**50%**	**77.59%**

12 patients (24%) in the VBAC group and 7 patients (50%) who required emergency LSCS had prior history of vaginal delivery. The success rate was found to be 85.71% and 77.59% in patients with and without prior vaginal delivery. Therefore, in our study history of prior vaginal delivery did not contribute to the predictors of successful VBAC in patients undergoing TOLAC

Table 9:- Inter-pregnancy Interval in cases with successful VBAC.

Inter-pregnancy (years)	No. of cases	Percentage
1-2	**12**	**23.53%**
2-5	**32**	**62.74%**
6-10	**7**	**13.73%**

The interpregnancy interval in majority of cases with successful VBAC i.e., 32 patients (62.74%) were between 2-5 years, followed by 12 cases (23.53%) with interpregnancyinterval of 1-2 years and 7 cases (13.73%) with interpregnancy interval of 13.73%.

Table 10:-Fetal Birth weight in successful VBAC.

Fetal birth weight	VBAC (n=51)		Em LSCS (n=14)		Total (n=65)	Chi-square p value
<2500	**10**	**20%**	**3**	**21%**	**13 (20%)**	**0.003**
2500-2999	**21**	**41%**	**6**	**21%**	**27(42%)**	
3000-3499	**17**	**33%**	**2**	**14%**	**19(29%)**	
3500-3999	**3**	**6%**	**3**	**21%**	**6(9%)**	
>=4000	**0**	0%	**0**	0%	0%	

41% with successful VBAC had a fetal weight between 2.5-3 kg followed by 33% cases with fetal weight between 3-3.4 kg. In 20% cases baby weighed less than 2.5 kg and in 6% cases baby weight was above 3.5 kg.

Table 11:- Post-natal stay of babies.

Sr. No.	Characteristic	VBAC (n= 51)		EmergencyLSCS (n=14)		Total (n=65)
		No. Of cases	Percentage	No. Of cases	Percentage	
1.	**Mother side**	**47**	**92%**	**12**	**86%**	**59 (91%)**
2.	**Need of NICU admission**	**4**	**8%**	**2**	**14%**	**6 (9%)**

4 out of 47 babies (8%) born of successful VBAC and 2 out of 12 babies (14%) born of emergency LSCS required NICU admission.

Table 12:- Indications of NICU Admission.

Sr. No.	Characteristic	VBAC (n = 51)		Emergency LSCS (n=14)		Total (n=65)
1.	Birth asphyxia	2	4%	2	14%	4 (6.15%)
2.	Hypoglycemia	1	2%	0	0%	1 (1.5%)
3.	Neonatal sepsis	1	2%	0	0%	1 (1.5%)

Babies of 2 patients (4%) with successful VBAC and 2 babies (14%) born of Em. LSCS required NICU admission for birth asphyxia. One baby born of VBAC required NICU admission for hypoglycemia and one for neonatal sepsis.

Table 3:- Post- delivery maternal morbidity.

Sr. No.	Condition	VBAC (n= 51) No.	%	LSCS (n=14) No.	%
1.	Blood Transfusion	4	8%	3	21%
2.	Perineal tears	5	9.8%	0	0%
3.	Atonic Postpartum hemorrhage	1	2%	0	0%
4.	Traumatic Postpartum hemorrhage	1	2%	0	0%
5.	Prolonged catheterization (>3 days)	1	2%	0	0%
6.	Dehiscence of the scar	0	0%	0	0%
7.	Surgical site infection	0	0%	0	0%
8.	Post-operative fever	0	0%	0	0%

4 patients (8%) in VBAC group and 3 patients (21%) in the Em LSCS group required blood transfusion. Perineal tears were noted in 5 patients with successful VBAC. In the VBAC group one patient had atonic PPH, one patient had traumatic PPH and 1 patient required prolonged catheterization.

Discussion:-

Vaginal Birth after Caesarean Section (VBAC) has always remained a domain of controversies and dilemma in Obstetrics. with improved maternity care, electronic fetal monitoring and institutional delivery for a previous caesarean section, VBAC is considered safer than repeat elective CS in a carefully selected population.[7]

Patients with successful trial of labor experience fewer blood transfusions, fewer postpartum infections and no increased perinatal mortality as compared to those with planned repeat caesarean delivery.[8]

However, several factors increase the likelihood of a failed trial, which in turn might lead to increased maternal and perinatal morbidity including uterine rupture and related fetal morbidity and mortality rates.[9]

The decision for a trial of labor or elective repeat CS is an individual one and that should be based on careful selection and thorough counselling.[10]

Success rate

The rate of successful trial of vaginal delivery in our study showed 78%. Majority of the studies have success rate between 60-80%.

Studies with similar success rates are Turner MJA[11] with 77.8%, Levin G[12] shows 76.7%, Doshi HU[13] shows 75%. Studies done by UmbardandSM[14], Meier PR[31], Bangal VB[6] had success rates of 82%, 84.5%, 85% respectively. Maximum success rate of 90.8% was seen in a study by Molloy BG. [16]

Studies	Success rate of VBAC
Our study	78%
Bangal VB et al 2011 [6]	85%
Turner MJA [11]	77.8%
Levin G et al [12]	76.7%
Doshi HU [13]	75%
Umbardand SM et al 2017 [14]	82%
Meier PR et al [15]	84.5%
Molloy BG et al [16]	90.8%
Varahan Shakti et al. 2006 [17]	72.1%
Morewood GA et al [18]	70.4%
Kumar P et.al 2012 [19]	68.4%
Singh N et al [20]	67.6%
Rajole KM et al 2020 [21]	66.7%
Bhat BPR et al 2010 [22]	64.6%
Dhillon B S et al [23]	62.3%
Channabasappa et al 2016 [24]	61.3%
Puja Puri et al 2011 [25]	56.10%
Chhabra S et al 2006 [26]	54.5%
Kumari K et al 2020 [27]	39%

Age wise distribution

Inour study most of the women who delivered vaginally belonged to 25-29 years of age (25cases,i.e.,47%).15patients(29%)belongedto30-34yearsofage.11patients(22%)belongedto20-24yearsofage.1patient(2%)belongedtoabove35yearsofage.ItwasfoundtobecomparabletothestudydonebyVardhanShakti[10]foragegroup 21-30 (69.5%) and to the study done by Singh N[20] et al for age group 25-29yrs (66%). In a study by UmbardandSM[14] most of the women who delivered vaginally belonged to age group of 21-30(95%).

In a study byKumari K[27] 51% patients who delivered vaginally belonged to 19-24 yrs of age,37%to25-29yrsofage,9%to30-34yrsofageandonly3%tomorethan35years of age.

In a study by BangalBV[6], the maximum percentage of cases in their study were in the agegroupof21to30yearsascomparedtotheagegroups,reflectingthechild-bearing age of most of the women. Bhat PR[28] in their studies concluded that the success rate decreases in women aged above 35years.

Parity

In our study most patients were of parity 2 (71%). 13 patients (20%) were of parity 3and 6 patients (9%) patients were of parity 4 and above. This was found similar to study done by Rajole KM [21] where 70% cases were of parity 2 followed by parity 3 and above.

In a study done by Kumari K[27] where 52% were of parity 2, 31% of parity 3 and 17% of parity 4 and above.

Need of instrumental delivery

In our study out of the 29 patients requiring instrumental delivery, 13 patients (20%) required outlet forceps and 16 patients (24.61%) needed vacuum delivery. 13 patients (82%) from Vacuum group and 8 patients (64%) from forceps group required instrumentation for prolonged second stage. 2 patients (12%) from Vacuum group and 2 patients (16%) from Forceps group required instrumentation for fetal distress.

Prophylactic instrumentation for severe anemia was applied for 6% cases in vacuum delivery and 20% cases in forceps delivery.

In a study by Channabasappa[24], prophylactic forceps was used in 6.81% cases and 11.6% had forceps assisted vaginal delivery in a study by Rajole[17]. 20% cases in study by Pujari P[25] had forceps assisted vaginal delivery. In a study by BangalBV[6] only 2% cases undergone instrumental vaginal delivery. In a study by Pradhan K[19] 20.83% required outlet forceps and 11.45% needed vacuum delivery.

Indication of previous Caesarean section and repeat Caesarean section

The most common indication for previous caesarean section was fetal distress (84%) followed by malpresentations (8%), non-progress of labor (6%) and Cephalopelvic disproportion (1%).

Puja Puri[25], Jarrell MA[29], Lavin JP[30], Chattopadhyay K[31], Aida Kalok[32], Trojano G[33] in their studies reported that one of the significant predictors for success of VBAC was indication of caesarean section in previous pregnancy.

However, a study by Caughey AB[34] shows that indication for the previous caesarean delivery had no effect on failed TOLAC undergoing emergency caesarean section.

In a study by GR Thumau[35] out of the total patients who had undergone previous caesarean section for CPD 28% of the cases required repeat caesarean section for CPD in current pregnancy.

In our study patient with CPD as indication for previous caesarean had a successful VBAC. Lai SF[36] also in a study concluded that CPD at the time of previous caesarean was not significant to determine the success of VBAC.

In our study out of 65 patients given TOLAC, 14 required emergency caesarean section. Fetal distress cases were 9 in number (64.3%). In 4 women (28.6%) scar tenderness was the indication. In one patient non-progression of labor was the cause of indication for emergency caesarean section. This is similar to study done by Singh N[20] where most common indications for repeat Caesarean section were fetal distress and meconium-stained liquor.

In our study it was also seen that indication of previous LSCS was non- progress of labour in one patient with TOLAC who required repeat emergency LSCS for non- progress of labor.

Previous vaginal delivery

Studies done by Doshi HU[13], Molloy BG[16], Singh N[20], Bujold E[28], Lavin JP[30],Chattopadhyay K[31], Ola ER[37], Handler I[38], Zelp[39], Atia O [40], Landon MB[41][42], have shown that prior vaginal delivery, including prior successful VBAC, is the strongest predictor of a successful TOL and is protective against uterine rupture following TOL with a possible explanation for this is multiparous women will develop efficient uterine contractions in labor. 12 patients (24%) in the VBAC group and 7 patients (50%) who required emergency LSCS had prior history of vaginal delivery.

Therefore, in our study history of prior vaginal delivery did not contribute to the predictors of successful VBAC in patients undergoing TOLAC. The success rate was found to be 85.71% and 77.59% in patients with and without prior vaginal delivery respectively. It is similar to a study done by Meyer R with success rate 72.2% in patients without prior vaginaldelivery.

In a study by Kumari K[27] the success rate was 39% in both groups of patients with or without prior vaginaldelivery.

In a study by Pradhan K[19], the success rate was found to be 47.91 % and 52.09 % in patients with and without prior vaginal delivery respectively.

Inter-pregnancy interval

The interpregnancy interval in majority of cases with successful VBAC i.e., 32 patients (62.74%) were between 2-5 years, followed by 12 cases (23.53%) with interpregnancy interval of 1-2 years and 7 cases (13.73%) with interpregnancy interval of more than 5 years.

Studies that have shown that inter-pregnancy interval is one of the predictors forsuccessful VBAC are by Doshi HU[13], Singh N[20], Landon MB[41][42]and Dhall K[43].

In a study Rietveld AL [44] the success rate in was 72% with inter-pregnancy interval of 24 – to 36- months. Success rates were similar among those with an interval of less than 24 months. Intervals of 24 months or more showed a

decrease in success rate. In a study by BangalBV[6],the interval between the previous caesarean and the present pregnancy was more than two years in 77% cases, whereas it was less than two years in 23% of the cases. However, TrojanoG[33] concluded that two years, decreased when interval was more.

Fetal Birth weight in successful VBAC

41% with successful VBAC had a fetal weight between 2.5-3 kg followed by 33% cases with fetal weight between 3-3.4 kg. In 20% cases baby weighed less than 2.5 kg and in 6% cases baby weight was above 3.5 kg.

This was found to be similar to study by Channabasappa[24] with majority of the babies born out of successful VBAC weighed between 2.5-3kg.

54% of babies from VBAC group weighed more than 2.5kg in a study done by Kumari K[27] et al.

Ola ER[37] in their study have shown that the rate of successful VBAC decreases with fetuses weighing above 3.3 kg.

Similarly, BangalBV[6] reported that the success rate of VBAC decreased significantly when the birth weight was more than 3kg.

Neonatal weight has been an important predictor of successful VBAC in studies byDoshiHU[13], Dhall K[43]and Gupta S [45].

Neonatal Outcome

14% babies from VBAC group developed fetal distress for which instrumentation was required. The incidence of fetal distress in studies byShaktiV[17],Yadav K [46] et al and Chaudhari DR[47]et al was 22.72%, 14.15% and 50% respectively.

In our study 4 out of 47 babies (8%) born of successful VBAC and 2 out of 12 babies (14%) born of emergency LSCS required NICU admission. Babies of 2 patients (4%) with successful VBAC and 2 babies (14%) born of Em. LSCS required NICU admission for birth asphyxia. One baby born of VBAC required NICU admission for hypoglycemia and one for neonatal sepsis.

No significant comparable difference in neonatal outcome was noted in our study which similar to that of studies by Singh N[24] and Suresh CS[48].

UmbardabdSM[14]and Channabasappa[24] found no association between neonatal outcome and type of delivery.

In successful VBAC group Molloy BG[16],Scott JR[20], Handler I[38],Jones RO[49], Aisien AO[51]reported fetal complication like birth asphyxia, neurologic impairment. Chhabra S[26]and Appleton B[52] reported perinatal death in successful VBAC of 0.3% and 0.68% respectively. Dhillon B S[23] reported a perinatal mortality of 18.0/1000 deliveries.

No significant fetal morbidity or mortality was reported in studies by Turner MJA[11], Doshi HU[13],Meier PR[15],Morewood GA[18],Jarrell MA[29],Loebel G[39], and M F Alves[53].

There was no significant difference between neonatal morbidity between those who underwent elective caesarean section and those who had undergone trial of labor after caesarean in a study by McMahon MJ[54].

Maternal Outcome

In our study 4 patients (8%) in VBAC group and 3 patients (21%) in the Em LSCS group required blood transfusion. 2 patients in VBAC group and all 3 patients in the Em LSCS group required blood transfusion owing to pre-existing anemia. The other two patients from the VBAC group required blood transfusion for post-partum hemorrhage.

The incidence of blood transfusion in successful VBAC group in studies by Mark B L[42] was 1.6% and Dhillon BS[53] was 7%.

Perineal tears were noted in 5 patients with successful VBAC. In the VBAC group one patient had atonic PPH, one patient had traumatic PPH and 1 patient required prolonged catheterization.

No case of uterine rupture was reported in our study. The incidence of hysterectomy was nil in our study.

The incidence of uterine rupture 5.4% in study done by Dhillon BS[23] and 1.1% in study done by Akusherstvo.[25] Chhabra S[26] reported 0.68% andMark B L[42] reported 0.2%incidence of hysterectomy in their studies.

No significant maternal or fetal morbidity was reported in studies by Doshi HU[13], Meier PR[15], Morewood GA[18], Jarrell MA[29], Loebel G[39] and M F Alves[53].

No fetal or maternal mortality was observed in study done by Turner MJA[11].

UmbardabdSM[14] reported higher rates of maternal complication in patients requiring repeat emergency caesarean section.

Conclusion:-

Trial of labor after one caesarean section should be undertaken in selected patients in well-equipped hospitals where facilities to deal with emergencies are available.

After thorough counselling regarding risks and consequences, the decision to undergo a trial of labor after caesarean is an individual one. An attempt for VBAC is well justified for post caesarean pregnancy with non-recurrentindication.

Despite the risks, trial of labor after caesarean remains safer option for many patients as there are fewer complications with less maternal morbidity and will lead to a successful outcome in a high percentage of cases.

Limitations:

1) 65 patients consented for TOLAC. Therefore, the results are limited to lesserstudy group.
2) The results of maternal and fetal outcome in patients with previous LSCS undergoing induction of labouris not includedin study. TOLAC could not be ascertained as only those with spontaneous onset of labor were included in thestudy.

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