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Original Research Article

To study the outcome of previous one cesarean pregnancies in a rural tertiary center of Haryana, India

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ABSTRACT

Background: Rising rates of caesarean section is a matter of great concern and TOLAC is an attractive alternative. Analysing outcome of previous one caesarean pregnancies will provide an insight for reducing the caesarean rates and formulating protocols and policies for TOLAC.

Methods: A retrospective study of patients of previous one caesarean pregnancy was done from February 2015 to January 2016 and 3 groups were made, ERCS group, failed TOLAC group and successful TOLAC group. The rates of elective repeat caesarean, failed TOLAC, successful TOLAC, maternal complications, neonatal morbidity and mortality in all three groups were studied.

Results: There were 5177 total deliveries with 488 (9.43%) previous one caesarean pregnancies. Out of 488 patients 161 (33%) underwent elective repeat caesarean and 327 (67%) underwent trial of labour. Out of 327 patients 234 (71.56%) had a successful TOLAC and 93 (28.44%) had failed TOLAC. Breech (23%) followed by foetal distress (20%) were the most common indications of previous caesarean. Commonest indication of elective repeat caesarean was short interval (33%) and that of failed TOLAC was foetal distress (38.7%) followed by failed induction (23.6%). There were 4 morbidly adherent placentas (0.82%), 1 scar rupture, 3 scar dehiscence, no maternal mortality and 10 neonatal deaths.

Conclusions: Previous one caesarean section is not only a risk factor for repeat caesareans and complications like morbidly adherent placenta, uterine rupture but also a financial burden on health facilities. Encouraging the patients for trial of labour and emphasizing the usage of contraception is the need of the hour.

Keywords: Previous cesarean, TOLAC, VBAC

INTRODUCTION

The 20th century witnessed a boom in caesarean rates from 5% (1970) to 25% (1988) and it is still continuing to rise with 31% in 2007.^{1,2} The dictum 'once a caesarean always a caesarean' was followed by the concept of TOLAC with TOLAC rates as good as 40-50% in 1996 but it reduced to only 8.5% by 2006, because of the reports of rupture uterus and more strict guidelines by ACOG.^{1,2} TOLAC is a good alternative to a repeat caesarean section to avoid future complication associated

with multiple caesareans like morbidly adherent placenta, surgical difficulties, injuries to adjacent viscera, multiple blood transfusions etc. But this too is not 100% safe. Maternal mortality after a rupture uterus in this era is very low but main insult is to the foetus with high morbidity and mortality. On the other hand, multiple caesareans not only increase maternal morbidity but also burden health system with extra cost. In India the present caesarean section rates are quite variable ranging from 6.2% (Bihar) to unacceptably high of 58% (Telangana) according to the 4th NFHS 2015-2016.³ On analysing the

recent caesarean delivery rates of western countries, it was found that Caesarean delivery rate in England for 2012-2013 was 25.5% and in United States for 2015 was 32%.^{4,5} A high primary caesarean rate ultimately increases the incidence of previous one caesarean pregnancies and related complications. Since there have been changes in the trends of primary caesarean section rates and VBAC rates over decades, there is a need of audit from time to time.

Caesarean section rates are higher in urban areas as compared to rural areas and higher in the private as compared to the public health facilities. Ours is a study of a rural tertiary centre catering the rural population of Haryana. Careful case selection and continuous intrapartum foetal and maternal monitoring can successfully reduce repeat caesareans.

METHODS

A Record based retrospective study was done over period of one year from February 2015 to January 2016. Case files of patients of previous one caesarean sections were reviewed and 3 groups were made.

- Group 1: elective repeat caesarean section (ERCS) due to recurrent indication or absolute indication
- Group 2: failed TOLAC and
- Group 3: successful TOLAC.

As per hospital protocol the patients underwent TOLAC with the inclusion criteria of informed and written consent for TOLAC, singleton pregnancy, cephalic presentation, Hb \geq 8 gm%, interpregnancy interval more than 18 months and adequate pelvis. Exclusion criteria

were previous one caesarean pregnancy with any complicating factors.

Patients with no other high-risk factor were allowed to go till 40 weeks and induction of labor was done at completed 40 weeks with dinoprostone gel. Patients with bishops score less than 3 were taken for elective repeat caesarean. Patients and the family members of the TOLAC groups were counseled regarding the benefits and the risks associated with the success and failure. Admission CTG was done for all patients and labour progress was monitored with a partograph and CTG.

Clinical signs of scar dehiscence and rupture with the vitals monitoring, vaginal bleeding, abnormal CTG and scar tenderness were looked for. The results were analyzed using Microsoft excel and SPSS 20 by calculating average, range, standard deviation and percentage. Chi square test, t test and ANOVA were applied where ever required for comparisons among the groups.

RESULTS

There were 5177 total deliveries during the study period with 488 previous one caesarean pregnancies with the incidence of 9.43% of previous one caesarean patients coming to labour ward. Out of 488 patients 161 (33%) underwent elective repeat caesarean and 327 (67%) were taken for trial of labour as per hospital protocol. Out of 327 patients 234 (71.56%) had a successful TOLAC and 93 (28.44%) had a repeat caesarean section and hence failed TOLAC. The demographic profile is depicted in Table 1. In all the groups most of the patients belonged to rural areas.

Table 1: Demographic profile.

Demographic profile	ERCS group (161)	Failed TOLAC group (93)	Successful TOLAC (234)	P value
Mean age in years (\pm 2SD) (range)	25.63 (\pm 3.69) (20-36)	25.15 (\pm 2.02) (22-32)	25.54 (\pm 3.11) (20-40)	0.474
Mean parity	1.26	1.22	1.3	0.214
Mean period of gestation in weeks	37.55	37.92	37.62	0.000

Table 2: Indication of primary caesarean section.

Indication of caesarean in last pregnancy	ERCS group	Failed TOLAC group	Successful TOLAC	Total
Malpresentations (breech)	40 (36)	16 (14)	73 (62)	129 (112)
Foetal distress	27	27	44	98
NPOL	20	18	46	84
Failed induction	24	17	14	55
APH	10	5	6	21
Preeclampsia/eclampsia	11	3	10	24
Contracted pelvis	10	0	0	10
CPD	5	0	4	9
Cord complications	3	0	5	8
Others	11	7	32	50
Total	161	93	234	488

The average interpregnancy interval in ERCS group was 33.24±27.22 months (range 11-204), in failed TOLAC group was 38.73±17.95 months (range of 18-96) and in successful TOLAC group was 38.76±20.26 months (range of 18-144) (p value 0.001). As shown in Table 2, malpresentation mainly breech (26.4%) followed by fetal distress (20%) happened to be the most common indications of previous cesarean. Table 3 depicts that the most common indication of elective repeat cesarean was short interval in 33% patients of ERCS group whereas in failed TOLAC group it was fetal distress (38.7%) followed by failed induction (23.6%) and scar tenderness (22.5%).

Table 3: Indications of cesarean section in present pregnancy in ERCS and failed TOLAC group.

Indications	ERCS	Failed TOLAC
Short interval	53 (33%)	-
Malpresentation	26 (16.1%)	-
Contracted pelvis	17 (10.5%)	-
Refusal for TOLAC	12 (7.4%)	-
Placenta previa	10	-
Preeclampsia/eclampsia	10	-
CPD	11	-
Prom with poor bishops	8	-
Foetal distress	-	36 (38.7%) (2 scar dehiscence)
Failed induction	-	22 (23.6%)
Scar tenderness	-	21 (22.5%) (1 scar dehiscence)
DTA	-	5
NPOL	-	5
Scar rupture	-	1
Others	14	3
Total	161	93

It was observed that 73.7% of primary cesareans were done in health facilities other than tertiary hospitals. Contraceptive usage was there in only 12.9% patients as a whole. Table 4 shows maternal complications in all three groups. There were 4 morbidly adherent placentas (0.82%) out of 488 previous one cesarean pregnancies, 3 of them underwent cesarean hysterectomies and one was managed with conservative surgery. The incidence of scar rupture was 0.3% and that of scar dehiscence 0.9%.

In the failed TOLAC group 3 patients had scar dehiscence (2 patients of the fetal distress and 1 patient of scar tenderness) and 1 had scar rupture. There was no morbidity or mortality in neonates of scar dehiscence but the neonate of scar rupture was still born. The bladder tear and uterus of uterine rupture case were repaired successfully. Other complications like wound sepsis and pyrexia were more common in Failed TOLAC group as compared to Successful TOLAC group. There was no maternal mortality. The ERCS and Failed TOLAC group patients had more blood transfusions as compared to the

Successful TOLAC group patients 55/254 versus 14/234 (p value 0.00). The average hospital stay in ERCS group was 7.2±5.18 days (range 3-45 days), in failed TOLAC group 7.5±4.67 days (range 3-30 days) whereas in successful TOLAC group it was 2.23±1.48 days (range 1-5 days). P value was 0.00 highly significant when successful TOLAC group is compared with both cesarean groups.

Table 4: Complications in present pregnancy.

Complications (n)	ERCS (161)	Failed TOLAC + successful TOLAC (93+234)
Severe anaemia	22	15+11
Preeclampsia	25	18+23
	Mild - 5	
	Severe - 20	
Placenta previa	10	0+0
Morbidly adherent placenta	4	0+0
Intraoperative complications		
Dense adhesions	30	13+0
Bladder injury	1	1+0
Thin scar	8	8+0
Scar dehiscence	0	2+0
Scar rupture	0	1+0
Morbidly adherent placenta	4	0+0
Caesarean hysterectomy	3	0+0
Other complications		
Blood transfusion	40	15+14
Traumatic PPH	0	0+1
Atonic PPH	4	2+2
Pyrexia	4	3+1
Wound sepsis	6	5+1
Paralytic ileus	3	4+0
Extended hospital stay >2 days	161	93+53

Table 5: Neonatal outcome.

Neonatal outcome (n)	ERCS (161)	TOLAC group (327)	P value
Weight in kg (mean)	2.81	2.63	0.10
NICU admissions	17 (10.5%)	31 (9.5%)	0.74
Mortality	3 (1.8%)	7 (2.1%)	0.83
FSB	0	1 (rupture uterus)	

Table 5 shows neonatal outcome. There were 10.5% NICU admissions in ERCS group as compared to 9.5% in TOLAC group. There were three neonatal mortalities in ERCS group (2 preterm with sepsis and 1 was severe

1 UGR with sepsis) and three in failed TOLAC group (1 rupture uterus, 1 TOF, 1 hyperbilirubinemia). In Successful TOLAC group there were four neonatal mortalities, three newborns were extremely preterm and one developed sepsis. There were 10 IUFD 9 of which were taken for TOLAC and all of them delivered vaginally. One out of the 10 IUFD was preterm transverse lie with cord prolapsed and underwent ERCS.

DISCUSSION

There has been a continuous rise in the cesarean rates and a 2011 study calculates that if trends continue, the 2020 cesarean rate will be 56.2% which is alarming high.⁶ With the upcoming studies and metanalysis on TOLAC it has become a good option for reducing the incidence of repeat cesarean deliveries.

The overall TOLAC rates in US studies are 58% whereas in our study it was 67%.⁷ In an Indian study it was noted that 43.1% of the patients of previous one cesarean pregnancies eligible for TOLAC refused for it in contrast to 3.5% of our patients and opted for elective repeat cesarean which means there is a need for repeated counseling which should begin right in the early antenatal period as specially emphasized by RCOG.⁸

Doshi et al depicted in his study that patients with prior LSCS for malpresentations had 42% successful VBAC and in the present study it was 50%. Hence TOLAC should always be offered to such patients.⁹ Mishra et al in their study have depicted that the most common indication of previous cesarean was breech followed by non-progress of labour, this is in accordance to the present study.¹⁰ Present study found that 23% of patients in all three groups had breech as indication of previous cesarean, which could have been reduced to some extent at least, by doing an assisted vaginal breech delivery. Hence by practicing assisted vaginal breech delivery and external cephalic version in selective cases we can certainly reduce the incidence of previous one cesarean pregnancy.

In a study by Bangal et al and Shah et al the most common indication of failed TOLAC was fetal distress which is similar to our results.¹¹ A literature review suggests that there is 60-80% success in TOLAC.¹² The successful TOLAC rate in the present study is 71.56% and is comparable to other studies. The successful TOLAC rates in Indian studies are much better than the developed countries like USA (13.8%) and Australia (43%).^{13,14}

The incidence of scar rupture in the present study was 0.3% and the ACOG estimates it to be 0.2 to 1.5%.¹ Shipp et al studied the risk of scar dehiscence in relation to the interval between a previous CS and the present pregnancy and found that the rate of scar rupture was 2.3%, when the interval was less than 18 months as compared to 1%, when the interval was more than 18

months.¹⁵ The lower incidence of scar rupture in the present study was because as per hospital protocol only patients with interval more than 18 months were taken for TOLAC and strict fetomaternal monitoring of patients in labour was done. The maternal morbidity in terms of intraoperative and postoperative complications, blood transfusion, and extended hospital stay was more in the ERCS and failed TOLAC group as compared to successful TOLAC group. The fetal morbidity in ERCS in terms of NICU admission was seen in 10.5% neonates as compared to 9.5% in TOLAC group (p value 0.74). McMohan et al in a study on comparison of trial of labour with elective second cesarean, stated that there were similar rates of NICU admissions and prenatal mortality in both the groups.¹⁶ Most of the cases of NICU admission in successful TOLAC group were due to low birth weight and prematurity and in other two groups were because of respiratory distress and meconium aspiration. There were 3 neonatal mortalities in ERCS group and failed TOLAC group each and 4 in successful TOLAC group and prematurity and sepsis were the main causes (p value 0.83). Chhabra et al also quoted a zero-maternal mortality rate and a morbidity rate of 0.68%, which was unrelated to trial of labor.¹⁷ Women considering planned VBAC should be informed that this decision carries a 2-3/10,000 additional risk of such birth related perinatal death when compared with ERCS. The women should be told that the absolute risk of TOLAC related perinatal loss is comparable to the risk for women having their first birth.⁹ A review of literature suggests that ERCS does not affect any decrease in fetal or maternal mortality and instead further increases costs borne out of increased hospital stay and maternal morbidity.^{18,19}

Short interval has been the most common indication of ERCS as in 33% of the patients which could be reduced by a good contraceptive counseling beginning in the antenatal period itself, as only 11.2% of ERCS group and 12.9% of all the groups patients had used contraceptives. In the present study the analysis showed that 73.7% of first cesareans were done in health facilities other than tertiary hospitals where continuous electronic fetal monitors and adequate staff is generally not available and also for the fear of medico legal liabilities.

The need of the hour is not only the reduction in primary cesareans but also the repeat cesareans and TOLAC is a reasonably good option. The various societies like RCOG, ACOG, RANZCOG have emphasized on the proper antenatal counseling of the women explaining the risks and benefits and planning of the place of delivery which should be no less than a well-equipped hospital with 24 hours cesarean facilities and blood bank.

Case selection for TOLAC should be done by a senior obstetrician and a scoring system with predictors of successful outcome like spontaneous onset of labour, previous history of vaginal delivery, estimated birth weight less than 3 kg, non-recurrent indication of

previous cesarean, interpregnancy interval less than 18 months etc can be developed for supporting the decision for mode of delivery. By achieving a successful TOLAC the financial burden on the health care provider and family is substantially reduced and also is the incidence of previous 2 cesarean pregnancies. Early maternal recovery, reduction in need for blood transfusion, anesthetic complications, surgery related complications like injuries to bladder and bowel, fever, wound sepsis, urinary tract infections, morbidly adherent placenta and its related comorbidities are other advantages. But the risk of uterine rupture and neonatal mortality in even a single case out of thousands is enough to put down the morale of the Obstetrician. Similarly, a single case of morbidly adherent placenta can turn into a nightmare which sometimes might even cost the patient's life. Careful case selection, antenatal counseling for TOLAC by consultant obstetrician and strict monitoring of labour of TOLAC cases are the keys to a successful outcome of a previous cesarean pregnancy.

CONCLUSION

Previous one caesarean section is not only a risk factor for repeat caesareans and complications like morbidly adherent placenta, uterine rupture but also a financial burden on health facilities. Encouraging the patients for trial of labour and emphasizing the usage of contraception is the need of the hour.

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