A Study on Success of TOLAC in Previous Ante Partum Vs. Intra Partum Caesarean Delivery

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Abstract :

Introduction : Both the American College of Obstetricians and Gynecologists (ACOG) and the National Institutes of Health (NIH) suggest that a trial of labor after cesarean (TOLAC) to attempt a vaginal birth after cesarean (VBAC) is an acceptable option for a woman who has undergone one prior cesarean delivery with a low transverse uterine incision, assuming there are no other conditions that would normally require a cesarean delivery. **Aim :** To study the outcome of TOLAC in previous caesarean sections and to compare success of trial of labor in ante partum & intra partum previous caesarean sections. **Methodology :** This was a prospective study in GCS Medical College. Fifty cases were chosen fulfilling the eligibility criteria and were subjected to study. **Result :** The outcome was measured as successful VBAC. Out of 50 cases included in our study, 28 cases (56% of total cases) qualified for TOLAC during labour. Successful TOL(trial of labor) was observed in 50 %(14 out of 28) resulting in VBAC (vaginal birth after caesarean) and of these, 69.23 %(9 out of 14) had ante natal indication for their previous caesarean delivery. **Conclusion :** In our study, out of all VBAC's, 69.23% (9 out of 14) had ante natal indication for their previous caesarean delivery; most common indication being breech (46%) followed by post-datism and oligohydramnios (23% each). Repeat Caesarian in failed TOL was performed for non progress of labour (50%) as the most common indication followed by fetal distress in 28.57%.

Key Words : VBAC (vaginal birth after caesarean), TOLAC (trial of labour after caesarean), ERCD (elective repeat caesarean delivery), RPCS (repeat caesarean section)

Introduction :

Until the late 1970's "Once a cesarean always a cesarean" was the general clinical management followed by most obstetricians. A classical uterine incision was used until the 1920's, when the low transverse (LT) incision was introduced. The LT incision was associated with a ten times lower incidence of uterine rupture in labor than the classical incision. Based on studies in the 1970's, when the TOLAC rate was very low, the National Institute of Health (NIH; 1980) and the American College of Obstetricians and Gynecologists (ACOG; 1988) suggested that a TOL after low transverse cesarean delivery is a reasonable option. [1] In response to these recommendations, the TOLAC rate in the US increased from 3.5% in 1980 to 28.3% in 1996. As more TOLAC were attempted, more ruptures were seen and related litigation also increased. As a result, incidence of TOLAC has decreased to 8.5% in the USA in 2007. After declining until about 1997, over all incidence of CD has increased to 32% in the USA in 2007. [2]

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Both the American College of Obstetricians and Gynecologists (ACOG) and the National Institutes of Health (NIH) suggest that a trial of labor after cesarean (TOLAC) to attempt a vaginal birth after cesarean (VBAC) is an acceptable option for a woman who has undergone one prior cesarean delivery with a low transverse uterine incision, assuming there are no other conditions that would normally require a cesarean delivery (as an example, placenta previa).[3, 4] ACOG states that the risk of uterine rupture during TOLAC is low, between 0.5 and 0.9 percent. But rupture is an emergency situation that can cause serious injury to the mother and baby. TOLAC is most safe when done with health care staff that can immediately provide an emergency cesarean. ACOG explains that a successful VBAC has fewer complications than an elective repeat cesarean. [5]

Objectives :

To study the outcome of trial of labour after caesarean section (TOLAC) and to compare the success of trial of labour in previous caesarean sections done for ante natal indication (elective) in comparison to those performed during active labour or intra partum(emergency) indication.

Methodology :

It was a prospective study done at GCS Medical College. we selected 50 cases during the period from July 2012 to January 2013 with one prior low transverse cesarean delivery who attempted a VBAC in the current pregnancy.

This study was conducted after getting permission from institutional ethical committee of GCS Medical College. Proper counseling was done to the selected cases regarding risks and complications associated with TOLAC and also the benefits of VBAC. Informed consent was taken. Specific inclusion and exclusion criteria were developed to determine study eligibility. The inclusion criteria included previous one low transverse C.S., non recurrent indication, cephalic presentation , estimated birth weight, woman's informed consent, spontaneous labour. The exclusion criteria included gestational age <34 weeks, refusal for consent, associated high risk factors, previous C.S. with history of complications, last delivery to present conception period < 18 months.

Result :

Table 1 : General Profile of study participants

Age	No. of cases	Parity	No. of cases
20-25yrs	2	Previous one CS	48
25-30yrs	20	Previous VBAC	2
30-35yrs	25		
35-40yrs	3	**Total**	50
Total	50		

In our study, most of the cases were 2nd gravida with previous low transverse caesarean section (96%) and the rest 4% cases were 3rd gravida having previous successful VBAC. Most cases (90%) fell in the age group between 25 to 35 yrs.

Table 2 : Current Mode of delivery in previous caesarean section cases

Mode of Delivery	No. of Cases (%)
ERCD	22 (44)
TOLAC	28 (56)
- VBAC	14 (28)
- RPCS	14 (28)
Total studied cases	50 (100)

ERCD: Elective Repeat Caesarean Delivery; RPCS: Repeat Caesarean Section

Table 2 shows that 56% (28 out of 50) of total included cases underwent trial of labour after caesarean section (TOLAC) and rest 44% (22 out of 50) ended up in Elective repeat caesarean delivery (ERCD).

Table 3: Comparison of outcome of TOLAC with previous indication of caesarean section

Previous indication of C.S.	Outcome of TOLAC	
	VBAC (out of 14)	RPCS (out of 14)
• Ante natal	**9 (64.3%)**	**4 (28.57%)**
1. Breech	6 (42.85%)	0
2. Oligohydamnios	1(7.14%)	2 (14.3%)
3. Cord around neck	1 (7.14%)	0
4. Postdatism	1 (7.14%)	2 (14.3%)
• Intra partum	**5 (35.7%)**	**10 (71.43%)**
1. Fetal distress	4 (28.57%)	10 (71.43%)
2. Non progress of labour	1(7.14%)	0
Total	**14 (100%)**	**14 (100%)**

This table compares the success of TOLAC with previous indication of caesarean section. VBAC happened in 64.3% of cases with ante natal indication, most common being breech (in 42.85% cases) followed by oligohydramnios, cord around neck & post datism.

Table 4: Association of TOLAC cases with interval between 2 deliveries

Mode of delivery	1.5-3 yrs	3-4.5 yrs	4.5-6 yrs	>6 yrs	Total
VBAC	2 (14.31%)	8 (57.14%)	1 (7.14%)	3 (21.41%)	14 (100%)
RPCS	5 (35.72%)	5 (35.72%)	1 (7.14%)	3 (21.42%)	14 (100%)

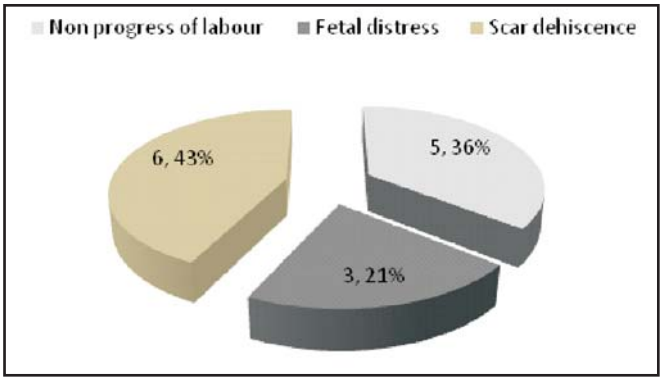
Out of all cases, 85.7% of VBAC had more than 3 years interval between previous C.S. and present delivery.

Table 5 : Mode of delivery Vs baby weight at birth

Birth weight (kg)	VBAC (out of 14)	RPCS (out of 14)	Total
<2.5	2 (14.3%)	1(7.14%)	3 (10.71%)
2.5-3	9 (64.3%)	5 (35.72%)	14 (50%)
3-3.5	3 (21.4%)	8 (57.14%)	11 (39.29%)
3.5-4	0	0	0
>4	0	0	0

Most VBAC deliveries (78.6%) weighed less than 3 kg. RPCS (57.14%) was done mostly in birth weight more than 3 kg.

Figure 1: Indication of RPCS in unsuccessful TOLAC (N=14)



As shown in Figure I, Repeat caesarean section (RPCS) was done for scar dehiscence (42.86%), followed by non progress of labour (35.71%) & fetal distress (21.43%).

Discussion: In our study, proper counseling was done and informed consent was taken before cases were subjected to study.

Counseling points: [6]

- TOLAC can be offered to most women with a prior caesarean section, but several safety and success factors should be considered and discussed with the woman.
- The composite of maternal complications is slightly higher with TOLAC compared to ERCD group primarily due to the risk of rupture, and the increased risks of a caesarean section (RPCS) in labor.

Direction of scar Records regarding the prior CD(s) should be obtained, with special care in documentation of direction of scar. If a woman has had a prior vertical (classical) CD, repeat CS is recommended. [7] Out of 50 cases included in our study, 28 cases (56% of total cases) qualified for TOLAC during labour. Successful TOL (trial of labor) was observed in 50 % (14 out of 28) resulting in VBAC (vaginal birth after caesarean) & the rest 50% of failed TOL ended in repeat caesarean delivery. In general (studies conducted worldwide), 60 to 80 percent of women who are considered candidates for a trial of labor after cesarean (TOLAC) to attempt vaginal birth after cesarean (VBAC) will have a successful vaginal birth (VBAC).[8] In a prospective observational study was conducted at Lady Hardinge Medical College, higher chances of vaginal delivery were found with breech as an indication of previous caesarean section, i.e., 67.1% as compared to 39% with non-progress of labour as an indication and the success rate of trial of labour was found to be 53.6%.[9]

In our study, out of all VBAC's, 69.23% (9 out of 14) had ante natal indication for their previous caesarean delivery; most common indication being breech (46%) followed by post datism & oligohydramnios (23% each). Repeat C.S. in failed TOL was performed for non progress of labour (50%) as the most common indication followed by fetal distress in 28.57%. Scar dehiscence was observed in 21.4% of repeat caesarean delivery. The birth weight in most (85.7%) cases of VBAC was ≤ 3 kg. Vacuum was used in 2 cases of VBAC during 2nd stage of labour. No any case of uterine rupture or perinatal death was observed. Current pregnancy factors also are associated with vaginal delivery after trial of labor, including labor characteristics and infant factors.[10] Gestational age greater than 40 weeks, labor augmentation, and labor induction are associated with a decreased rate of VBAC. The most consistent infant factor associated with an increased likelihood of VBAC is birth weight less than 4,000 grams. Lower gestational age at delivery is associated with increased VBAC rates when compared to term gestational age at delivery. Labor factors associated with a higher VBAC rate include greater cervical dilation at admission or at rupture of membranes. The likelihood of VBAC increases if cervical effacement reaches 75 to 90 percent. Vertex position, fetal head engagement or a lower station, and higher Bishop score (a scoring system used to estimate the success of induction of labor) also increases the likelihood of VBAC.A prior history of vaginal delivery, either before or after a prior cesarean delivery, is consistently associated with an increased likelihood of VBAC.[10]

Conclusion & Recommendations :

In our study, 50% of women who were considered candidates for a trial of labor after cesarean (TOLAC) to attempt vaginal birth after cesarean (VBAC) had successful VBAC. Factors favouring a successful VBAC in those 50% woman are as under:

- A previous vaginal delivery, especially a previous VBAC
- Spontaneous onset of labor (labor is not induced)
- Normal progress of labor, including dilation and effacement (thinning) of the cervix
- Prior cesarean delivery performed because the baby's position was abnormal (breech)
- Only one prior cesarean delivery
- The prior cesarean delivery was performed early in labor, and not after full cervical dilatation

Failed trial of labor after cesarean (TOLAC) without a vaginal birth after cesarean (VBAC) resulted in repeat cesarean section (RPCS) in about 50 percent of women who attempted VBAC in our study.

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