

Maternal and Fetal Outcome Following Trial of Labour after Previous Caesarian Section (Tolac)

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Abstract : The obstetric and fetal outcome in pregnant women with a history of previous caesarean section are studied. All the following factors are observed and studied in this work. Factors studied are Route of delivery, Incidence of vaginal delivery following LSCS, Incidence of scar dehiscence/scar rupture, Maternal mortality and morbidity determined by any one or more of the following: Haemorrhage, blood transfusion requirement, viscus injury, wound infection, endometritis, hysterectomy and thromboembolism, Fetal outcome (as a consequence to intrapartum events): Admission to neonatal intensive care unit (including reason for admission), one and five minute Apgar score, perinatal mortality and compared to other studies.

Keywords : Caesarean Section, VBAC (vaginal birth after caesarian), scar dehiscence, foetal monitoring, Doppler.

I. Introduction

Caesarian section probably derives its name from the codification “Lex cesareca”, a Greece law promulgated in 715 B.B., continued even during Julius Caesar’s reign. It provided for either an abdominal delivery in a dying woman with a hope to get a live baby or to perform post-mortem abdominal delivery for separate burial¹. Another belief is that it is derived from the Latin work “Caedere” meaning to cut or “Caesura” meaning a Cutting or a Pause. Section is derived from the word “Seco” which also means Cut. Hence, as the term caesarian section seems tautological, it is preferable to use the term caesarian delivery¹.

In 1912, Kronig introduced Trans peritoneal lower segment caesarian delivery, where the lower portion of the uterus was opened through midline vertical incision and child extracted by forceps whenever required¹.

In 1926, **Munro Kerr** made a major change; he advocated the transverse lower uterine incision instead of vertical.

The caesarian section rate has been increasing over the last 20 years enormously. As a result, an increasing number of women face the issue of route of delivery in their subsequent pregnancies^{2,3,4}. All postcaesarian pregnancies do not require repeat caesarian section and a most of them may have uncomplicated vaginal delivery⁵.



Fig : Dr. Munro kerr

The year 1978 was a milestone in the history of management of pregnancy in patients with a history of prior caesarian delivery. A study in 1978 from the University of Texas at San Antonio reported that, subsequent vaginal delivery was safely attempted in 83 percent of patients with prior caesarian delivery⁶. A series of studies followed in the later part of the century, encouraging a planned VBAC for patients with a documented previous lower transverse caesarian section.

A study in 1980 selected 207 patients with single previous LSCS for planned VBAC over a 2 years period. Patients with any recurrent obstetric or medical reason requiring repeat caesarian delivery were excluded

from the study. Also patients with any amount of cephalopelvic disproportion (CPD) were excluded. In this study 84.5% delivered vaginally. There were no deaths associated with planned VBAC and, maternal and fetal morbidity was negligible.

In 1987, a year long, prospective study in which indication for VBAC was liberalized, included 272 patients selected to undergo VBAC of which 76.5% delivered vaginally. One uterine rupture (0.6%) occurred in patients with single previous LSCS⁷

In 1993, a retrospective study to evaluate the incidence of vaginal delivery with previous LSCS in addition to the incidence of complications like uterine rupture or uterine scar dehiscence, showed that 64% of patients had vaginal delivery, 0.8% had uterine rupture & 3.3% had scar dehiscence⁸.

The Maternal Fetal Medicine Units (MFMU) Network, in a prospective, 4 year observational study from 1999 to 2002 compared the outcomes of nearly 18,000 women who attempted VBAC with those of more than 15,000 women who were delivered by elective repeat section. 73.4% who underwent VBAC, delivered vaginally and 0.7% who underwent VBAC had symptomatic uterine rupture. They concluded that VBAC is associated with greater perinatal risk than elective repeat caesarian section⁹.

Cragin's dictum of "once a caesarian always a caesarian" contributed to a 30-50% rise in caesarian rates in the United States, till the 1980s^{10,11}. A series of studies in the 1980s reported the relative safety of attempting vaginal birth after caesarian delivery (VBAC).

The most important event because of which obstetricians still hesitate to attempt planned VBAC is the uterine scar integrity. The choice of VBAC over planned repeat caesarian section, like virtually every other medical choice, involves the balancing of risks & benefits. One point is obvious i.e., "once a caesarian, always a hospital delivery"¹¹. There is a definite risk of uterine rupture in vaginal birth after caesarian delivery (VBAC) often leading to catastrophies which can be avoided by early diagnosis and prompt intervention.

The present study is undertaken to re-ascertain the facts with the hope that more women will be encouraged to avoid an unnecessary repeat caesarian section. VBAC offers distinct advantages like the hospital stay is much shorter and expenses involved are much less.

The rate of caesarian section needs to be reduced and this can be achieved to a small extent by avoiding primary caesarian sections done without explicit indications and more importantly by resorting to a trial of vaginal delivery after previous caesarian section^{13,14,15,16}.

The purpose of study is to evaluate the obstetric and fetal outcome in previous caesarian section cases in our hospital.

II. Materials And Methods

This Prospective study population consisted of patients with a history of previous caesarian section, who delivered in the present pregnancy, at Kurnool Medical College, Kurnool between 01-06-2014 to 31-05-2015.

Sample size: This study included 50 cases of previous caesarian section when allowed for TOLAC, delivered in our hospital over a period of one year.

Inclusion criteria: pregnant women at term gestation, singleton pregnancy, with history of one previous caesarian section for non-recurrent indication.

Exclusion criteria: pregnant women at term gestation with:

1. History of more than one caesarian section
2. Contracted pelvis—clinically inadequate pelvis
3. Estimated fetal weight > 3.5kg
4. Obstetrical complications like preeclampsia, antepartum haemorrhage, multiple pregnancy, malpresentations, malpositions etc.
5. Medical complications like anaemia (Hb < 10gm%), Hypertension, diabetes, renal disease, heart disease etc.

Method:

Management protocol of Department of Obstetrics at Kurnool medical college, Kurnool, for patients with history of prior LSCS was followed:

1. The high risk pregnant women were advised regular antenatal checkup after confirmation of pregnancy and were advised admission to the hospital prior to their Expected date of delivery.
2. A detailed past obstetric history was taken or reconfirmed if she was a registered case which included:
 - a. Indication, numbers, type and place of previous caesarian section.
 - b. History of full term vaginal deliveries prior to or following previous caesarian section together with the birth weight of the babies.
 - c. History of complications associated with previous section such as requirement for blood transfusion, hematuria, incontinence of urine, prolonged catheterisation suggestive of injury to bladder, puerperal sepsis

following the caesarian section viz., foul smelling lochia, high spiky fever, wound infection and systemic infection, requiring prolonged hospitalisation.

3. A general physical examination and systemic examination was carried out.
4. A per abdominal examination was done to ascertain the fundal height, lie, presentation and position of the fetus including fetal heart sounds.
5. Scar tenderness was elicited on admission.
6. Pelvic adequacy was checked for prior to counselling for a trial for VBAC.
7. There was no place for trial of scar in cases of confirmed pelvic contraction. In the unregistered cases it was assessed at the onset of labour, by vaginal and bimanual examination. The points assessed were sacral curve, whether sacral promontory was reached or not, sacrosciatic notch, lateral pelvic walls, ischial spines and interspinous distance, subpubic angle, diagonal conjugate and transverse diameter of pelvic outlet.
8. Women with a prior history of one uncomplicated lower segment transverse caesarian section, in an otherwise uncomplicated pregnancy at term, with no contraindication to vaginal birth were given the option of a planned VBAC. Before an attempted vaginal delivery, patients were informed the risks, benefits, potential complications and alternatives to a trial for a VBAC. After acceptance by patients, each underwent a planned VBAC.
9. Patients who were not willing for TOLAC were taken up electively for a repeat caesarian section or on an emergency basis if they were in labour.
10. During labour complete perabdominal examination, PV was done to check the position of the baby regularly.
 - a. Adequate Blood was sent for crossmatching With Intrapartum fetal monitoring was carried out with the help of cardiotocography.
 - b. Uterine contractions monitored carefully.
 - c. Early signs of scar dehiscence such as hypotension, tachycardia, abdominal tenderness, fetal heart rate alteration, loss of station of presenting part, palpation of fetal parts outside the uterus and symptoms such as acute abdominal pain and vaginal bleeding were watched for.
 - d. The six hour rule was observed in active labour, where in planned VBAC was terminated after six hours of active labour, if vaginal delivery was not imminent. The outcome of delivery was then assessed.

After Delivery

As for other deliveries, the patients were monitored for 2 hours following vaginal delivery and required period following repeat section.

Subsequent complications and condition of the mother and the baby till discharge from the hospital were studied.

III. Results

Table No. 1 : Booked versus unbooked previous LSCS cases

Type	No. of Cases	Percentage(%)
Booked	32	64
Unbooked	18	36
Total	50	100

In the present study, 64% of cases were booked cases and 36% of cases were unbooked cases. Patients with at least three visits at the antenatal clinic were considered under booked category and the rest under unbooked category.

Graph 1: Booked versus unbooked previous LSCS cases

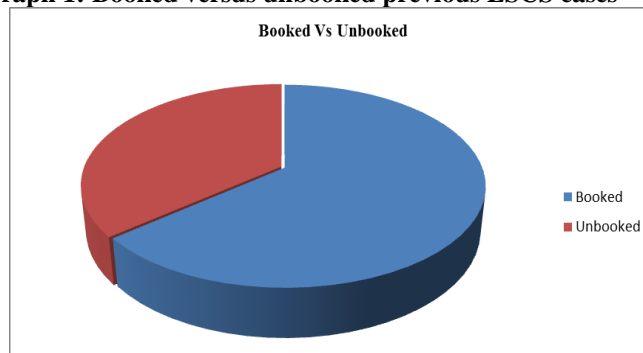


Table No. 2: Outcome of present pregnancy

Outcome of present pregnancy	No. of Cases	%
Vaginal deliveries	24	48
Repeat caesarean deliveries	26	52

In the present study 48% of patients delivered vaginally, either spontaneously or assisted. 52% patients required a repeat caesarean section.

Graph 2 : Outcome of present pregnancy

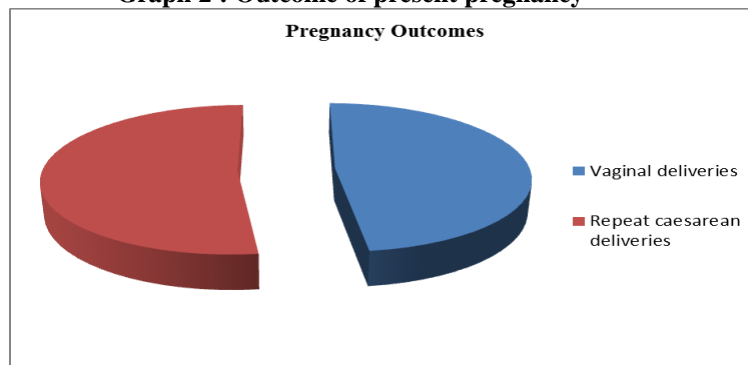


Table No. 3: Outcome of trial for VBAC in present pregnancy

Outcome of trial of labour	No. of cases	%
Successful VBAC	24	57.14
Unsuccessful VBAC	18	42.85
Total no. of patients who had trial of labour	42	100

In the present study, TOLAC was given in 42 cases, of which 57.14% of patients had a successful VBAC. 42.85% of patients who were given a trial of labour were posted for an emergency LSCS for various indications and hence had an unsuccessful VBAC.

Graph 3 : Outcome of trial for VBAC in present pregnancy

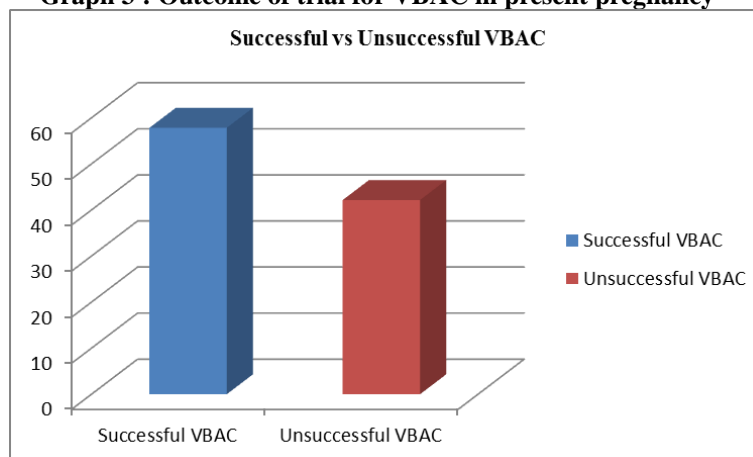
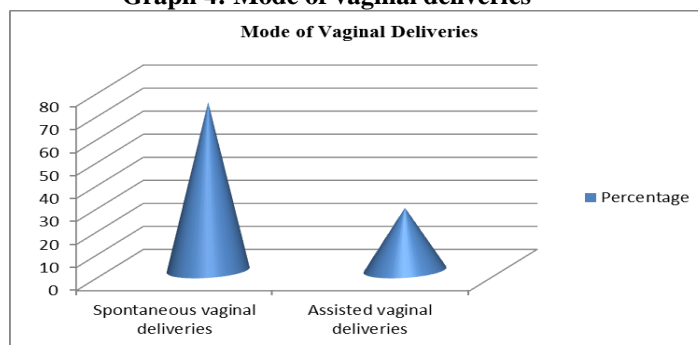


Table No. 4: Mode of vaginal deliveries

Nature of vaginal deliveries	No. of cases	%
Spontaneous vaginal deliveries	17	70.83
Assisted vaginal deliveries	7	29.16
Forceps	5	71.42
Ventouse	2	28.57

Of the patients who had a successful VBAC, 70.83% delivered spontaneously and 29.16% had an assisted vaginal delivery. Forceps was applied in 71.42% of patients who had an assisted vaginal delivery and 28.57% of these patients had a ventouse assisted delivery.

Graph 4: Mode of vaginal deliveries



Graph 4a : Assisted vaginal deliveries

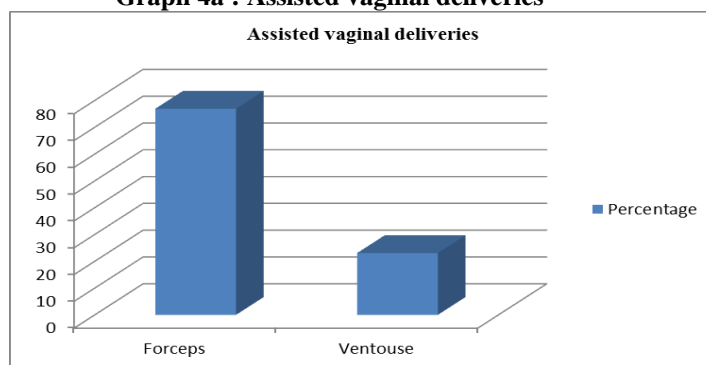


Table No. 5: Present outcome and history of previous vaginal deliveries

	No. of cases	Vaginal delivery	Repeat LSCS
History of previous Vaginal deliveries	12	9(75%)	3(25%)
A. Prior successful VBAC	4	4(100%)	0
B. No prior successful VBAC	8	5(62.5%)	3(37.5%)
No history of previous vaginal deliveries	30	16(53.33%)	14(46.66%)
Total	42	25	17

Out of 12 patients who had a history of prior vaginal deliveries, 75% delivered vaginally in the present pregnancy. Out of these 12 patients, 4 had a history of prior successful VBAC, 100% of them had a successful VBAC in present pregnancy. This indicates that women with previous vaginal delivery(s) have a better chance for a successful VBAC.

Graph 5 : Present outcome and history of previous vaginal deliveries

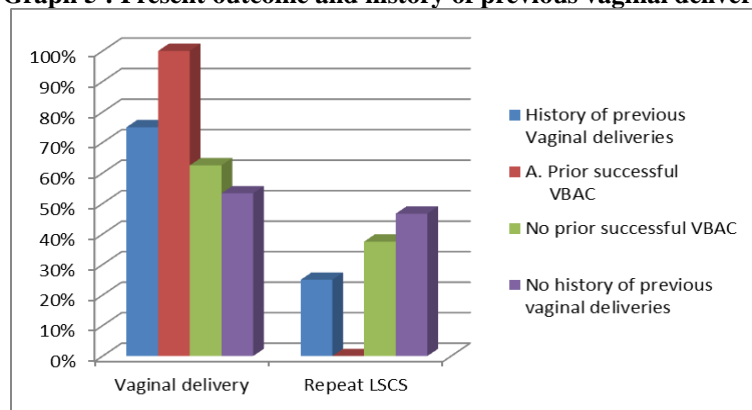


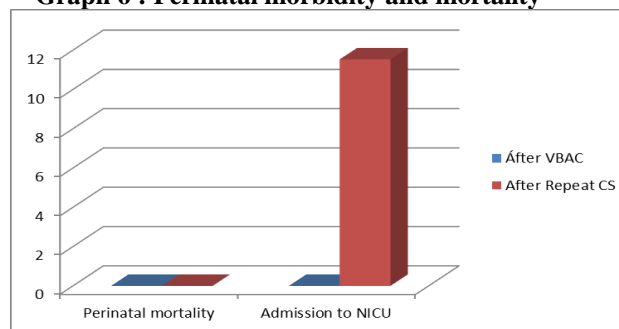
Table 6 : Perinatal morbidity and mortality

	After VBAC	%	After repeat CS	%
1. Perinatal mortality	0	0	-	-
2. Admission to NICU	0	0	3	11.53
● Respiratory distress syndrome	-	0	2	7.69
● IUGR	0	0	1	3.84

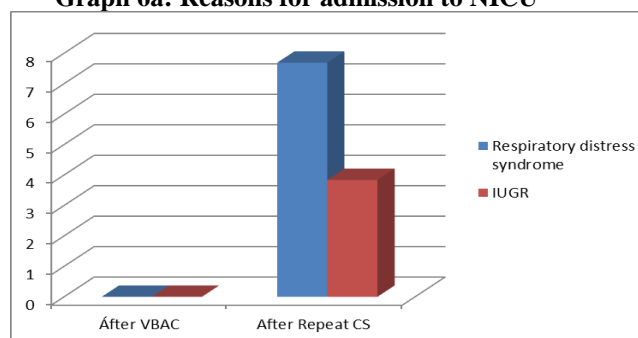
In the present study, 5.76% of babies who were delivered by a repeat caesarean section required an NICU admission. Of these 66.66% of the babies were admitted for respiratory distress syndrome and 33.33% for IUGR. They were discharged from the NICU subsequently healthy.

There was one case of perinatal mortality seen in the present study after repeat caesarean section for cord prolapse.

Graph 6 : Perinatal morbidity and mortality



Graph 6a: Reasons for admission to NICU



IV. Discussion

Pregnant women with a prior section may be offered either a trial for VBAC or an elective repeat caesarean section (ERCS). The proportion of women who decline VBAC, is in turn, a significant determinant

of overall rates of caesarean birth.

New evidence is emerging to indicate that VBAC may not be as safe as originally thought^{17,18}. But reports are conflicting and these factors along with medicolegal concerns have led to a decline in clinicians offering and women accepting trial for VBAC in various parts of the world^{19,20}.

The present study evaluated the outcome and trends in patients with a history of prior LSCS who delivered in our hospital in the year 2014-2015.

The overall rate of vaginal delivery following previous caesarean delivery, as reported in literature, varies from 28% to 51%. Our study is comparable to this, with 48% of the patients delivering vaginally. However, Anagha A Jinturkar and colleagues in their study reported 28.57% of patients delivering vaginally²¹. Shruthi S. Goel and colleagues reported an incidence of 31% and Shah Jitesh Mafatlal et al reported an incidence of 36.88%.

In the present study, the most common indications for a repeat emergency LSCS were fetal distress and non-progress of labour, together constituting about 80% of the total number of repeat emergency LSCS. This is comparable to other studies.

Scar dehiscence, defined as a disruption of the uterine muscle with intact serosa, was seen in 1 patients (2%) who had a trial of labour in the present study. This is comparable to the incidence quoted by Anagha A.Jinturkar et al, which was 2.72% in their study. Shah Jitesh and colleagues however reported an incidence of only 0.7% which is lower than that in the present study²². The reason for this may have been the large size of the Shah Jitesh Mafatlal et al study and its multicentre design.

We had not encountered any case of uterine rupture in our study. The main difficulties in the present study while doing a repeat caesarean section were, difficulty in opening the abdomen due to adhesions in 15.38% of the cases, adhesions between omentum, peritoneum and bladder in 11.53% of the cases and difficulty in separation of the bladder in 7.69% of the cases. These results were comparable to those of Anagha A.Jinturkar and colleagues.

In the present study, perinatal morbidity was seen in 11.53% of the patients who delivered by a repeat caesarean delivery. The most common cause for morbidity, affecting 2 neonates (7.69%) in this group, was respiratory distress syndrome (RDS). There was 1 neonate (3.84%) who was admitted to the NICU for IUGR. In the present study, No perinatal morbidity was seen in the patients who delivered by successful VBAC.

In the present study, maternal morbidity was noted in 23.07% of the patients who had a repeat CS and in only 8.32% of patients who had a successful V B A C .

Current recommendations of the RCOG and ACOG include offering the option of a planned VBAC to women with a prior history of one uncomplicated LSCS in an otherwise uncomplicated pregnancy at term, with no contraindication to vaginal birth^{23,24}. Stress has been laid on proper antenatal counseling regarding the benefits and risks associated with a planned VBAC. A final decision for mode of birth must be agreed upon before the expected date of delivery (ideally at 36 weeks of gestation). VBAC should always be attempted in institutions well equipped to respond to emergencies, with an OT facility and adequate trained personnel to provide emergency care.

V. Conclusion

At the end of the present study the following observations were made.

- About 7 patients with previous caesarean section declined a trial of labour inspite of being eligible for it. Hence, it is essential to counsel patients with a history of prior LSCS, ideally during the antenatal period, regarding the benefits and the risks (both maternal and perinatal) of a VBAC, enabling them to make an informed choice early and probably bring down the repeat caesarean rate.
- Patients with a history of previous vaginal delivery(s) and particularly those with a history of prior successful VBAC, have a better chance for a successful VBAC in the present pregnancy.
- In the absence of severe morbidity associated with scar dehiscence following a trial of labour and with a low maternal and perinatal morbidity, vaginal deliveries are a much safer outcome than repeat caesarean deliveries.

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