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Outcome of labour following previous lower segment caesarean section

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Abstract

Introduction: Vaginal delivery following a previous caesarean section has proved to be safe. But the question is not whether a women can deliver vaginally following caesarean but rather the criteria that should be applied and rigidly adhered in order to follow her to progress in labour and attempt successful vaginal delivery without any maternal or fetal complication.

Materials and Method: In present study, a total of 150 cases of previous caesarean section were studied during study period. In women who were booked in the antenatal clinic, routine investigations like haemoglobin percentage, uterine examination, blood grouping Rh typing, blood VDRL and ultrasound scanning were done. These women were admitted to the hospital near term or 10 days prior to the expected date of delivery.

Results: Majority of cases undergoing caesarean section belonged to the age 20-30 years. Out of 150 cases 123 patients delivered vaginally there by the incidence of vaginal delivery is 82%. Thus, success rate of VBAC was 82%.

Conclusion: The results from the series confirm the held belief that a history of vaginal delivery following a caesarean section ensures another vaginal delivery.

Keywords: VBAC, LSCS, Scardehiscence, Threatened rupture

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Introduction

Caesarean Section is a major obstetric procedure. During the last quarter of the century there has been increased rate of caesarean section non recurrent causes leading to increasing number of mothers with previous caesarean section in subsequent pregnancy. In today's state of affairs when the access to obstetric care is developing day by day, there has been a challenge over the growing caesarean rates.(1) It is being said that these patients should have at least trial of labour if the indication of previous caesarean section had been a non recurrent one.

Obstetricians know that the dictum "once Caesarean always a Caesarean" by Edwin B. Craigin is no longer accepted guide to the management. Nonetheless, the decision to have a vaginal birth after caesarean delivery when appropriately counseled. When a trial is agreed upon, the obstetrician and the institution should be able to provide appropriate technical support to ensure a safe delivery, including a plan for prompt emergency caesarean delivery if it becomes necessary. This includes close foetal heart rate monitoring, rapid access to a blood bank and anaesthesia services. In succeeding pregnancy, to have a good and vigorous scar to the uterus, the lower segment caesarean section significantly responsibility to hold and carefully delivery. A woman who wants to a normal delivery after caesarean delivery, for them it is an opportunity of achieving that intention.(2) Therefore, the present study was taken to assess factors that influences maternal and fetal outcome after delivery.

Objective

Aim of the study is to analyze the cases admitted with previous section who deliver vaginally. The factors that influence the successful outcome, perinatal morbidity and maternal morbidity, mortality are also analyzed.

Materials and Method

The present prospective study conducted on 270 cases of prior caesarean section which were admitted to hospital during the study duration. Out of these, 150 cases were given trial of Labour. An institutional ethical clearance was obtained prior to start the study and informed consent was taken after explaining the purpose of study. During the study period, the history of previous one caesarean section and scheduled for delivery were included in the study, whereas with no history of even one caesarean section and or history of more than one caesarean section were excluded from the study.

Majority of the women were unbooked cases and were in labour at the time of admission, a short trial was given to them. In overall 120 cases, emergency caesarean section was performed due to abnormal presentation, fetal distress, threatened rupture, failure to progress, CPD, previous two caesarean sections and other obstetrical indication.

In women who were booked in the antenatal clinic, routine investigations like haemoglobin percentage, uterine examination, and blood grouping Rh typing, blood VDRL and ultrasound scanning were done. These women were admitted to the hospital near term or 10 days prior to the expected date of delivery and still

earlier, if there were any problems in the present pregnancy and also non availability of conveyance. Pelvic assessment was done at 38th week.

Week with no obvious disproportion and after ruling contraindication for trial of labour, were allowed to deliver vaginally.

A close attention was observed for temperature, blood pressure, hydration, maternal pulse, foetal heart rate and uterine contraction during labour. And also presence of scar tenderness was observed for. For acceleration of labour, Oxytocin was done in selected cases and carefully monitored. Wherever needed, outlet forceps was applied. In all patients following third stage of labour, routine scar exploration was not carried out.

The condition of the baby were recorded frequently such as Apgar at 1 and 5 min, (cord round the neck, asphyxia), weight, sex and type of delivery. The condition of the mother and neonate were personally observed during the postpartum period and subsequent postnatal follow up for detection of any complication and managed accordingly.

They were discharged home after 3-4 days. Mothers were advised, regarding breast feeding, immunization of the child and contraception.

Statistical analysis: Descriptive statistics such as mean, SD and percentage was used. Data analysis was performed by using Microsoft excel and Epinfo software.

Results

The rate of successful trial of vaginal delivery in our study was found to be 123 out of 150 i.e. 82%.

Table 1: Age Distribution

Age in Years	No. of Cases	Percentage
<20	6	4
21-25	95	63.34
26-30	49	32.66

In the present study, it was observed that majority of the women who delivered vaginally belonged to age group of 21-30 (95%).

Table 2: Distribution in relation to Parity

Parity	No. of cases	Percentage	Vaginal delivery	Percentage
1	120	80	98	81.6
2	20	13.34	17	85
3	10	6.66	8	80

In the present study, it was found that, incidence of vaginal delivery is more in para 2 and para 3. Further, majority of the women were in second gravida with history of one previous caesarean section.

Table 3: Indication of primary caesarean section

Indication	Frequency	Percentage
CPD	40	26.7
Twins	2	1.33
Prolonged labour	15	10
Placenta previa	10	6.6
Malpresentation	42	28
Severe PIH	2	1.3
Severe PIH	4	2.64
Deep transverse arrest	6	4
Unknown	7	4.6
Abriptio placenta	7	4.6
Eclampsia	14	9.3
Cord Prolapse	1	0.6

In the present study, it was seen that, for repeat caesarean section, there is no recurrent indication. In 15 of them who delivered vaginally, previous indication was for prolonged labour, in 7 of them the indication was not known.

The indication for previous section, whether to consider CPD as recurrent or non-recurrent is controversial.

Ultrsonography: In present study, ultrasound examination was done in 86 women, majority in the midtrimester to rule out anomalies, localize the placenta and gestational age.

Most of the women in the present study delivered spontaneously. Artificial rupture of membranes was done when the cervix was 3cms dilated, 24 (19.5%) of them required oxytocin acceleration when the effective uterine contractions were not established.

Induction with oxytocin was not done in our study, most of them were admitted in active labour. The factors that should be considered for induction are:

- Foetal maturity, weight of the baby.
- Bishops scoring

Oxytocin was started at the dose of 2mu/min, titrated and carefully monitored, total duration did not exceed 6-8 hrs. In our series, who received oxytocin, 5 cases taken up for repeat LSCS after augmentation with oxytocin had scar intact per operatively. Oxytocin was routinely used for all cases in the third stage.

Table 4: Method vaginal delivery

Total No. of vaginal delivery	Spontaneous		Outlet forcep	
	No.	%	No.	%
123	111	90.2	12	9.75

Routine use of forceps for second stage was not advocated until indicated, 12 of them required forceps. In the labour room under infiltration for outlet forceps, in cases when there was maternal exhaustion, foetal distress in the second stage of labour.

There was no case if failed forceps in our series no maternal injury and no perinatal complications were observed.

Length of labour: The high percentage of vaginal deliveries were there in whom length of labour was less than 5 hrs.

Duration of labour in cases delivered vaginally

1st stage: 4-9 hrs, average 5 hrs

2nd stage: 5-35 minutes

Table 5: Number of registered and unregistered case

	No. of cases	%
Registered	92	61.4
Unregistered	58	38.6
Total	150	100

In our study out of 150, (38.6%) were unbooked and 61.4%were booked cases. Most of them were admitted in active labour and delivered within 5 hrs.

Table 6: Foetal outcome

Birth Weight	No. of cases	Percentage
<2 kg	4	2.66
2-2.5 kg	64	42.7
2.6-3 kg	66	44
>3 .1 kg	16	10.6

Majority of the babies weighed between 2.6-3 kg (44%) and 16 of them weighed more than 3 kgs. There was no history of big babies in the previous pregnancy and maternal diabetes was ruled out.

Ultrasound assessment of foetal weight could not do as 39% of them were unbooked and came in labour. Foetal weight was assessed clinically before labour. Repeat caesarean section was performed in women where the estimated foetal weight was more than 3.5kg.

Table 7: Perinatal Mortality and Morbidity

	No. of cases	Percentage
Live	145	96.6
Admission to NICU	4	2.6
Mortality	2	1.3

In the present study, it was found that; perinatal mortality rate was 1.3.

Discussion

The rate of successful trial of vaginal delivery in our study showed 82%, similar results were obtained by other studies also such as Varahan Shakti et al. (2006)[3] from Pune has reported 72.1% in 263 patients, Bhat BPR et al[4] (2010) 64.6% in 113 patients and Kumar P[5] et.al (2012) 68.4% in 1236 patients.

Flamm et al (1984),[6] 86% in 6252 patients and Flamm (1986)[7] in his review of 21 reports of different authors from 1980 to 1984 has observed an overall success rate of 79% and has felt that given an adequate trial of vaginal delivery, atleast 3 out of 4 women can deliver vaginally after a previous section.

In present study, most of the women who delivered vaginally belonged to age group of 21-30 (95%) and found to be more as compared to the study done by Vardhan Shakti et al. (2006)[3] for age group 21-30 (69.5%).

In present study, incidence of vaginal delivery is more in para 2 and para 3, whereas the study conducted by Goswami S N[8] et al 76 cases out of 110 (69%) belonged to para 1 and Fram E. Irani,[9] 90 (60%) belonged to para 1.

Indication of primary caesarean section: In the present study, for repeat caesarean section, there is no recurrent indication, whereas Anna S. Leung[10] said that the previous indication of CPD for caesarean section does not necessarily rule out subsequent vaginal delivery but the decision to allow these women for trial of scar were based on careful clinical assessment of CPD. And Daniel Weistein et al,[11] reported that, relative cephalopelvic disproportion and failure to progress which is an indication for previous caesarean section showed no significant value in predicting vaginal birth after caesarean. Similarly fetal distress also found to have no value in predicting of vaginal birth after caesarean section.

Bruce L. Flamm[7] in his study reported that women with previous caesarean operations for cephalopelvic disproportion. Further, during a subsequent trial of labour, foetal distress was not found to be recurrent.

Repeat caesarean section: In our study, out of 150 who were given trial of labour, 27 were underwent repeat caesarean section for threatened rupture, foetal distress and failure to progress.

In present study, the reported incidence of repeat caesarean in selected women with post caesarean pregnancy who had trial of labour for vaginal delivery was found to be 18%, which was found to be less incidence as compared to other studies such as Goswami S N et.al[8] (44.64%), Flamm[6] (20%), Singh V K[12] (34.16%), Varahan Shakti et.al.[3] (27%).

Assisted Breech Delivery: In our study assisted breech delivery was conducted in 2 of them. 1 of them was diagnosed IUD where the cause could not be detected. 1 of them without foetopelvic disproportion, delivered vaginally without any perinatal morbidity or mortality.

Ella Ophir et al[13] in his study, where a retrospective review of 71 breech deliveries after previous caesarean was done to determine the need for repeat caesarean section. With this information, concluded that, after a previous caesarean section, a trial of labour seems reasonable in carefully selected cases of breech presentation.

Twin Gestation: In our study 1 of them previous caesarean section delivered twins, it was unbooked case and delivered without perinatal morbidity or mortality.

Cahill et al,[14] stated that the pregnancy outcomes of 535 women with a twin gestation and a prior caesarean birth were analysed to determine whether a trial of labour was a reasonable consideration. There were no significant differences in maternal or neonatal morbidity or mortality rates between with trial of labour and without trial of labour groups. Further, concluded that, trial of labour in a twin gestation appeared to be a reasonable consideration after a previous caesarean delivery. The normal safeguards for attempted vaginal delivery in the twin gestation should be followed.

Length of labour: S.N. Goswami et al,[8] reported that, in the vaginal delivery group, average duration of labour was 11 hours, 44 minutes. Guleria et al[15] reported a similar result of 12 hours and 24 minutes. In Z. Ghafarri[16] study, the duration in the vaginal delivery group varied from 6 to 12 hours. According to Agarwal et al,[17] the duration in post caesarean women who delivered vaginally for the first time was 10.4 hours.

In post caesarean women with history of vaginal birth, the total duration of labour was 6.21 ± 1.35 hours. Whereas in a study done by Agarwal et al,[17] showed that the average duration of labour was 8.6 hours.

Foetal outcome: Z. Gaffari et al,[16] in his study reported that where the baby weight was 3500 gms, the incidence of vaginal delivery was higher 68%, but when the baby weight increased from >4000 gms, the incidence of repeat caesarean section also increased.

S.N. Goswami et al[8] in his study reported that the average birth weight of the babies delivered vaginally was 5.74 lbs (2.533 kg) and those delivered by repeat section was 8 lbs (3.6kg) He said that the relative small size baby was one of the cause of successful vaginal delivery in some cases.

Sandyatara Mitra,[18] in her study reported that out 144 babies, five baby were dead born i.e. 3.4%. Eliminating death prior to labour, the corrected loss was 2.7%.

Shubha agar and Uma Goyal[19] in a prospective study of post caesarean pregnancy reported that perintal mortality was 5.3%. Goswami[8] reported 4.5% (corrected perinatal mortality excluding intrauterine death and prematurity it was 0.9%).

Faram E Irani,[20] reported 2 neonatal deaths where both were premature deliveries.

Maternal mortality: In present study, there was no maternal mortality which was comparable with Goswami S.N.[8] reported that no maternal mortality. Whereas Shubha Sagar and Uma Goyal[19] in their study reported that maternal mortality was 0.35% and was not directly related to previous caesarean sections.

The incidence of rupture of uterus in present study was found nil, whereas in other studies the incidence was observed such as Vardhan (0.5), Kamlesh Yadav (0.8), Rchard M Farmer (0.8), Sheshi Iyer (1.5).

Sandya Tara Mita et al,[18] in their study reported 2 maternal deaths in their series one due to jaundice and another death was due to severe atonic PPH. Three cases had caesarean hysterectomy (one each) for rupture uterus, atonic PPH and placental implantation over the scar.

Conclusion

If the patient had previous classical section, then it is safer to undertaken repeat lower segment caesarean section, done as an elective procedure, preferable with tubal ligation.

It is important to recognize that well established indications are best managed by repeat caesarean section but this does not necessarily mean that a previous section for dystocia automatically represents an indication of repeat operation. Patient should be allowed to undergo trial of scar after ruling out cephalopelvic disproportion in case of non-recurring indication for previous caesarean section.

Operative interference should be timely brought about if complication like foetal or maternal distress or threatened rupture comes into picture.

Engagement of the presenting part prior to the onset of labour is the single most significant prognostic factor for successful vaginal delivery.

The results from the present study confirm the held belief that, a history of vaginal delivery following a caesarean section ensures another vaginal delivery. The success of vaginal delivery diminishes with each repeat section which is not poor strength of the scar but probably due to disproportion.

The improved technique of the operation and the skill of the operator, use of proper and effective antibiotics, safe anaesthesia, better suture material, and good postoperative care have remarkably lowered down the maternal as well as perinatal mortality and morbidity.

Hysterographic studies and ultrasonographic studies in the non- pregnant state are suggested as the best method determining the presence of defects in the lower uterine segment. Bimanual tracing of caesarean scar immediate post partum is dangerous as one may do iatrogenic dehiscence of scar. We observe the patient for 2 hours in labour ward after the delivery for further complication like" Silent or Quit rupture of uterus" and postpartum shock.

This is to encourage women with history of previous caesarean section for vaginal delivery in carefully selected cases and to reduce the rate of repeat section, complications and sequelae following the procedure.

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