

# Vaginal birth after one caesarean section in a low resource setting – Obio Cottage Hospital, Port Harcourt

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Accepted 26 March, 2014

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## ABSTRACT

Our main objective is to find out the success rate of vaginal delivery after one caesarean section in women who had a non-recurrent indication for caesarean section. We also wanted to document any adverse fetomaternal outcome following this if any in a low resource setting. A total of 134 women with one previous caesarean section at term were studied over a 9 month period. Vaginal delivery was achieved in 75 (64.7%) of those allowed a trial of labour. Elective caesarean section was done in 18 (13.4%). Intrapartum caesarean section was done in 41 (35.3%). There was no maternal mortality and no maternal morbidity of note but perinatal loss of 4 babies. There was no significant correlation between vaginal delivery and birth weight, gestational age or initial indication for the primary caesarean section. In conclusion, trial of labour is safe after one previous caesarean section in well selected patients in a low resource setting facility.

**Keywords:** Vaginal, Birth, caesarean, resource.

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## INTRODUCTION

Caesarean section rate has increased worldwide due to performance of elective repeat caesarean section among other reasons (Igberase et al., 2009; Delbaere et al., 2012). Trial of labour after caesarean section (TOLAC) has been accepted as a way of reducing caesarean section rate and also to allow women choice of mode of delivery (Meddings et al., 2007).

The old phrase that “once a caesarean section is always a caesarean section” is no longer true. Today a woman can be allowed to attempt vaginal delivery after one caesarean section after fulfilling certain safety criteria (Egwuatu and Ezeh, 1990; Van Roosmalen, 1991; Van der Walt et al., 1994).

Following these defined criteria, we were able to manage a number of patients despite limited manpower in a Cottage Hospital setting. Some of the patients knew the indications for their previous caesarean section but were totally unaware of neither the type of uterine incisions made nor details of their health records but we relied on the indication for caesarean section e.g. Caesarean section for breech at 28 weeks is likely to have classical incision than for delayed second stage in

cephalic presentation (Caughey, 2013). This is part of the ACOG guideline (ACOG, 2010) for TOLAC that is difficult to fulfill in a low resource setting where there is limited information or non-existent records. However, there are concerns about TOLAC in a low resource setting with the result that emergency caesarean section was quickly resorted to at any slightest indication to prevent maternal morbidity or mortality.

We describe our experience in a low resource setting in a practice that allows TOLAC in well selected cases to enable women have faster recovery, shorter hospital stay, lower cost, lower risk of blood transfusion and use of antibiotics in an environment where abdominal delivery is abhorred. Trial of labour after caesarean section in well selected cases is of great importance in the present era of rising rate of primary caesarean section especially in low resource setting.

## PATIENTS AND METHODS

Our study population was 134 women who had one previous caesarean section over 9 months. They were allowed trial of labour

**Table 1.** Mode of delivery in 134 patients with one previous caesarean section.

Study group	Vaginal delivery (%)	Caesarean section (%)	Total	P value
Elective repeat C/S	0 (0)	18 (100)	18	
Spontaneous labour	75 (64.7)	41 (35.3)	116	< 0.001
Total	75 (56.0)	59 (44.0)		

after one previous caesarean section for those who had no contraindication to vaginal delivery - adequate pelvis, cephalic presentation, singleton fetus, uncomplicated pregnancy, uncomplicated transverse lower uterine segment incision. We excluded those with uncertain uterine incisions (history), complicated pregnancies, malpresentations, twin pregnancy, previous classical or J-shaped incisions, antepartum haemorrhage, intrauterine growth restriction.

All the women gave their consent for TOLAC but only 116 were qualified. On admission, they were managed as high risk pregnancies in labour, intravenous lines were secured to collect blood samples for haematocrit, grouping and saving 2 units of blood for each patient; normal saline drip was set up to keep the line open. Anaesthetist and paediatrician were informed and the delivery room operating theatre was ready for any intrapartum caesarean operation.

They were closely monitored for uterine contractions, fetal heart rate, uterine tenderness (if any) and maternal vital signs with partograph. They had narcotic obstetric analgesia (pethidine/pentazocine) plus phenergan for those who were 6 cm or less dilated. Intrapartum caesarean section was performed for maternal and/or fetal indication and poor progress of labour. After successful vaginal delivery, they were monitored for any evidence of uterine rupture/dehiscence as exploration of lower segment was no longer recommended (Van Roosmalen, 1991).

The biodata of the patients and other parameters like their parity, gestational age at delivery, details of last confinement, birth weights of their babies were collated from their case notes (Analysis was done with SPSS version 16).

## RESULTS

Eighteen of the 134 women had repeat caesarean section on account of postdatism and non spontaneous onset of labour (3), footling breech (1), no stated indication (5), twin gestation (2), maternal request (5), intrauterine fetal death and non spontaneous onset of labour (1), and malpresentation (1). Of the remaining 116 patients, 75 (64.7%) were delivered vaginally (Table 1). There was no uterine rupture.

Forty one patients (35.3%) had intrapartum caesarean section for poor progress of labour and fetal distress.

Table 2 shows incidence of emergency caesarean section in relation to gestational age and birth weight. The largest baby delivered vaginally weighed 4500 g while the largest baby delivered by emergency caesarean section weighed 5200 g. No significant relation was found between gestational age ( $P = 0.528$ ) and incidence of emergency caesarean section but there is significant relation between birth weight ( $P = 0.003$ ) and incidence of emergency caesarean section. Also there was no significant relation between mean birth weights of the

babies delivered vaginally and those delivered by emergency caesarean section ( $P = 0.204$ ) as shown in Table 4.

The fetal outcome showed a higher frequency of Apgar score greater than 7 in patients who delivered vaginally (61.7%) compared to those who had emergency caesarean section (34.8%). However, this was not statistically significant,  $P$  value 0.625 (Table 3).

## DISCUSSION

In this study, 86.6% were allowed to have TOLAC. All of them consented to TOLAC but for various reasons 13.4% had repeat caesarean section. The high acceptance rate can be attributed to the high premium attached to vaginal delivery in our culture in Nigeria. This far exceeds the acceptance rate in the West (Ilesanmi et al., 1997; Martin et al., 1983).

TOLAC represents one of the most significant changes in Obstetrics in recent time. Because of the documented safety, effectiveness and success rate of TOLAC, it is now advocated that women without contraindication should be offered TOLAC (Joseph et al., 1991; Omigbodun, 2002). This became suitable in our environment where there is cultural aversion to abdominal delivery.

For a long time, the Craigin's dictum shaped Obstetric practice, "once a Caesarean section is always a Caesarean section" (Royal College of Obstetricians and Gynaecologists, 2007) but as time went on, the procedure was modified by introduction of potent antibiotics, aseptic techniques among other reasons like close monitoring with partograph, cardiotocograph (where available), Montevideo for intrauterine pressure monitoring (where available), the fact that most uterine incisions now are low transverse incisions. This has made obstetricians bolder to try TOLAC. But Trial of labour after caesarean section can fail due to some of these reasons; fetal, maternal, fetomaternal or no reason. Some fetal causes of failed TOLAC are macrosomia, fetal distress, undiagnosed intrauterine growth restriction, undiagnosed congenital anomaly (anencephaly). Maternal causes include short interpregnancy interval, intrapartum haemorrhage, chronic medical illness e.g. sickle cell anaemia etc.

Among the 134 women studied, 75 (64.7%) delivered vaginally. 64.7% was below the rate found by some practitioners (Meier and Porecco, 1982; Gellman et al.,

**Table 2.** Gestational age and birth weight related to emergency caesarean section in patients allowed into labour.

	All patients (%)	Vaginal delivery (%)	Caesarean section (%)	P value
Gestation (weeks)	n = 116			
<37	6 (5.2)	4 (3.4)	2 (1.7)	0.528
37-40	83 (71.6)	56 (48.3)	27 (23.3)	
>40	27 (23.3)	15 (12.9)	12 (10.3)	
Birthweight (grams)	n = 113			
<2500	4 (3.5)	2 (1.8)	2 (1.8)	0.003
2500-2999	19 (16.8)	15 (13.3)	4 (3.5)	
3000-3499	38 (33.6)	31 (27.4)	7 (6.2)	
3500-3999	34 (30.1)	19 (16.8)	15 (13.3)	
>3999	18 (15.9)	6 (5.3)	12 (10.6)	
Mean birth weight	3427± 555.47	3291.23 ± 478.82	3675.0 ± 604.35	
Range	2000 - 5200	2000 - 4500	2240 - 5200	

**Table 3.** Fetal outcome in patients allowed into labour.

Apgar score (5 min) (n = 115)	EmLSCS (%)	Vaginal delivery (%)	Total	P value
> 7	40 (34.8)	71 (61.7)	111 (96.5)	0.651
0	1 (0.9)	3 (2.6)	4 (3.5)	

**Table 4.** Birth weight of babies of patients who had vaginal delivery after one caesarean section.

Parameter	Mean (n = 59)	t-test	P value
Birth weight after C/S	3638.14 ± 653.330	1.285	0.204
Birth weight after vaginal delivery	3439.98 ± 984.650		

1983). This is probably because the Obstetricians in the cottage Hospital were cautious in their decisions since they were not working in a tertiary center where there was more support and equipment. But it compared well with the 72% found by other practitioners (Egwuatu and Ezeh, 1990). There was no case of ruptured uterus. The patients were closely monitored and the facility was ready for emergency caesarean section as soon as the need arose. There was no demonstrable influence of factors like birth weight (2000 to 5200 g), gestational age or parity on the labour outcome. Birth weight of greater than 3 kg was associated with lower success rate (Bangal et al., 2013). In terms of birth weight allowed, the birth weights were not accurately determined by ultrasound before labour. This is one of the limitations of this study since the estimated fetal weights were usually not reliable.

To further improve success, management of these women should start from pre-conception period, safe birth interval of at least eighteen months, determination of the integrity of the scar- using ultrasound,

hysterosalpingography, sonohysterography and x-ray/computerized tomography (CT) pelvimetry should be done especially for patients with one previous caesarean section (Molloy et al., 1987).

Antenatal care of these patients is similar to any other patient except that an attempt should be made to get a reliable estimated fetal weight to be able to decide whether or not TOLAC should be allowed or not (estimated fetal weight  $\geq 3.7$  kg), clinical pelvimetry at 36 weeks and x-ray/CT pelvimetry, exclusion of other possible indications for caesarean section and counseling for the risk and the benefits of TOLAC versus elective caesarean section when discussing birth plan which was done for all the patients.

TOLAC will help to reduce the increasing caesarean section rate especially in a low resource setting typical of obstetric practice in developing countries like Nigeria (Liu et al., 2004).

In conclusion, in well selected cases as demonstrated by this study, TOLAC is relatively safe, manpower and functional equipment for closer monitoring will make this

procedure safer and dispel the myth and hence aversion for (abdominal delivery) surgery when necessary in a low resource setting.

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