

Trial of Labour after Caesarean Section in a Secondary Health Facility in Abakaliki, Nigeria

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Abstract

Background: The mode of delivery of a parturient is influenced by previous caesarean section (CS) scar. **Objective:** The objective of the study is to evaluate the pregnancy outcomes of a parturient with one previous caesarean delivery that was managed in Mile Four hospital, Abakaliki, Nigeria. **Materials and Methods:** A 5-year retrospective study of women with one previous CS who delivered in Mile Four hospital between January 2011 and December 2015 was done. IBM SPSS version 20 was used for data analysis, and data were represented using frequency tables, charts, and Chi-square. The level of significance was set at an alpha level of 0.05. **Results:** Three hundred and twenty-two (322) women with one previous CS were selected for a trial of labor after A C/S (TOLAC). More than half of the women (53.1%) had successful TOLAC while 46.9% had a repeat CS. Of the 53.1% of women who had a successful TOLAC, One hundred and forty-one patients had spontaneous vertex delivery. Seventeen women (9.9%) on the TOLAC arm had a ruptured uterus, while seven patients (4.6%) failed the TOLAC group had uterine dehiscence. Haemorrhage was the most common maternal complication. Severe asphyxia and perinatal death were present in 5.9% and 5.3% of neonates on TOLAC arm, respectively. **Conclusion:** Trial of labour after a CS can result in an excellent outcome in a well-selected patient. The success rate of 53.1% in our study is encouraging. However, adequate intrapartum monitoring is recommended to reduce maternal and fetal complications.

Keywords: Abakaliki, caesarean section, maternal mortality, secondary health facility, TOLAC, Vaginal birth after caesarean section

INTRODUCTION

Vaginal birth after caesarean section (VBAC) or trial of labour after a caesarean section (TOLAC) refers to the obstetric practice of delivering a baby vaginally after a previous caesarean section (CS).^[1] The dictum “once a caesarean always a caesarean” does not hold in modern-day obstetric.^[1] This is because of improvement in CS techniques and reduction in maternal comorbidities associated with the surgery.

TOLAC is a safe option for many women^[2] but adequate patient selection is vital for success. It has been argued that 90% of women with a previous caesarean delivery can be allowed VBAC and about 60%–80% of women opting for VBAC will have a vaginal delivery.^[3] Trial of vaginal birth following a previous CS will assist in the reduction of CS rate.^[4,5] It is more relevant in areas where there is a strong antipathy to abdominal delivery^[6] and a desire for large families.^[7] In a sociocultural

setting like ours where a high premium is placed on a vaginal delivery, repeat CS could encourage stigmatization, limitation of family size, marital disharmony, and poor health-seeking behavior of our women.

Proper patient selection is important in allowing a woman to undergo TOLAC, especially in our environment where about 60% of women with one caesarean delivery would deliver vaginally.^[1] Some of the prognostic and qualification criteria

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include a prior lower transverse CS, clinically adequate pelvis; a history of a successful TOLAC before and after a CS, and a nonrecurring reason for the prior abdominal delivery.^[8,9] Other criteria for a successful VBAC include average size fetus, usually <3.5 kg, gestational age <40 weeks, spontaneous onset of labor with the fetus in a longitudinal lie.^[10-12] The level of education of the parturient, maternal age, body mass index previous successful VBAC, and African ethnicity are also implicated in having a successful TOLAC.^[9,13] An informed consent should also be obtained after due counselling as a partnership with the choice of a woman is important for a satisfactory childbirth. It has been observed that a woman being considered for TOLAC needs to be adequately informed as this influences her perception and preparation for labour.^[14] Provision and receiving information from a supportive midwife/obstetrician during childbirth and assisting her to let go of previous childbirth experience in preparation for the new birth when there is no contradiction for TOLAC are some of her needs.^[14] The contraindications for TOLAC include women with classical or T-shaped uterine scar, multiple uterine incisions, especially with breach of the endometrium, contracted pelvis, and macrosomic fetus.^[10,11]

The management of women with previous cesarean delivery should involve preconception care, antenatal, intrapartum, and postpartum care.^[1] Preconception care aims to assess the adequacy of the pelvis and the integrity of the scar.^[1] The most feared complication of TOLAC is a uterine rupture necessitating the assessment of scar strength.^[15] The rate of uterine rupture varies according to the type and location of the scar.^[16] The use of ultrasonographic evaluation permits better assessment of the risk of scar complication, and the threshold value for safe lower segment thickness is adjudged to be 2.5 mm.^[16] Antenatal management of a woman with a previous cesarean delivery should start with a good history at booking exploring, especially the indication for the previous surgery and the surrounding postoperative condition.^[17] An early ultrasound is important to locate the site of pregnancy and to rule out cesarean section scar ectopic pregnancy.^[16] Other additional measures will include placental localization, determination of the adequacy of the pelvis, fetal size, and re-assessment of lower segment thickness by ultrasonographic examination at 36 weeks.^[1,17] The decision on the route of delivery should be taken before the patient reaches 37 weeks, and adequate counseling of the patient is very important.^[1]

Labour should be monitored actively with a preparation made for emergency caesarean delivery if the need arises.^[1] An intravenous catheter should be secured and the neonatologist, anesthesiologist, and labour ward theatre personnel informed.^[1] For successful VBAC, it is paramount that the labour should be conducted in an institution with a good blood banking system, capabilities for emergency caesarean section, and labor managed by an obstetrician and midwives.^[1] The most common major complication of TOLAC is the failure to achieve vaginal delivery which exposes the woman and fetus to a heightened risk of maternal and fetal complications.^[18-20]

The rate of maternal mortality from VBAC ranges from 4% to 24%,^[1] thus emphasizing the importance of evaluating VBAC in our environment.^[21,22] The study aims to evaluate the maternal and fetal outcomes of pregnant women that are allowed TOLAC in our health facility.

MATERIALS AND METHODS

Study design

This is a 5-year retrospective review of all cases of women that were allowed TOLAC, between 2011 and 2015, in Mile Four Hospital, Abakaliki, Nigeria.

Study background

The study was carried out at Mile Four Hospital, Abakaliki, one of the mission hospitals in the state. The obstetrics department is run by Consultants and Medical officers with the help of trained midwives. It has an average of 203.5 deliveries per month and it receives a referral from primary health centres and general hospitals. It has an operation room staffed 24 h a day by nurses and surgeons capable of performing CSs, trained midwives, and good blood banking services.

Ebonyi State was created in 1996 from the rural areas of the former Enugu and Abia States. It has 13 local government areas, 1 urban, 1 semi-urban, and the rest rural. Ebonyi State has a population of 2.1 million people and occupied a landmass of 5932 km², sharing boundaries with Cross River State in the East, Enugu in the West, Benue State in the North, and Abia State in the South. The population is mainly farmers with about 75% of the population dwelling in a rural area.

Study population

The relevant information of records of all the women who had delivered vaginally after CSs and those who had secondary CSs in the hospital were collated and analyzed. There were a total of 8541 deliveries, of which 322 with one previous CS were selected for TOLAC and were included. All the patients had a previous lower segment caesarean operation. The selection of patients for a vaginal birth after a previous primary CS was done by the senior obstetrician or senior medical officer with experience in obstetrics. This was done at 36 weeks of gestation.

Patients' selection was based on the adequacy of the pelvis to vaginal delivery through clinical pelvimetry and nonrecurrent reasons for the previous caesarean delivery. Other factors that were considered for patient selection include estimated fetal weight within the normal range of 2.5–3.5 kg gotten from ultrasound, cephalic presenting fetus, patients obstetric performance before or after caesarean delivery, and adequate maternal and fetal well-being. Women excluded from undergoing TOLAC were women with more than one previous CS, previous classical or J-shaped uterine incisions, multiple pregnancies, breech presentation, abnormal lie at term; postterm pregnancy, and those that refused to give consent.

TOLAC was discontinued in the presence of fetal distress, clinical suspicion of impending uterine rupture, or failure

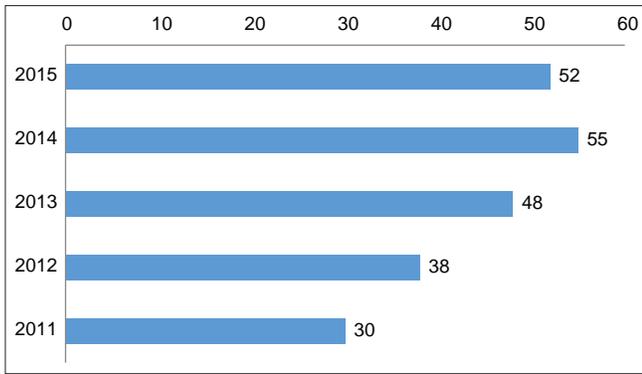


Figure 1: Annual trend of successful VBAC. Annual trend of successful TOLAC Figure 1 shows the trend of TOLAC by year for period under review in the hospital. The year 2014 had the highest incidence of 6.4 per 1000 deliveries followed by 2015 with an incidence rate of 5.6 per 1000 deliveries Figure 1 shows the trend of TOLAC by year from 2011 to 2015 at Mile Four Hospital, Abakaliki. The year 2014 had the highest incidence of 6.4 per 1000 deliveries followed by 2015 with an incidence rate of 5.6 per 1000 deliveries

Table 1: The sociodemographic and obstetrics characteristics of the patient that underwent TOLAC under the years of review. The highest number of women was between the ages of 30 and 34 years. The majority of women that were allowed TOLAC were multiparous. All the women were booked. The mean gestational age and fetal weight of the study population were 37.3 weeks and 3.2 kg, respectively. The highest number of women was in the gestational age bracket of 37 to 40 weeks

Parameter	Successful VBAC, n (%)	Failed VBAC, n (%)
Age (years)		
≤19	2 (1.2)	4 (2.7)
20-24	18 (10.5)	22 (14.6)
25-29	63 (36.8)	37 (24.5)
30-34	74 (43.3)	65 (43.1)
35-39	11 (6.4)	16 (10.5)
≥40	3 (1.8)	7 (4.6)
Level of education		
None	56 (32.7)	45 (29.8)
Primary	82 (48.0)	74 (49.0)
Secondary	23 (13.5)	19 (12.6)
Tertiary	10 (5.8)	13 (8.6)
Parity		
Para 1	53 (31.0)	47 (31.1)
Para 2-4	70 (40.9)	66 (43.7)
Para >5	48 (28.1)	38 (25.2)
Gestational age		
≤36	27 (15.7)	18 (11.9)
37-40	135 (78.9)	121 (80.1)
>40	9 (5.3)	12 (8.0)
Total	171 (100)	151 (100)

VBAC: Vaginal birth after cesarean section

to progress in labor as evidenced by poor cervical dilatation or descent of presenting part. Labour was monitored with intermittent auscultations using a fetal stethoscope.

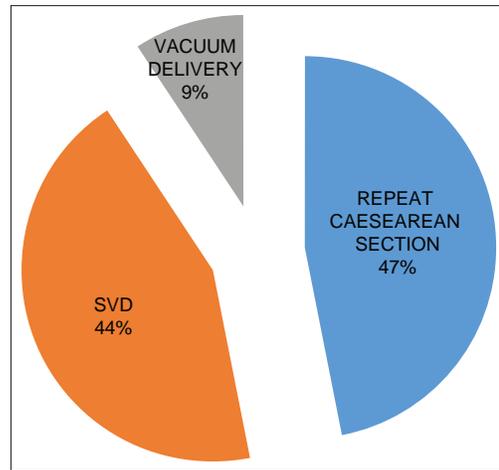


Figure 2: Mode of delivery following a caesarean section. Figure 2 represents the mode of delivery following TOLAC in the facility. Spontaneous vaginal delivery occurred in 82.4% of the women that had successful VBAC. Vacuum delivery was used to assist delayed second stage of labour in 17.6% of women that achieved vaginal delivery

From Table 1, the highest number of women that underwent TOLAC were between the ages of 30 and 34 years. The majority of women were multiparous. All the women were booked. The mean gestational age and fetal weight of the study population were 37.3 weeks and 3.2 kg, respectively. The highest number of women was in the gestational age bracket of 37 to 40 weeks

As can be seen in Table 2, the majority of the neonates had normal weight distribution and good Apgar scores. Less than six percent (5.3%) of neonates suffered fresh stillbirths while in 1.2% had severe Asphyxia in the successful VBAC group.

From Table 3, Haemorrhage occurred in 7% of women that had vaginal delivery while in the repeat cesarean section group, 14.6% had hemorrhage. Seven parturients (9.9%) had a uterine rupture in the vaginal delivery arm. Uterine dehiscence was noted in seven parturients that had repeat caesarean section (4.6%). Three (3) women lost their lives in the repeat caesarean section arm giving a maternal mortality rate of 0.4 per 1000 deliveries.

As can be seen from Figure 1, the year 2014 had the highest incidence of TOLAC of 6.4 per 1000 deliveries followed by 2015 with an incidence rate of 5.6 per 1000 deliveries.

From Figure 2, Spontaneous vaginal delivery occurred in 82.4% of the women that had successful VBAC. Vacuum delivery was used to assist delayed second stage of labour in 17.6% of women that achieved vaginal delivery.

Figure 3 shows that the most common indication for repeat caesarean section was poor progress of labor (49.0%) due to cephalopelvic disproportion followed by mal-presentation (13.9%). Antepartum haemorrhage and fetal macrosomic and fetal distress accounted for 8.6% and 0.7%, respectively, of the reason for repeat abdominal delivery. Less than 1% of the parturient requested for abdominal delivery.

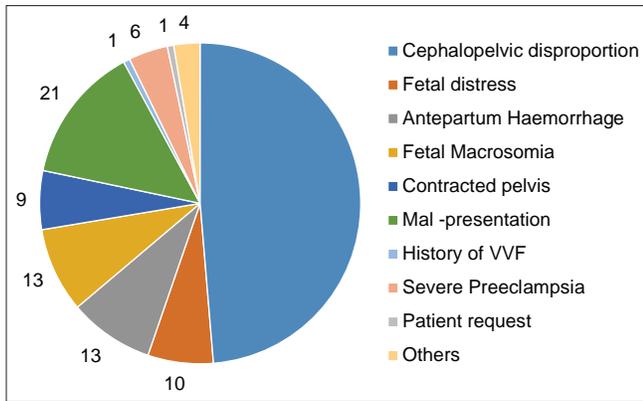


Figure 3: Indications for repeat caesarean section. Figure 3 shows the indications for a repeat caesarean section under the period of study. The most common indication for repeat caesarean section was poor progress of labour (49.0%) due to cephalopelvic disproportion followed by mal-presentation (13.9%). Antepartum haemorrhage and fetal macrosomic and fetal distress accounted for 8.6% and 0.7%, respectively, of the reason for repeat abdominal delivery. Less than 1% of parturient requested for abdominal delivery

Data analysis and presentation

Data collected was fed into an IBM SPSS version 20 (Chicago, IL, USA) software system and analyzed. Simple frequency tables, Chi-square, and pie and bar charts were used in the presentation of data. The level of significance is at an alpha value of 0.05.

RESULTS

From January 1, 2011, to December 31, 2015, a total of 8541 deliveries were conducted at Mile Four Hospital, Abakaliki. A total of 322 pregnant women (3.8% of total deliveries) had a previous CS and were selected for TOLAC. More than half (53.1%) of the women selected for TOLAC had a successful VBAC with an incidence rate of 2% of the total deliveries during the period of study. One hundred and fifty-one (46.9%) of the women in the TOLAC arm had a repeat CS. Poor progress of labour due to cephalopelvic disproportion (CPD) (49%) is the most common reason for repeat CS.

DISCUSSION

Allowing a woman for TOLAC is a high-risk obstetric endeavour associated with increased maternal and fetal morbidities and mortalities, especially in a low-resource setting.^[23,24] TOLAC, however, assists in the reduction of the increasing global CS rate^[25] and its immediate and long-term complications, especially in future obstetric endeavours. The success rate of TOLAC was estimated to be about 60% in Africa which is lower than the figure from developed countries.^[1] The increased success rate in developed countries has been attributed to a good client selection and the advancement in fetomaternal monitoring during the labour process. In our centre, 322 clients were allowed TOLAC

out of which 171 (53.1%) were successful. Our success rate of 53.1% is higher than the rate reported from some tertiary hospitals in Nigeria.^[21,23] It is, however, lower than the rate reported by Ezike *et al.* in Afikpo,^[26] a similar mission hospital like our centre, Megafu in Enugu^[27] and Ezechi *et al.* in Lagos.^[28] Various other studies done by Sakiyeva *et al.* in Kazakhstan (68.9%),^[29] Tsai and Wu in Taiwan (84.93%),^[30] and Hehir *et al.* (72.2%) in Europe^[31] gave success rate higher than our rate. This difference could be attributed to client selection. Clients in our study were selected by both consultant obstetricians and medical officers. The selection of women for TOLAC by consultants would have improved the outcome of successful TOLAC in our centre unlike medical officers who might have had poor judgment in patient selection or might be under pressure from patients to be allowed TOLAC. This is an environment where a high premium is placed on vaginal delivery and achieving a vaginal delivery being regarded as a sign of a real “womanhood.”^[32] However, the VBAC success rate we got agrees with the finding by Obiechina *et al.* in Nnewi,^[33] Akani and John in Port Harcourt,^[34] Seffah and Adu-Bonsaffoh in Ghana,^[35] and the success rate reported in Senegal and Mali by Kaboré *et al.*^[36] The success rate of VBAC (53.1%) in our hospital is, however, comparable to the overall success rate of VBAC in Africa, this could further be increased if astute care is taken in patient selection and oxytocin used where necessary. The success rate of more than 50% recorded in our study is encouraging as it would help to reduce CS rate in Abakaliki and by extension Nigeria and Africa in general. This will help to reduce the immediate and late sequelae of maternal and fetal complications associated with repeat CS.^[37] It, however, calls for an astute patient’s selection for TOLAC in achieving this noble goal of the delivery of a healthy baby to a healthy and satisfied mother.

Uterine rupture is a dreaded complication in a woman undergoing VBAC. Uterine rupture rates increase with an increasing number of prior CSs which is <1% in a parturient with one lower segment CS and it is about 1%–2% in the parturient with 2 previous CSs.^[38] Adequate intrapartum care is paramount in preventing uterine rupture. The use of cardiotocograph (CTG) during TOLAC has been advocated to aid the early diagnosis of uterine rupture. Andersen *et al.*^[39] in a case–control study reported that a pathological CTG is more common in the parturient with uterine rupture than a parturient without, although not significant (odds ratio [OR]: 2.58; confidence interval [CI]: 0.96–6.94; $P = 0.066$). They observed also that significantly, cases of uterine rupture showed more than 10 severe variable decelerations compared with controls (OR: 22; CI: 1.54–314.2; $P = 0.022$) which highlight the importance of CTG as an aid in the early detection of uterine rupture for a woman undergoing TOLAC.^[39] The use of CTG in labour, unfortunately, is still a distant dream in most obstetric units in sub-Saharan Africa including Nigeria.^[40]

In our study, the incidence of uterine rupture was 5.3% among women that underwent TOLAC while uterine dehiscence was observed intraoperatively in 2.2% of those that had a repeat

Table 2: The fetal outcome among patients that had TOLAC. The majority of the neonates had normal weight distribution, good Apgar scores. Less than six percent (5.3%) of neonates suffered fresh stillbirths while 1.2% had severe asphyxia on the successful VBAC group

Parameters	Successful VBAC, n (%)	Failed VBAC, n (%)	χ^2 (P)
Weight (kg)			
<2.5	17 (10)	8 (5.3)	5.22 (0.02)*
2.5-3.5	116 (67.8)	95 (62.9)	
≥3.5	38 (22.2)	48 (31.8)	
Apgar score			
0	9 (5.3)	0	10.98
1-3	2 (1.2)	0	(0.0009)*
4-6	8 (4.7)	4 (2.6)	
7-10	152 (88.8)	147 (97.4)	
Total	171 (100)	151 (100)	

*Significant. VBAC: Vaginal birth after cesarean section

Table 3: The maternal morbidities complicating deliveries. Haemorrhage occurred in 7% of women that had vaginal delivery while in the repeat caesarean section group, 14.6% had hemorrhage. Seven parturients (9.9%) had a uterine rupture in the vaginal delivery arm. Uterine dehiscence was noted in seven parturients that had repeat caesarean section (4.6%). Three (3) women lost their lives in the repeat caesarean section arm giving a maternal mortality rate of 0.4 per 1000 deliveries

Complications	Vaginal delivery, n (%)	Repeat CS, n (%)	χ^2 (P)
Hemorrhage	12 (3.7)	22 (6.8)	0.044
Uterine rupture	17 (5.3)	-	(0.834)
Uterine dehiscence	-	7 (2.2)	
Wound infection	-	18 (5.6)	
Episiotomy breakdown	13 (4.0)	-	
Genital tract infection	2 (0.6)	-	
Maternal death	-	3 (0.9)	

CS: Cesarean section

caesarean delivery. Poor patient selection and the use of vacuum extraction to assist 9.3% of women that had a vaginal delivery might account for the higher rate of uterine rupture observed in our study. Vacuum delivery has a boot scrapping effect on the lower uterine scar predisposing to scar rupture.^[41] This risk becomes more apparent when labour is managed by an untrained accoucheur with the poor assessment of the need for instrumental delivery as a good outcome can be envisaged with proper patient selection for vacuum delivery.^[31] The high number of uterine rupture observed in our review is not in tandem with lower rates reported by Ezike *et al.*^[26] (0.98%) and Ugwu *et al.*^[42] (0.0%) in the study area. Our rate of 5.3% is also higher than the rate reported by Sakiyeva *et al.* (0.38%) in Kazakhstan,^[29] Tsai and Wu in Taiwan (0.0%),^[30] and 0.54% by Heir *et al.* in developed countries.^[31] Our rate of uterine rupture (5.3%) is, however, comparable with the rate reported

by Seffah and Adu-Bonsaffoh (4.3%) in Ghana^[35] but lower than the figure reported by Kaboré *et al.* (1.15%) in Senegal and Mali.^[36] Differences in the study population, hospital policies, and calibre of manpower involved in the management of these women might account for this observation. The above findings thus highlight the inherent dangers faced by women undergoing TOLAC. Uterine rupture is significantly associated with higher risk of maternal death and perinatal death which is accentuated in resource-limited settings like sub-Saharan Africa.^[43] Adequate intrapartum care with good decision-making process for the clients as well as for the accoucheur will help to reduce some of the serious complications associated with TOLAC.^[31]

Other complications seen in those that had TOLAC were postpartum haemorrhage, genital tract infection, and episiotomy breakdown. These complications are still reflections of the high-risk nature of allowing a woman to undergo TOLAC in a resource-poor setting.^[44] It is also evident from our review of the unacceptable complications that were present among the group of women that had a repeat CS following failed TOLAC. Uterine dehiscence and infection morbidities were seen in 2.2% and 5.6%, respectively, of the cohort that had a repeat CS. The rate of uterine dehiscence seen in our study is higher than the value of 1.29% reported by Ezike *et al.* in Afikpo,^[26] Nigeria, and significantly lower than the finding of Devkare *et al.* in India.^[45] Differences in obstetrics practices with differences in the criteria for client selection for TOLAC might be responsible for the findings in these study areas. Maternal death was seen only in the group of women that had a repeat CS following a failed TOLAC. The emergency nature of the surgeries and lack of adequate anesthetic preparation are some of the reasons responsible for these deaths. It thus highlights the importance of allowing TOLAC in a facility with requisite manpower, equipment, and staff capable of providing adequate care for a parturient allowed for TOLAC.

CS rate has increased globally with a substantial increase in sub-Saharan Africa^[24] even though the unmet need for CS still exists.^[46] Indications for repeat CS seen in our study include CPD, mal-presentation, antepartum haemorrhage, fetal macrosomia, and hypertensive disease in pregnancy which is in keeping with some of the reported reasons for abdominal delivery in sub-Saharan Africa.^[25,47] CPD is the most common indication for a repeat CS in our study which is in tandem with the previous studies.^[25,26] Our study showed that 46.9% of the clients had a repeat CS which is higher than the rate reported by Seffah and Adu-Bonsaffoh in Ghana.^[35] It is, however, comparable with the work of Iyoke *et al.* in Enugu^[23] that reported a failure rate of 45% (95% CI: 38.5, 51.5). The high failure rate in our study might be a reflection of poor patient selection or a low threshold for CS since labor augmentation is not advocated for women undergoing TOLAC in our centre. It could also be a reflection of the higher risk of a repeat abdominal delivery inherent in a woman with primary CS which has been estimated to be 3.78 times higher^[3] than those with a previous vaginal delivery.^[24] CPD was reported in Afikpo^[26] and Nnewi^[33]

as the single most common reason for repeat CS which was seen in our study. Obiechina *et al.*^[33] advocated for a lateral X-rays pelvimetry in addition to mandatory clinical pelvimetry to rule out CPD.

Normal fetal weight is an important parameter in selecting a woman for TOLAC. It is advocated that the fetal weight should be within 2.5–3.5 kg which is important in the elimination of CPD during labor after the control of other confounding factors.^[1] In a study in Enugu, Nigeria, by Ugwu *et al.*,^[42] successful vaginal delivery occurred more in the parturient with a neonatal weight of <4 kg. Support to this was also seen in the work of Devkare *et al.*^[45] where the majority of cases of successful TOLAC occurred in neonates weighing <3.0 kg. This should be expected as an increase in fetal weight increases the chance of CPD thereby leading to failed TOLAC. In the index study, there is a significant association between the fetal weights and Apgar score of parturient that had a successful vaginal delivery and those that had a repeat abdominal delivery. Failed TOLAC occurred more with a fetus weighing more than 3.5 kg which is in keeping with earlier findings^[42,45] although other labour variables might account for it. The perinatal mortality rate of 52.6 per 1000 deliveries in our study is unacceptably high in relation to other reports in the study area.^[26,33] This poor perinatal outcome in the cohort of women under review is possibly a reflection of poor intrapartum surveillance. In the facility, intermittent auscultation was used during the conduct of the labour process which is subjective and would not be able to demonstrate early fetal compromise. The use of partograph and continuous electronic fetal heart monitoring is advocated for better management of this labour.^[1] However, in our environment where continuous electronic fetal heart monitoring is still a luxury,^[40] close patient monitoring with frequent auscultation of fetal heart rate is apt to assist in early diagnosis of fetal compromise thus allowing early intervention.^[1]

CONCLUSION

In conclusion, it is a cause of great concern to allow a woman to undergo TOLAC in a poor resource setting because of safety unlike the less restrictive guidelines obtainable in the developed world.^[42] This, found in the less developed world, is due to the limited facilities needed for the proper monitoring of the maternal and fetal well-being during the conduct of such labour. This has contributed to the increasing unmet need for TOLAC with the resultant increasing CS rate in the region. The success rate of TOLAC in the obstetric unit under review is encouraging, but great effort is needed to help reduce the maternal and fetal complications associated with the procedure in our facility. Astute client selection for TOLAC by an obstetrician is advocated in our facility, and intrapartum examination must be done early to rule out CPD during the conduct of such labour. This will help to reduce the increased rate of failed TOLAC due to CPD. It is hoped that with improvement in intrapartum care, the TOLAC success rate seen in the developed world will not be a distant dream in our environment.

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Conflicts of interest

There are no conflicts of interest.

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