

(CASE REPORT)



Spontaneous vaginal birth after multiple previous caesarean sections: A case report and literature review

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Abstract

Background: Vaginal birth after caesarean section (VBAC) is increasingly recognized as a safe and effective option for women with a history of Caesarean deliveries. However, limited attention has been given to feasibility and safety of VBAC after multiple caesarean sections.

Case presentation: A 36-year-old woman with a history of four previous Caesarean sections presented in our centre in third stage of labour. Despite counseling for elective Caesarean section, she had a spontaneous vaginal delivery of a live 2.6 kg female neonate in a vehicle en route to the hospital. On arrival, she was stable but had lost about 500ml of blood. Immediate interventions included active management of third stage of labour and assessment for perineal injuries, with subsequent monitoring and blood transfusion. She had a normal postpartum recovery, was discharged after four days, and had a reassuring 6-week post-natal visit, with a referral to family planning.

Conclusion: This case underscores the potential success and safety of vaginal birth after multiple (three or more) Caesarean sections, challenging the notion that a history of repeated C-sections precludes this option. Vaginal birth after CS (VBAC), initially restricted to one previous CS, is now considered in selected cases with two prior abdominal deliveries. However, the acceptance of VBAC after three or more CS remains limited despite available evidences indicating comparable success rates and maternal risks for VBAC after multiple CS when compared to VBAC after one prior CS or elective repeat CS.

Keywords: VBAC; Multiple Caesarean sections; Caesarean section rate; Vaginal birth

1. Introduction

Caesarean section remains one of the most common obstetric surgeries performed worldwide, mostly where vaginal birth is not safely feasible, with the aim of saving the lives of the mother and/or the child. It is associated with risks to both mother and child [1-3]. However, due to its improved safety over time, most obstetricians seem to have neglected the fact that it is a major operation with numerous possible complications [4,5].

Studies have shown that the incidence of Caesarean section has tremendously increased worldwide over the past decades with the rates differing from country to country, and even among health facilities operating within the same country, which calls for concern globally [1,6,7]. Investigating the rates of Caesarean section in Nigeria using data from 25 selected hospitals from 2008 to 2016, Galadanci et al showed an average CSR of 10.4% with a relative increase of

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108% over a 9-year period from 6.6% to 13.8% by the end of the study period in 2016 [7]. Although not yet fully understood, this rise in CSR can be attributed to at least two major reasons: the rising incidence of primary Caesarean section as well as the rapidly declining incidence of vaginal birth after Caesarean section (VBAC) [3]. The increasing rate of primary Caesarean section and low VBAC rates result in a rise in repeat Caesarean deliveries as well as its attendant short- and long-term risks for the mother and the child [3].

When compared with vaginal delivery, Caesarean section has been shown by studies to have three times higher risk of maternal death [7]. Dahlquist K. et al also demonstrated higher incidence of postpartum infection following planned abdominal delivery at 15%, compared with 10% in patients with planned vaginal birth [8]. The same study also showed a higher incidence of postpartum pulmonary embolism following planned Caesarean section [8]. While anaesthetic complications occur in about 0.5% of Caesarean deliveries, other surgical complications such as massive haemorrhage with risk of hysterectomy, bowel or bladder injury, post-operative ileus, amniotic fluid embolism and air embolism can as well occur during Caesarean section [5]. In subsequent pregnancies, the risk of uterine rupture has been reported as 0.5 to 1% [5].

Due to the fear of uterine rupture which rate is higher among women attempting trial of VBAC as compared with planned repeat Caesarean delivery, the most recognized long-term risk of Caesarean delivery is the risk of recurrent Caesarean sections resulting in multiple Caesarean sections and the associated short- and long-term risks for both mother and child [3,5]. As a surgical procedure the higher the incidence of Caesarean section the higher the expected complications such as haemorrhage, blood transfusions, organ injuries, wound infections, adhesions, placenta praevia, placenta accreta, hysterectomies, thromboembolic disorders, and uterine rupture [2]. According to a study by Zwergel et al, the maternal risks of bowel and bladder injury was about 0.1% with up to 3 previous abdominal deliveries and just under 1% thereafter; the risk of uterine rupture was less than 1% up to 2 previous Caesarean deliveries but increased thereafter to about 4%; and blood transfusions were common and required in up to 5% of patients with multiple Caesarean sections [3]. The same study also showed the incidence of hysterectomy and placenta accreta to be less than 1% for up to 3 Caesarean sections but up to 2.5-3% in patients with more than 4 previous Caesarean sections, while the rate of placenta praevia increased from nearly 1% with one previous Caesarean section to about 2.8% with more than 3 prior Caesarean deliveries [3].

It has thus been advocated that women with one prior lower segment Caesarean section who do not have contraindications to vaginal delivery should be offered trial of vaginal birth after Caesarean section owing to its recorded safety, effectiveness and success rate [4]. In a comparative study by Adewole et al., the success rate of vaginal birth after one previous Caesarean section was noted to be 61.7%, and the significant predictors of successful VBAC were cervical dilation of 4 cm or more on admission, maternal age of 35 years or more, and augmentation of labour [9]. Other independent factors associated with successful VBAC includes prior vaginal births, low maternal body mass index (BMI) and lower birth weight or gestational age, whereas induction of labour and recurring indication in the previous pregnancy were found to be predictors of failed VBAC [10]. A 10-year retrospective study of 305 women who had trial of labour after one Caesarean delivery in a south-east Nigerian hospital by Esike O.U. et al. revealed a 72.5% successful VBAC rate with complications in 6.7% of the women. The commonest complication encountered at 2.3% was retained placenta, followed by postpartum haemorrhage in 1.96%, scar dehiscence in 1.63% and ruptured uterus in 0.98% [11].

Whereas evidences abound to support the safety of trial of vaginal birth in women with one, and recently two, previous Caesarean sections, more studies are needed to support the safety of this practice in women with three or more prior Caesarean sections [3,8,12-14]. A meta-analysis of 20 studies by Tahseen et al [14] compared the success rates and associated adverse outcomes of vaginal births after one and two Caesarean sections (VBAC-1 and VBAC -2) and found success rates of 76.5% and 71.1% respectively, associated uterine rupture rates of 0.72% versus 1.59%, and a hysterectomy rates of 0.19% versus 0.56% respectively. The same study found that maternal risks associated with VBAC-2 was comparable to that of repeat Caesarean section (RCS) [14]. Another trial by Cahill et al assessed the safety and effectiveness of vaginal birth after three or more prior abdominal deliveries and found comparable success rates and maternal risks with those with only one prior Caesarean delivery as well as with those delivered via elective RCS [12]. Also, trial of vaginal delivery in women with history of multiple Caesarean deliveries is not associated with increased rates of ruptured uterus when compared with women with a single prior Caesarean section. However when looking at uterine rupture alone, the risk increases with each Caesarean section (> 2 CS : 3.71% and > 3 CS : 4.34%) [3].

Thus, vaginal birth after multiple Caesarean deliveries is still an option for eligible women [3]. In this case report we illustrate the potential success and safety of vaginal birth after multiple Caesarean sections in a patient who had a successful spontaneous vaginally delivery following four previous Caesarean sections. This article aims to present a case of a successful VBAC after multiple (3 or more) previous Caesarean sections and a review of the literature for similar occurrences.

2. Case Report

The patient was an unbooked 36-year-old now para 5 with 5 living children whose highest level of education was secondary and had a history of 4 previous Caesarean sections. She had spontaneous vaginal delivery of a live 2.6 kg female baby at a gestational age of 38 weeks while in a vehicle on transit to the labour ward of ESUT Teaching Hospital Parklane Enugu State, Nigeria.

Labour pain started spontaneously 7 hours prior to presentation with increasing frequency, duration and intensity. There was no history of vaginal bleeding, fever, headache or epigastric pain. The index pregnancy was desired and spontaneously conceived. She booked for antenatal care in a Primary Health Centre at 20 weeks gestation as advised by her husband and neighbours in an attempt to avoid repeat Caesarean section. Her booking parameters as well as investigations were said to be normal. No ultrasound scan was done during the pregnancy. She received 2 doses of tetanus toxoid at 18 weeks and 22 weeks gestational ages respectively, and also had 3 doses of intermittent preventative therapy for malaria at 20 weeks, 24 weeks and 28 weeks gestational ages respectively. She did not take her routine antenatal drugs as prescribed. She had been counselled on the need for referral to a tertiary facility for elective Caesarean section, but she defaulted her appointments until she developed labour pain and later boarded a vehicle to bring her to the ESUTH, Parklane. However, while on transit she developed an irresistible urge to bear down, and being assisted by her mother, had vaginal delivery of a live 2.6 kg female neonate who cried immediately after birth. Baby was separated from the patient prior to presentation with the cord tied with a thread and the placenta still in-utero. She was wheeled into our labour ward while baby was taken to the new born intensive care unit for observation. She had four previous caesarean deliveries in 2012, 2014, 2016 and 2020 respectively. The first Caesarean section was due to prolonged labour from cephalopelvic disproportion secondary to fetal macrosomia with delivery of a 4 kg neonate. The indication for the second Caesarean section was fetal macrosomia with previous C- section at term. The third and fourth caesarean sections were done in a tertiary facility on account of two- and three previous caesarean sections respectively.

At presentation her general condition was stable. Abdomen was full moved with respiration with previous subumbilical midline Caesarean incision scar that healed by primary intention. The uterus was 22 weeks in size and well contracted. The placenta was still in-utero with the umbilical cord stump dangling from the vagina with minimal active vaginal bleeding. She was estimated to have lost about 500mls of blood prior to presentation.

She was given IM oxytocin 10 IU stat and the placenta delivered whole by controlled cord traction. She was then examined for genital tract injuries but had none significant. She was commenced on oral antibiotics, haematinics and analgesics, and observed for any undue abdominal pain, vaginal bleeding, abdominal distention or changes in her haemodynamic state for a period of 2 hours before being transferred to the post-natal ward.

Urgent packed cell volume done at presentation was 20% for which she was transfused with 2 units of whole blood. She had a normal postpartum and a post transfusion packed cell volume of 26%. Patient was subsequently discharged after 4 days on admission on her oral medications. Her 6 weeks post-natal visit was reassuring. She was referred to family planning clinic.



Figure 1 The photographs of the baby and the mother's abdomen after delivery

3. Discussion

When first conceived in the 19th century, Caesarean delivery was accompanied with significant risks including a maternal mortality rate of 85% [5]. The risks from the procedure have been generally mitigated by advances in medical and surgical techniques such as aseptic technique, safer methods of anaesthesia, suture materials, antibiotics, improved access to safe blood and blood products as well as the heightened awareness and practice of lower transverse uterine incision [5]. As a result, Caesarean section rates have dramatically increased globally [1,5,6,7]. With reference to the myriads of complications associated with both primary and multiple Caesarean sections as well as the lack of additional benefits in Caesarean section rates beyond 15%, the World Health Organization (WHO) has suggested reducing the rate of Caesarean section to a maximum of 15% in order to decrease the higher maternal mortality and morbidity resulting therefrom [2,6,15].

Accordingly, trial of VBAC is an intervention to reduce the incidence of Caesarean delivery and its related complications. Furthermore, despite the seemingly trivial significance attached to vaginal delivery in developed countries, it remains a very crucial consideration in developing countries where women with Caesarean delivery are often considered by others to be infidels and are frequently ridiculed [4,11]. This can be seen in our patient who registered for antenatal care in a Primary Health Centre despite having had four previous Caesarean sections due to pressures from her husband, relatives and neighbours in a bid to avert a repeat Caesarean section. When counselled on the need for referral to a tertiary facility for possible elective Caesarean section she instead defaulted her appointment waiting for labour to commence.

Vaginal birth after caesarean section was limited to one Caesarean delivery due to fear of uterine rupture with its catastrophic outcome but many are now advocating a trial of vaginal birth even following 2 previous abdominal deliveries in well selected cases [3,8,12-14]. At the moment, the idea of trial of vaginal birth after 3 or more Caesarean deliveries is still not popular. Studying the safety and effectiveness of vaginal birth after three or more prior abdominal deliveries, Cahill et al found comparable success rates and maternal risks with those with only one prior Caesarean delivery as well as with those delivered via elective RCS [12]. This case highlights the potential success and safety of trial of labour after multiple Caesarean sections, and challenges the belief that a history of previous multiple C-sections precludes this option. However this presents a higher level of risks for uterine rupture at 3.71% after more than two previous Caesarean sections and 4.34% after more than three Caesarean sections as against 0.5% following one previous Caesarean section [3,5]. This underscores the importance of careful consideration and monitoring during VBAC attempts in women with multiple prior CS. Our patient was monitored closely within the first 2 hours post-delivery for any undue abdominal pain, vaginal bleeding, abdominal distention or changes in her haemodynamic state which may suggest uterine scar disruption or rupture.

Studies on vaginal birth after one prior abdominal delivery have shown the significant positive predictors of success to include cervical dilation of 4 cm or more on admission, maternal age less than 35 years, absence of labour augmentation, prior vaginal births, low maternal body mass index (BMI) and lower birth weight or gestational age, whereas induction of labour and recurring indication in the previous pregnancy were found to be predictors of failed VBAC [9,10]. Our patient had spontaneous onset of labour with good progress and gave birth to a 2.6 kg neonate which were predictors of successful VBAC. However, defining suitable candidates for VBAC after multiple CS requires additional research.

The Royal College of Obstetricians and Gynaecologists (RCOG) guidelines advice that after counselling by a senior obstetrician, VBAC may be offered to women who have had two or more prior lower segment Caesarean deliveries but that such labour should be conducted in a centre with suitable expertise as well as facilities for immediate Caesarean delivery [16]. The existing literature primarily focuses on VBAC after one or two CS, leaving a gap in understanding the risks and success rates associated with multiple previous Caesarean sections. This article therefore stresses the need for more studies to support the safety of VBAC after multiple CS and also delineate criteria for selection of suitable candidates.

4. Conclusion

This case suggested a possibility of vaginal delivery in well selected women with previous multiple caesarean deliveries.

Compliance with ethical standards

Disclosure of conflict of interest

The authors declared that there was no conflict of interests regarding the publication of this article.

Statement of ethical approval

The authors had obtained permission before using patient data and images.

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