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Vaginal birth after caesarean section is not a safe option in low resource settings

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Abstract

Vaginal Birth After Caesarean Section (VBAC), has for a long time been practised in low resource settings using nonconventional methods. This not only poses danger to the woman and her baby, but could also have serious legal and ethical implications. The adoption of this practice had been informed by observational studies with many deficiencies, despite other studies from settings where the standard of care is much better, showing that Elective Repeat Caesarean Section (ERCS) may actually be safer than VBAC. This raises questions on whether we should insist on a dangerous practice when there are safer alternatives. We highlight some of the challenges faced in making this decision and discuss why the fear of ERCS may not be justified after all in low resource settings. Since a reduction in caesarean section rate may not be applicable in these regions with an already low coverage, emphasis should be on adequate birth spacing and safer primary operative delivery.

Keywords: Vaginal birth after caesarean section, Elective repeat caesarean section, Low resource settings

Introduction

The purpose of any obstetric intervention is to reduce morbidity and mortality, increase maternal satisfaction while ensuring patient safety, *primum non nocere*. Vaginal Birth After Caesarean section (VBAC) continues to elicit a lot of controversy. This is partly because the practice is informed by observational studies as Randomised Control Trials (RCT), to assess the safety of this practice may not pass the ethics test. Indeed, a recent Cochrane review did not find any RCT available to provide reliable evidence to guide the current practice (1). Despite numerous reports on its safety, it's known that women attempting VBAC are at an increased risk of major maternal morbidity which unfortunately cannot be accurately predicted (2). In order to optimise its safety several professional bodies have insisted on stringent criteria to be adhered to by units offering VBAC (3-5). However, the ideal intrapartum care still lacks, but these efforts at least ensure maternal safety within reason. Even though the practices may not be evidence-based, they are founded on sound clinical principles and experiential knowledge.

It is unfortunate that the same practice continues to be encouraged in low resource settings, in units that hardly meet any of these criteria. The basis of these unsafe practices is evident from numerous observational studies that have reported high rates of successful VBAC in sub Saharan Africa with 'minimal adverse outcomes (6-9). Some of these studies have concluded that VBAC is safe even without facilities for intrapartum maternal and fetal monitoring. Such conclusions are misleading and as noted in one of the papers "the price paid (by the fetus, mother and obstetrician) for vaginal delivery after previous caesarean section in this resource-poor setting can be very expensive"(6).

In this article we explore some of the challenges faced in decision making for women who may desire VBAC in resource limited settings. We critically analyse issues concerning patient safety that may arise from offering VBAC to patients using nonconventional birth plans. In order to encourage the safe practice of VBAC, we suggest ways that can be used to minimise morbidity while ensuring safety in these settings. Bearing in mind the heterogeneity of health institutions in low resource settings, this article focuses on those units that do not have the necessary capacity and resources for one-to-one midwifery care and continuous fetal monitoring during labour as would be the practice in an ideal context.

What is a successful VBAC?

It is commonly quoted that the success rate associated with VBAC is 70-80%. This figure remains constant irrespective of the setting in which the studies were undertaken and is often given to all patients contemplating VBAC (3-9). Success cannot merely be measured by the percentage of women achieving a vaginal birth. There are many parameters that need to be taken into account before arriving at any of these conclusions.

First, it is wrong to generalise findings from these studies to inform clinical practice globally. All the

studies reporting on success rate of VBAC were done in tertiary institutions or within university affiliated hospitals. In most developing countries tertiary institutions which account for a very small fraction of all the deliveries tend to be concentrated in major cities. These institutions greatly differ from the usual district hospitals in terms of human resources as they attract some of the best and experienced staff including midwives and obstetricians. These institutions also tend to be training centres with many middle grade staff who provide 24-hour coverage, with the necessary support systems in place. Therefore, having a VBAC in such institutions could be justified even though they may not have access to continuous electronic fetal minoring. This is in direct contrast to most peripheral institutions located mainly in rural areas with little backup in the event of an emergency. Bearing in mind the heterogeneity of the health care delivery systems, one cannot use findings from one institution to inform practice in another. Contextualisation of evidence, expertise and patient values or expectations is vital in the implementation of a VBAC programme.

Second, the studies do not define what is meant by successful VBAC. Does a successful VBAC only refer to the delivery of a baby vaginally in a woman with a previous caesarean section? In the authors' opinion, VBAC should only be considered successful if the woman has managed to deliver vaginally to a healthy baby without any complications and is discharged home and remains complication-free in puerperium and is satisfied with the entire process. If a woman delivers vaginally and suffers massive haemorrhage that necessitates multiple transfusions or develops endometritis one week after VBAC or worse still gets an asphyxiated baby with impaired neurodevelopmental outcome then that particular VBAC cannot be regarded successful despite the baby having been born vaginally. The mother and/or the baby suffered severe consequences of a choice the woman made that could have been avoided had she opted for an Elective Repeat Caesarean Section (ERCS). While one may argue that these are events that could occur regardless of the mode of delivery, it is known that the prevalence of these complications is further increased in women attempting VBAC (2, 10, 11).

Third, most of these studies were observational in nature and are therefore prone to bias, a factor that was not appropriately addressed in most of them. There is tendency to under-report complications and over-report favourable outcomes, especially in an environment where the culture of incident and adverse event reporting is non-existent. Most institutions in sub-Saharan Africa (SSA) do not have reliable records keeping systems, therefore the quality of most retrospective chart reviews comes to doubt (12,13). The only reliable way to study this would be to perform retrospective data collection as the events occurs. Furthermore, these studies do not mention how the process of selecting women for VBAC was arrived at. It is not clear whether the women were given a choice between the two methods at all. It is possible that in some circumstances, the decision for VBAC may have been influenced by the attending physician. There is also little mention on whether the women were satisfied with the outcomes in relation to their values and expectations.

Finally, we cannot conclude that VBAC is safe simply by looking at a cohort of women who undergo the practice. The best way would be to do a prospective comparative study. It may not necessarily be randomised, but comparing the two groups gives a better understanding of the outcomes of either method. This has indeed been done in some settings which not surprisingly found VBAC to be associated with more morbidity compared to ERCS (10,11). It would be interesting to see, whether similar findings could be replicated in low resource settings.

VBAC is still not safe in low resource settings

The aim of VBAC is to reduce the rate of caesarean section so as to avoid associated sequelae of multiple operations which includes placenta praevia, morbidly adherent placenta and haemorrhage (14, 15). All these conditions are potentially fatal; however, the main challenge is whether one would want to avoid a future catastrophe by exposing the woman to an immediate one. Looking at the figures derived from developed countries where VBAC is relatively safe and practised under stringent criteria, the risk of major haemorrhage is 0.8% for ERCS compared to 2.3% for successfull VBAC [0.37; 95%CI (0.17-0.80)]. There is an increased risk of death with VBAC (2.4%) versus ERCS (0.9%) [0.39; 95% CI (0.19-0.80)] (11). The risk of Hypoxic Ischaemic Encephalopathy (HIE) is 2% for VBAC and 0% in ERCS, endometritis 2.9% versus 1.8% and blood transfusion risk of 1.7% versus 1.0% for VBAC and ERCS respectively (10). Compared to normal delivery, women undergoing VBAC have an increased risk of Post Part Haemorrhage (PPH); OR 8.52 (4.6-15.7), hysterectomy; 51.36(13.6-93.4); and serious perinatal outcomes; 24.51 (11.9-51.9) (16). These risks are almost nonexistent with ERCS.

These figures look modest, but they cannot be generalised for a population in low resource settings. The reasons being that these studies were done in very good centres in high income countries where the a priori risk of these adverse outcomes is already low,

so the contribution by additional risk is very small. This would be different in a setting where the a priori risk is higher. For instances, a WHO systematic review reported the prevalence of uterine rupture to be lower in developed countries compared to the less developed countries. The mortality associated with this is also higher in undeveloped countries (17). This provides proof that VBAC can be a potential additional cause of maternal mortality in these regions.

There are several proposed validated algorithms that can be used to select appropriate candidates for VBAC (18). Consequently, there are circumstances when it may not be prudent to offer VBAC. These include previous non- traverse/non-low segment incision, non-availability of obstetrics, paediatric or anaesthestic emergency staff, inter-pregnancy interval of less than 24 months, previous endometritis after caesarean delivery and lack of continuous intrapartum monitoring (3-5). Most of these requirements are hardly met in resource poor settings. Even in situations where the staff is available, some information concerning the previous caesarean section such as type of uterine incision or post-operative complications may not be available due to challenges with documentation and record keeping (12, 13).

The most fronted argument against ERCS is the risk associated with multiple surgeries which include placenta praevia and morbidly adherent placenta (19-22). Is this risk high enough to discourage us from offering an ERCS? First, the safety of caesarean section has increased over the years with improvements not only in technique but also the mode of anaesthesia, therefore, generally speaking caesarean section is a very safe procedure. Second, if we critically look at the figures, quoted we realise that our fear may not be justified after all. When values are interpreted in relative terms they tend to give a false over representation compared to the absolute figures. Therefore, it may be terrifying for one to say there is a 25 times increment in risk of placenta praevia while in absolute terms this is only a 1.3% increment (11, 19). Third, when compared to VBAC, the risks quoted do not seem to significantly increase morbidity when the morbidity associated with VBAC is factored in. A successful VBAC does not decrease the risk of a woman getting placenta praevia or a morbidly adherent placenta in the subsequent pregnancy. Therefore, the cumulative risk of adverse outcomes still remains high. This risk may actually be reduced if she had chosen to have an ERCS. To illustrate this let us use the lifetime risk of getting massive haemorrhage as an example. The overall risk of major haemorrhage in a woman attempting VBAC for the first time is 2.3% (10), if this woman survives and goes ahead and conceives again, then she will have a 1.5% chance of developing placenta praevia (19). Compare her to a woman who opted for ERCS, and therefore had a 0.8% risk of massive haemorrhage (19). This woman survives and now has two scars increasing her risk of placenta praevia in the subsequent pregnancy to 2.2% (19). Considering that the risk of bleeding from placenta praevia remains constant regardless of the number of scars then the VBAC woman has an almost double lifetime risk of suffering severe haemorrhage compared to the ERCS woman. The same may be said of other conditions except for morbidly adherent placenta whose risk is significantly increased with the number of caesarean sections, although the absolute risk is again very small (16). Therefore, in relative terms, there seems to be a significant risk associated with repeated caesarean section but the absolute values are not significant and might be diluted if we factor in previous risks.

Nonconventional VBAC practices

Assuming the prerequisites set by various professional bodies are scientifically acceptable as best practice then one can conclude that VBAC in most resource poor settings is nonconventional. Maternal wishes should be respected and the clinicians should support women through the entire decision making process. However, a decision can only be reasonable if it is factual. It is therefore the duty of the clinician to present the facts to the patient and this includes informing them of the inadequacies within health care delivery that may make the patients' choices unsafe. These deficiencies should be pointed out in the woman's birth plan. We therefore propose a contextualised statement similar to one presented in Box 1 for all women being consented for VBAC in resource poor settings.

In the event a woman chooses to go ahead with the trial of labour knowing the dangers involved then our duty is to minimise harm as much as possible. However, encouraging a woman to undergo nonconventional VBAC plan may attract significant legal and ethical implications besides posing a danger to the woman and her baby. Consequently, every woman should be made to understand the risks involved in any recommended intervention and guided through the process in a non-judgmental way (23). Local data should be used to guide the process. It would not be prudent to blindly quote global figures as they may not be applicable in the local context.

Box 1
Thank you for attending your appointment today to discuss your preferred birth plan. We do recognise that vaginal birth after caesarean section is possible in your case. Seven out of every 10 women attempting a trial of labour after a previous one caesarean section can achieve a successful vaginal birth. However, there is still a 1 in 200 chance that you may have a tear in your womb. There is also a risk of your baby suffering lack of oxygen to the brain, a risk of you bleeding heavily after delivery and having your womb being removed. To be able to contain this it is advisable to monitor your labour continuously so that should we detect any abnormal changes and deliver you immediately, should this arise. Unfortunately, we do not have the capacity to do this, and in the event of an emergency we may not be able to offer you immediate delivery in this unit. This means your chances of suffering harm are more compared to if you had a planned delivery by cesarean section.
We have had previous success in this unit and we will strive to offer you the best care within our means but we cannot guarantee safe outcomes for you and your baby.
Should you choose to go ahead with trial of labour we will support your choice and will not discriminate you in any way.
Should you be willing to attempt a trial of labour kindly sign below. Remember you are free to change your mind at any time without fear of reprisal
Do not hesitate to contact us should you have any further queries.

Signed: Woman/health care provider

What's the way forward?

We acknowledge the major challenges posed by encouraging a universal practice of ERCS where VBAC is not safe. Indeed, we cannot underestimate the impact an increase in placenta praevia and morbidly adherent placenta may have on maternal morbidity in these low resource settings. To minimise the sequelae of caesarean section efforts should be geared towards reduction of primary caesarean section rate, however it may be argued such a move is not be justified considering the low rate of caesarean delivery in most of these countries, which is well below the minimum required for maternal safety (24). There is therefore need to make VBAC safer. Health policy should be geared towards ensuring adequate staffing and provision of basic emergency obstetric care. Electronic fetal monitoring should be considered a standard of care by all professional bodies in these regions. Adoption of evidence-based guidelines and good practices has been demonstrated to result in safer VBAC in these settings (25).

There is also need for concerted efforts to reduce family size. We therefore recommend that efforts should be made towards increasing contraceptive coverage, especially the use of long acting methods for those women with previous caesarean section to ensure wider inter-pregnancy intervals (26). Improved models of antenatal care can ensure early identification of women at risk of adverse outcomes such as those with previous scars who can then be triaged to tertiary institutions early enough to avoid the unexpected outcomes.

Conclusions

Attempting VBAC without measures to ensure adequate fetal monitoring and in the absence of readily available emergency measures is unsafe. There is evidence to prove that compared to ERCS, VBAC may indeed have worse perinatal outcomes. Therefore, in a setting where 'proper' VBAC cannot be offered, it would be safer to opt for ERCS. Of course, there are disadvantages associated with repeated caesareans section, but if analysed critically the risks associated with VBAC may outweigh those of ERCS in the long run. Putting all this into context, it's the duty of every practitioner to ensure maternal safety by appropriately informing the woman of all the risks involved in their choices and offering safer alternative and avoiding nonconventional birth plans.

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