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Review Article

Birth Choice after Primary Caesarean Section; Science, Culture or Commerce

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Abstract

Caesarean birth, also known as Caesarean section or caesarean delivery, is the use of surgery to deliver one or more babies through the abdominal route. Historically, this surgical procedure was used to save a baby from the womb of a mother who had died while giving birth.

This surgical procedure has now become one of the most commonly performed procedures in obstetrics. The indications for the procedure can largely be either recurrent or non recurrent. Improvements in anesthetic services, surgical techniques and prophylactic use of antibiotic have made Caesarean delivery relatively safer in the practice of modern obstetrics. There are however, continued concerns about the significantly high numbers of caesarean sections performed worldwide and the associated risks.

With the ever rising rates of primary caesarean deliveries, there are increasing numbers of women who need advice regarding birth options in subsequent pregnancies. Fundamentally patients and clinicians jointly need to consider the options with a view to planning mode and place of birth for each mother who has had a previous Caesarean delivery.

There are unfortunately no large prospective randomised controlled trials assessing birth options. Scientific evidence to support clinicians and patients are conflicting and not validated. There is no agreed success rate tool of assessment for Trial of Labour After Caesarean Section.

Institutional risk management approach also influences clinicians behavior in counseling these patients. Malpractice concerns have caused the obstetricians to increase the number of cesareans they perform

Choice is a fundamental human right but for choice to be informed, it has to be evidence based and devoid of all measures of bias and coercion. Women with a history of prior caesarean section unfortunately appear to receive conflicting information regarding delivery options in future pregnancies. The ultimate decision of mode of delivery after primary CS for non-recurrent indications is largely subjective and dependent on variety of factors. The main drivers of these choices can be broadly grouped into science, culture and commerce.

We present a clinical overview on the difficulties posed to both women and clinicians on the complex issue of choosing the optimal mode of delivery after a primary caesarean section performed for non recurrent obstetric indications.

Keywords: *Caesarean Section; Science; Culture; Commerce*

Introduction

Caesarean birth, also known as Caesarean section (CS) or caesarean delivery, is the use of surgery to deliver one or more babies through the abdominal route.

Historically, this surgical procedure was used to save a baby from the womb of a mother who had died while giving birth. This history dates back as far as Ancient Roman times. At that time the procedure was performed only when the mother was dead or dying, as an attempt to save the child for a state wishing to increase its population. Roman law under Caesar decreed that all women who were so fated by childbirth must be cut open; hence, cesarean. Other possible Latin origins include the verb "caedare," meaning to cut, and the term "caesones" that was applied to infants born by postmortem operations. Pliny the Elder suggested that Julius Caesar was named after an ancestor who was born by caesarean section [1].

According to the ancient Chinese Records of the Grand Historian, Luzhong, a sixth-generation descendant of the Yellow Emperor, had six sons, all born by "cutting open the body". The sixth son Jilian founded the House of Mi that ruled the State of Chu (c. 1030-223 BC) [2].

In India, the mother of Bindusara (born c. 320 BC, ruled 298 - c. 272 BC), the second Mauryan Samrat (emperor) of India, accidentally consumed poison and died when she was close to delivering him. Chanakya, the Chandragupta's teacher and adviser, made up his mind that the baby should survive. He cut open the belly of the queen and took out the baby, thus saving the baby's life [2].

Premortem caesarean sections usually resulted in the death of the mother, as for most of the time in the 16th century; the procedure had a high mortality rate.

Evolutionary trends of caesarean births

Caesarean section has now become one of the most commonly performed surgical procedures in obstetrics. The improvements in anesthesia services, surgical techniques and prophylactic use of antibiotic have made Caesarean delivery a relatively safer procedure in the practice of modern obstetrics.

During its evolution cesarean section has meant different things to different people at different times. The indications for it have changed dramatically from ancient to modern times. The indications of caesarean birth can now be for recurrent and non-recurrent reasons.

Despite the international healthcare community considering the ideal rate for caesarean sections to be between 10% and 15% [3]. Caesarean section numbers remain a concern due to the high rates and continued rise in developed countries [4]. Each year, 1.5 million childbearing women have cesarean deliveries, and this population continues to increase. The latest available data show that almost 1 in 5 women in the world now give birth by CS [5].

While the increasing trends have been attributed to improvements in modern obstetrics care, latterly it has become apparent that some of the increase in CS rates can been attributed to an increase in non-medically indicated CS, including CS on maternal request [6including on maternal request, and to examine the association between provider characteristics and preferences/attitudes. Design Cross-sectional study. Setting Two public and two private hospitals in Argentina. Population Obstetrician-gynecologists and midwives who provide prenatal care and/or labor/delivery services. Methods Providers in hospitals with at least 1,000 births per year completed a self-administered, anonymous survey. Main Outcome Measures Provider delivery preference for low-risk women, perception of women's preferred delivery method, support for a woman's right to choose her delivery method and willingness to perform caesarean section on maternal request. Results One hundred and sixty-eight providers participated (89.8% coverage rate]. Other factors which have been implicated include complex maternal morbidities and improved neonatal support systems.

Changes in maternal characteristics and professional practice styles, increasing malpractice pressure, as well as economic, organizational, social and cultural factors have all been implicated in this trend. Additional concerns and controversies surrounding CS include inequities in the use of the procedure, not only between countries but also within countries and the costs that unnecessary caesarean sections impose on financially stretched health systems [5].

With the ever rising rates of primary caesarean deliveries, there are increasing numbers of women who need advice regarding options for birth in subsequent pregnancies. The available options are either labour with a view to safe vaginal birth, or Elective Repeat Caesarean Section (ERCS). Each option, elective Caesarean section or labour with a view to vaginal birth, has its benefits and risks. The indications for primary (CS) therefore play pivotal roles in planning subsequent births especially in cases where these procedures have been performed for non-recurrent obstetric indications.

Patients and clinicians jointly need to consider the options with a view to planning mode and place of birth for each mother who has had a previous Caesarean delivery. Patient differences clinical practice and demographic contribute to a variation in patient preference, risk spectrum and of success rates for vaginal birth.

Choice is a fundamental human right, and there are few justifiable constraints on women's choices. Choice, however, needs to be informed. It is the responsibility of the healthcare professional to impart information to women and their partners that is accurate and readily understandable, but there are unfortunately no large prospective randomised controlled trials assessing birth options. Choice of mode of delivery after primary CS for non- recurrent indications is largely subjective and dependent on variety of factors. The main drivers of these choices can be broadly grouped into science, culture and commerce.

Science

For women who have undergone a previous cesarean delivery, optimum management of subsequent deliveries has been debated for over the last century. The two options are Trial of Labor After Cesarean delivery (TOLAC) and Elective Repeat Caesarean Section (ERCS) [7].

TOLAC is a "reasonable option" for most women with a single prior low transverse CS with no other contraindications to a vaginal birth. Ninety percent of women who have undergone cesarean deliveries are candidates for TOLAC In most published studies, 60-80%, roughly three to four out of five women who have previously undergone cesarean birth can successfully give birth vaginally. RCOG claim success rate of planned VBAC is 72% - 75%, and up to 90% in women with one or more previous vaginal births [8].

Recognized factors for enhancing successful VBAC include previous vaginal delivery preceding the CS [9]. Statistically, the highest rate of VBAC involves women who have experienced both vaginal and cesarean births and given the choice, have decided to deliver vaginally.

WHO Statement on caesarean section rates, 2015 adds stronger evidence that VBAC is a reasonable and safe choice for the majority of women with prior cesarean. Moreover, there is emerging evidence of serious harms relating to multiple cesareans.

The greatest concern for women who have had a previous cesarean is the risk of uterine rupture during a vaginal birth. According to the American College of Obstetricians and Gynecologists (ACOG), if you had a previous cesarean with a low transverse incision, the risk of uterine rupture in a vaginal delivery is .2 to 1.5%, which is approximately one chance in 500 [10].

Scientifically, it would be reasonable to anticipate significant uptake of TOLAC or Trial of Scar/Labour. This however appears not to be the case, as CS rates remains high and continues to rise in developed countries.

In 1980, a National Institutes of Health Consensus Development Conference report questioned the necessity of routine PRCD and, with endorsement from the American College of Obstetricians and Gynecologists (ACOG), encouraged clinicians and patients to increase the rate of TOLAC, with great success [11].

The TOLAC rate reached a peak of 51.8 percent in 1995, with a concomitant decline in total cesarean delivery rates in the United States. As the TOLAC rate increased, however, so did reports of uterine rupture-related maternal and perinatal morbidity. These adverse outcomes dampened enthusiasm for TOLAC. They also prompted ACOG to issue a practice bulletin in 1998 that cautioned TOLAC should only

be attempted in appropriately equipped institutions with clinicians "readily" available to provide emergency care which was later to say that clinicians should be "immediately" available. After this change, national TOLAC rates declined, reaching a lowest rate of 15.9 percent in 2006 before increasing again. Two surveys of hospital administrators found that 30 percent of hospitals discontinued allowing TOLAC because they were unable to comply with the immediately available requirement for surgical and anesthesia services, and of the hospitals who continued to offer TOLAC, over half made changes in their policies to accommodate ACOG recommendations [11].

Factors which may be accountable for the disappointing rates of women choosing TOLAC would include the absence of substantiated evidence of factors that may be of help in identifying patients likely to have successful VBAC.

A meta-analysis which included 21 studies with a total of 2776 analyzed patients made a conclusion which supports the use of antenatal lower uterine segment measurements in women who had undergone a previous CS. in the prediction of a uterine defect during trail of labour [12]. Unfortunately, no studies have the shown the appropriate cut-off value of lower uterine segment thickness [12]. X-ray pelvimetry has not been found to be useful in deciding the mode of delivery following a caesarean section [13].

There is still no evidence to inform patients, clinicians, or policymakers about the outcomes of intended route of delivery because the evidence is based largely on the actual route of delivery (Guise., *et al.* 2010) and understandably in such a context, there is concern that apparently inexorably rising rates of caesarean delivery have the potential to divert human and financial resources from other, arguably higher priority, interventions [4]. Scientific evidence therefore, to support clinicians and patients are conflicting and not validated.

Culture

Cultural beliefs, values and traditions can significantly affect women's' attitudes towards methods of delivery. Previous birthing experience is considered an essential factor in what women expect in the birthing process. One of the vital sources of information for choosing the method of delivery is the birth stories or experiences of previously labored women. These "birth stories" are mostly concerned with unpleasant aspects of childbirth, such as physical pain, psychological pressure at the time of delivery, inappropriate midwifery interventions, and emergencies [14].

Less preparedness to have the stress of labour and the delivery process, and fear from vaginal delivery are considered some of the commonest reason for refusal of TOLAC [15]. A study done in Egypt which has one of the highest rate of CS deliveries, to measure the basic knowledge pertaining to CS delivery showed over a half of the Egyptian females had lack of basic knowledge pertaining to CS [16]. Other cultures agreed that cesarean section was perceived as an easy, convenient way of giving birth [17].

With women in the Middle Eastern countries it is a common place to have large families and not unreasonable, it would be expected that there would be a higher uptake of TOLAC. These appears not to be the case in these affluent countries; it is not uncommon to find women refusing TOLAC and having multiple CS in full knowledge of associated risks.

Language barrier and informal advice from family and friends play a major role in women deciding the ultimate mode of delivery after primary CS.

Clinicians risk awareness particularly in highly litigious environment indirectly influences the mode of counseling. It is not uncommon for some clinicians to offer elective CS to eliminate the possibility that the women may go for emergency CS which is associated with an increased risk of morbidity and mortality [18]. Malpractice concerns have caused the obstetricians to increase the number of caesareans they perform [19].

Clinicians' attitude toward induction of labor in patients with previous primary CS varies from unit to unit worldwide, some are comfortable with the use of prostaglandins others abstain from the practice as the medication unlicensed for this use and the risk of hyperstimulation is unpredictable.

Dysfunctional uterine activity following primary CS in the absence of previous vaginal delivery is common and the management entails the tradition use of oxytocin. In some units, the recognized association of use of oxytocin in TOLAC and increase incidence of uterine rupture has led to the prohibition of elective prescription of oxytocin for augmentation of labour, leading to a reduction in the success of TOLAC.

Institutional risk management approach also influences clinicians behavior in counseling these patients. In units with blame culture especially in the event of an adverse outcome, there would be a natural reluctance to avoid risks of TOLAC at all cost and higher preference in counseling the patients for Elective Repeat Caesarian Section.

Cesarean Decision Making in Listening to Mothers survey in US showed that almost two-thirds of mothers (63%) with primary cesareans indicated the doctor was the decision maker, with only 17% saying they were the decision maker. For mothers with a repeat cesarean, the decision typically had been made before labor, by either the provider (47%) or the mother (30%) [20]. Interestingly, it also showed that many women reported experiencing pressure from a care provider to have a caesarean birth.

Some physicians believe that its safer and better legally, to perform a repeat elective CS delivery other than to risk with all the complications of TOLAC and subsequent lawsuit, but the reality of 'increase in the number of cesareans decreases the number of lawsuits' remains debatable [21].

Professional standards do not mandate discussing the option of cesarean delivery on maternal request with every patient, given the high degree of uncertainty about its clinical benefits and risks compared with vaginal birth [22].

Finally, obstetricians are not obliged ethically or professionally to perform cesarean delivery on maternal request; early referral to another health care practitioner willing to act in accordance with the patient's request is appropriate in such cases.

Commerce

Financial incentives for cesarean delivery may affect cesarean rates in certain systems [2Wisconsin.\\n\\nMETHODS: We undertook a retrospective analysis of the records of all women admitted to the birth center in labor. Main outcome measures include rates of cesarean deliveries, TOLAC and VBAC deliveries, and perinatal outcomes for 927 deliveries between 1993 and 2010.\\n\\nRESULTS: The cesarean rate was 4% (35 of 9271]. The average global rate of CS is 18.6%, ranging from 6.0% in least developed regions, 20.9% in less developed regions and 27.2% in the more developed regions [5]. Gibbons., *et al.* in 2008, obtained data on the number of CSs performed in 137 countries; it was found that fifty-four countries had CS rates of less than 10%, whereas 69 countries showed rates of greater than 15%. The cost of the global saving by a reduction of CS rates to 15% was estimated to be $2.32 billion (US dollars); the cost to attain a 10% CS rate was $432 million (US dollars) [23].

Currently, the most frequent indication for CS is having a history for previous CS [6]. The evidence supports that, even with variation by healthcare system and population, providers significantly impact the delivery mode decision [6]. In low socioeconomic countries, there is increase morbidity and mortality associated with surgical intervention therefore it would be common place for these women to avoid surgeries at all costs.

A cross sectional study of two public and two private hospitals in Argentina showed that there is a variation in provider attitudes towards medically-unjustified CS reflecting an unresolved debate over the available evidence comparing modes of delivery in low risk women, women's reproductive rights, providers' ethical responsibilities and societal implications from a shift in resources. Providers working only in the public sector were significantly less willing to perform a CS on maternal request [6including on maternal request, and to examine the association between provider characteristics and preferences/attitudes. Design Cross-sectional study. Setting Two public and two private hospitals in Argentina. Population Obstetrician-gynecologists and midwives who provide prenatal care and/or labor/delivery services. Methods Providers in hospitals with at least 1,000 births per year completed a self-administered, anonymous survey.

Main Outcome Measures Provider delivery preference for low-risk women, perception of women's preferred delivery method, support for a woman's right to choose her delivery method and willingness to perform caesarean section on maternal request. Results One hundred and sixty-eight providers participated (89.8% coverage rate].

Conclusion

For choice to be informed, it has to be evidence based and devoid of all measures of bias and coercion. Women with a history of prior CS receive conflicting information regarding delivery options in future pregnancies. The decision for delivery after primary CS has now become complex interplay of multiple factors of which science, culture and commerce play varied roles. There is no agreed success rate tool of assessment for TOLAC. The increase in CS and resultant escalation of medical costs will have a serious impact on the economy. Efforts to increase rates of VBAC will depend on patients understanding of the risks and benefits of both options. Unfortunately, there are validated trials to aid maternity providers are well positioned to provide key education and counseling when patients are not informed of their options.

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