

Vaginal birth after caesarean

Sangeetha Devarajan
Vikram Sinai Talaulikar
Sabaratnam Arulkumaran

Abstract

Caesarean section (CS) rates continue to evoke worldwide concern because of their steady increase. The national caesarean section (CS) rate in the UK is almost 25%, having increased by 5.7% in the last 10 years. A rising primary CS rate is a significant contributor to this trend. The latest available data show that almost 1 in 5 women in the world now give birth by CS.

The World Health Organisation states that, when medically justified, a caesarean section can effectively prevent maternal and perinatal mortality and morbidity. However, there is no evidence showing the benefits of caesarean delivery for women or infants who do not require the procedure. As with any surgery, caesarean sections are associated with short and long-term risk which can extend many years beyond the current delivery and affect the health of the woman, her child, and future pregnancies. These risks are higher in women with limited access to comprehensive obstetric care.

There are two standard care pathways for women having childbirth following previous CS – Vaginal Birth After Caesarean (VBAC) or Elective Repeat CS (ERCS). Attempting a VBAC is a safe and appropriate choice that must be offered to most women who have had a prior caesarean delivery. Approximately 70–75% of women who attempt VBAC will have a successful vaginal delivery. Focused antenatal counselling sessions highlighting the risks and benefits of VBAC vs ERCS may impact upon the pathway a woman chooses. Continued counselling and discussion of relative risks versus benefits will also encourage patient choice and help support the woman throughout antenatal and intrapartum periods.

Keywords after; birth; caesarean; delivery; elective; vaginal; VBAC

Introduction

Although caesarean section rates have been rising worldwide, a review of current medical literature and evidence from clinical practice suggests that the statement ‘once a caesarean, always a caesarean’ is no longer valid. National guidelines from several countries across the world (including the RCOG – Royal college of Obstetricians and Gynaecologists, and ACOG – American College of Obstetricians and Gynecologists) suggest that it is

Sangeetha Devarajan MD DNB MRCOG Consultant Obstetrician and Gynaecologist, Epsom and St. Heliers University Hospital, Carshalton, UK. Conflicts of interest: none.

Vikram Sinai Talaulikar MD MRCOG PhD Associate Specialist in Reproductive Medicine, University College London Hospital, UK. Conflicts of interest: none.

Sabaratnam Arulkumaran MD PhD FRCS FRCOG Professor Emeritus, St. George's University of London, UK. Conflicts of interest: none.

acceptable and a clinically safe choice for the majority of women to attempt a vaginal birth after caesarean section (VBAC) after one previous lower transverse uterine incision in an otherwise uncomplicated pregnancy.

A successful VBAC is associated with lower maternal morbidity, quicker postpartum recovery time and a decreased risk of future pregnancy complications due to abnormal placentation. However, it is important to keep in mind that a failed trial of labour after a caesarean section, resulting in an emergency caesarean section, has a higher maternal morbidity of approximately 3.8% when compared with the 0.8% risk experienced by those having an elective caesarean section. Hence, any women attempting childbirth after previous CS should be offered both the choice of an elective caesarean section (ERCS) and VBAC as options for delivery after a thorough clinical assessment and antenatal counselling. The key parameters to be considered in arriving at the final decision regarding mode of delivery are the likelihood of success with vaginal birth, the wishes and aspirations of the woman, the predicted size of her family, and her individual circumstances. Ultimately, her informed choice must be respected and supported (Table 1).

The risk of placenta praevia and abnormal placental invasion increase in women with more than one previous caesarean section. Placenta accreta was present in 0.24%, 0.31%, 0.57%, 2.13%, 2.33% and 6.74% of women undergoing their first, second, third, fourth, fifth, and sixth or more caesarean births, respectively. With this comes the potential risk of having to perform a caesarean hysterectomy with the attendant physical and psychological consequences for the woman. Other risks include visceral trauma, infections, ileus, need for postoperative ventilation, intensive care unit admission, venous thromboembolism, significant peri-operative haemorrhage and anaesthetic complications. The patients should be warned of risk of caesarean hysterectomy and her consent obtained.

The risk of neonatal respiratory morbidity is higher following elective repeat caesarean section, even at 39 weeks. This rises to 6% the elective caesarean section is performed earlier at 38 weeks, although this additional risk may be minimised by antenatal corticosteroid administration.

Contraindications to attempting VBAC

1. Previous classical caesarean
2. Previous uterine rupture
3. Previous hysterotomy or complex myomectomy entering the uterine cavity
4. Previous three or more caesarean deliveries

Review of the literature estimates that the frequency of uterine rupture in labour following classical or T-shaped incisions ranged from 4.0 to 9.0%, which is at least two-fold higher than the upper estimate of rupture risk for low vertical incisions and more than five-fold higher than the upper estimate of rupture risk for low transverse uterine incisions. Data are limited and inconclusive regarding risk of uterine rupture in women with a prior low vertical uterine incision. A literature review concluded that the frequency of rupture for low transverse uterine incisions ranged from 0.4 to 0.7% versus 1.05 to 2.0% for low vertical uterine incisions. Women with a prior inverted T or J incision have an 1.9% rupture risk. A retrospective study of women

Benefits and risks associated with planned vaginal birth after caesarean (VBAC) versus planned elective repeat caesarean section (ERCS)

VBAC	ERCS
<p>Benefits</p> <p>Avoidance of major abdominal surgery</p> <p>Short hospital stay</p> <p>Increased likelihood of future vaginal birth</p> <p>Reduced (1%) risk of transient respiratory morbidity</p> <p>Reduced risks in future pregnancies resulting from multiple caesarean deliveries such as morbidly adherent placenta, bladder/bowel injury and hysterectomy</p> <p>Reduced maternal mortality</p> <p>Risks of VBAC</p> <p>Uterine rupture (0.5%)</p> <p>24–28% chance of emergency caesarean</p> <p>Operative injury at emergency CS</p> <p>10–15% chance of instrumental delivery & perineal tear/episiotomy</p> <p>Higher risk of blood transfusion (1.7%) and endometritis (2.9%)</p> <p>10 per 10,000 prospective risk of antepartum stillbirth beyond 39 weeks whilst awaiting spontaneous labour</p> <p>8 per 10,000 (0.08%) risk of hypoxic ischaemic encephalopathy (HIE)</p> <p>4 per 10,000 (0.04%) risk of delivery-related perinatal death</p>	<p>Benefits</p> <p>Able to plan delivery date</p> <p>Less risk of blood transfusion (1%) & endometritis (1.8%)</p> <p>Extremely low-risk of uterine scar rupture (<0.02%)</p> <p>Protection of pelvic floor, reduction in urinary incontinence</p> <p>Option for sterilization if family complete</p> <p>Avoids 10 per 10,000 risk of stillbirth beyond 39 weeks</p> <p>Risks of ERCS</p> <p>0.1–2% risk of surgical complications</p> <p>Longer recovery than vaginal birth</p> <p>Future pregnancies: likely to require caesarean delivery</p> <p>Increased risk of placenta praevia/accreta and adhesions with successive caesarean deliveries</p> <p>Infections, ileus, need for post-operative ventilation, intensive care unit admission, venous thromboembolism, significant peri-operative haemorrhage and anaesthetic complications</p> <p>Increased risk of maternal death (13 per 100,000 vs. 4 per 100,000) compared with planned VBAC</p> <p>Higher incidence of neonatal respiratory morbidity (1–2% with planned VBAC and 3–4% with ERCS)</p>

Table 1

attempting VBAC found that a prior inadvertent uterine extension at the time of primary caesarean was associated with an increased risk of uterine rupture when compared with no prior extension (6.0 versus 1.5%).

The issue of VBAC following myomectomy is controversial as there is insufficient and conflicting information on whether the risk of uterine rupture is increased in women with previous myomectomy or prior complex uterine surgery. In view of this uncertainty, these women should be considered to have delivery risks at least equivalent to those of VBAC and managed similarly in labour. Senior input and timely review, during antenatal and

intrapartum periods, are key to shared decision making regarding appropriate mode of delivery in these women.

Women with two previous lower segment CS, in an otherwise uncomplicated pregnancy at term, with no contraindication for vaginal birth, who have been fully informed by a consultant obstetrician, may be considered suitable for planned VBAC. Labour should be conducted in a center with suitable expertise and recourse to immediate surgical delivery. A multivariable analysis from the large National Institute of Child Health and Human Development (NICHD) study showed that there was no significant difference in the rates of uterine rupture in VBAC with two or more previous caesarean births (9.2/1000) compared with a single previous caesarean birth (6.8/1000). However, the rates of hysterectomy (6/1000 compared with 2/1000) and blood transfusion (3.2% compared with 1.6%) were increased in the 2 CS group. Overall most studies have shown similar rates of VBAC success with two previous caesarean births (62–75%) as compared to single prior caesarean birth. If VBAC is attempted in this situation, very close intrapartum monitoring of the mother and baby is required. There must be a low threshold for resorting to CS. Augmentation of labour with oxytocin in women with an unknown previous uterine scar has been associated with an increased risk of uterine rupture and dehiscence.

It is important to note that for some women with pregnancy complications, such as late miscarriage, intrauterine fetal death or extremely premature birth, the vaginal route for delivery, although associated with risks, may not necessarily be contraindicated.

Factors determining likelihood of successful VBAC

Prospects for successful VBAC with lower segment transverse uterine scar depend on a number of factors which can be ascertained on taking a thorough clinical history and performing relevant examination for the woman.

As per current medical literature, the overall success rate of vaginal delivery after caesarean section is approximately 75% after one previous caesarean section.

Factors associated with increased probability of success include;

- Previous vaginal delivery
- Previous successful VBAC
- Previous lower transverse caesarean section
- Clinically adequate pelvis and normal fetal size
- No other uterine scars/anomalies/previous uterine rupture
- Spontaneous labour, vertex position, fetal head engagement and higher admission Bishop score
- Dilated cervix \geq to 4 cms on admission/rupture of membranes
- Patient enthusiasm and informed consent
- Availability of clinician to monitor labour continuously
- Availability of Anaesthetist/blood bank and other staff in an emergency situation
- Simulation training for delivery by emergency caesarean section

Factors associated with decreased probability of success include;

- Increased maternal age
- Short stature

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