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Original research

Factors Affecting the Tendency to Natural Delivery after Cesarean Section and its Suitable Candidate: A Review study

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Abstract

Introduction: Choosing natural childbirth after cesarean section (VBAC) is a logical and wise action for many women, and if these women are chosen correctly, the risk of morbidities such as childbirth bleeding, infection, injuries caused by surgery, thromboembolism, hysterectomy and even death decreases.

Research Method: This issue is for those who decide to have larger families and are therefore at risk of possible consequences from repeated cesarean sections such as hysterectomy, damage to the bladder and intestines, blood transfusion, infection and abnormal implantation of the placenta (placenta previa and placenta Akreta) are located, it should be taken into consideration. Also, people who have a successful trial of labor leading to a vaginal delivery (TOLAC) have a faster recovery period and lower costs of delivery than people who choose a second cesarean section.

Findings: The risk of uterine rupture, which was the most important reason for repeated cesarean sections in the past, is usually very small and less than 1%, contrary to popular belief. Today, the acceptance of VBAC has increased due to the many benefits of natural childbirth and the risks of elective cesarean for the mother and the fetus.

Conclusion: According to the stated content, it can be concluded that natural childbirth after cesarean section has improved the health of the child after birth in suitable candidates for TOLAC.

Keywords: Childbirth, Cesarean Delivery, Normal Delivery, TOLAC, VBAC

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Introduction:

Paying attention to the health of pregnant mothers is one of the health priorities all over the world, and childbirth is considered an important life event and one of the most important experiences in a woman's life. However, women's experiences of childbirth are complex, multidimensional, and unique. In this regard, the promotion of physiological childbirth has always been considered by health agents and policy makers in all countries. Physiological delivery has fewer complications compared to cesarean surgery and is cost-effective in terms of health economics. Complications of caesarean section include surgical and anesthesia complications, including difficult intubation, risk of hypoxia, thromboembolic events, wound infection and hospital infections, increased possibility of bleeding after delivery, need for more nursing care, prolonged hospitalization. Although the standard rate of caesarean section according to the World Health Organization is 15%, but in most parts of the world there is a big difference with the recommended rate. One of the most effective solutions to reduce the prevalence of cesarean section is to perform natural childbirth after cesarean section and reduce repeated cesarean sections. Since the risks of trying to have a natural birth after a cesarean section, uterine rupture and other unpredictable complications are unpredictable, it is recommended to give birth in a center equipped to perform an emergency cesarean section. Although natural childbirth after cesarean section is considered an appropriate method for many women, there are factors that cause the failure of this process and the increase of maternal and fetal complications compared to repeated elective cesarean sections; Therefore, evaluating the success of VBAC and individual risks is important to determine suitable candidates. Trying for a natural birth after cesarean is a planned method to achieve a natural birth in women who have had a history of cesarean. This method provides a suitable opportunity for women who are eager to have a natural birth after cesarean section. In addition to ensuring the individual desire of the patient to have a natural delivery, natural delivery after cesarean section can also reduce maternal complications and complications of subsequent pregnancies and lower the cesarean rate. Although this method of delivery is considered an appropriate method for many women, there are factors that cause the failure of this process and the increase of maternal and fetal complications compared to repeated elective cesarean; Therefore, evaluating the success of VBAC and individual risks is important to determine suitable candidates (1).

Cesarean section (CS) is a life-saving surgical procedure that occurs when certain complications occur during pregnancy and childbirth. However, it is a major surgery with immediate maternal and perinatal risks and may have implications for future pregnancies as well as long-term effects that are still being investigated. The use of CS has increased dramatically over the past decades worldwide, particularly in middle- and high-income countries, despite a lack of evidence supporting significant maternal and perinatal benefits with CS rates above a certain threshold. , and some studies show that there is a relationship between its increase. The reasons for this increase in CS rates and poorer outcomes are multifactorial and poorly understood. Changes in maternal characteristics and professional practice styles, increased malpractice pressure, as well as economic, organizational, social, and cultural factors are all involved in this process. Additional concerns and controversies surrounding CS include the disparity in use of the procedure, not only

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between but also within countries, and the costs that unnecessary cesarean sections impose on financially challenged health systems (2).

In the middle Ages, it was derived from the Latin word Caedere, which means "to cut", which means Caesarean section today. The number of cesarean sections in developed countries increased in the second half of the 20th century, so that in the United States of America, from 4.5% of all births in 1965 to 25% in 1988, 26.1% in 2002, and 30.2% in the year 2005 arrived. This increase has also been seen in some European countries and for example in Sweden it has reached 18.1% in 1999 from 13.8% in 1994. Therefore, due to the complications and death rates of cesarean compared to natural childbirth, many efforts have been made in developed countries to reduce the number of cesarean procedures. For example, the American Society of Obstetrics and Gynecology recommended in 2000 that the ratio of cesarean sections to all births should be reduced to 15.5% by 2010 (3).

Vaginal delivery after caesarean section (VBAC) is one of the most controversial topics in obstetrics, so maternal health practitioners and health workers must consider the complexity of the pros and cons when counseling and advising prospective mothers who want to consider the natural birth route. The increasing cesarean rate and its short-term and long-term complications have made VBAC a reasonable and cost-effective alternative to elective repeat cesarean section (ERCS). The single most common indication for cesarean delivery (CD) in several settings in developing and developed countries is previous cesarean section, and VBAC has the potential to smooth the path to CD. However, the contribution of VBAC is threatened by the current increase in cesarean deliveries on maternal request (CDMR), increasing litigation from cesarean sections generally classified as unnecessary by the World Health Organization (WHO). The trend of VBAC and ERCS continues to veer back and forth despite the debate over the ideal acceptable caesarean section rate despite the WHO recommendation. It is believed that the ideal cesarean rate should be between 10 and 15 percent. However, in the WHO recommendations to reduce unnecessary caesarean sections using non-clinical interventions, it is noted that these quoted rates are population-based and this panel was drawn from limited interim data in the European context. Increasing cesarean rates are considered medically unnecessary and potentially harmful, and nearly one-third (29 percent) of all births are projected to be by caesarean section by 2030. In Latin America and the Caribbean, the ratio of caesarean sections is higher than natural births, and the projected rates by 2030 are likely to be 63, 54, 50, and 45% in East Asia, Latin America and the Caribbean, Western Asia, and Australia and New Zealand (4).

In 1916, Edwin B. Cragin, in his classic publication on conservatism in midwifery, held that once a cesarean delivery is always a cesarean delivery, later coined the Dictum of Cragin. He argued that after surgical incision of the anterior abdominal wall and uterine wall to deliver the fetus, such a method should be relied upon for subsequent deliveries. In his article, he emphasized that the risk of uterine rupture in VBAC is high because the uterus is unable to withstand the shear stress of uterine contractions. This procedure (repeated cesarean delivery) was the standard of care until the late 1980s, when its reputation was questioned by the National Institutes of Health in Bethesda, Maryland, following a dramatic increase in cesarean delivery rates and a review of the American

Congress of Clinical Obstetrics and Gynecology, which recommended this practice. Modified and supported that a woman can have a normal delivery after a previous cesarean section (5).

In addition to the above, there has been a significant improvement in cesarean techniques, where the incision in the lower part is different from the standard classical incision, and cesarean section is now generally considered a safe procedure with a very low risk of uterine rupture in the future will be Evidence from systematic reviews and clinical guidelines suggests that planned VBAC is a safe and appropriate method of delivery for most women after a previous uncomplicated cesarean delivery (6).

Between 1970 and 2016, in America, the cesarean rate increased from 5% to 9.31%. This increase was the result of several changes in the field of treatment. Among these cases, we can mention the electronic monitoring of the fetus, the reduction of natural childbirth and the reduction of the desire for natural delivery of breech fetuses (7).

This belief that once a caesarean should always be a caesarean, was also another factor for the increase of cesarean statistics. In the 1970s, studies were conducted to gather information to support attempted vaginal delivery after cesarean section (TOLAC) as a reasonable procedure in selected pregnancies. The presentation of TOLAC as an increase in the statistics of normal birth after cesarean section (VBAC) in 100 women with a previous cesarean history increased from 5% in 1985 to 3.28% in 1996. The overall statistics of cesarean section decreased from 22.8 percent in 1989 to 20 percent in 1996 (8).

With the increase in the number of women who were candidates for TOLAC, the complications of TOLAC and uterine rupture also increased. These complications and professional responsibility and the desire to perform cesarean section caused the decrease of VBAC statistics to 8.5% and the increase of cesarean statistics to 31.1% in 2006, and some hospitals stopped offering TOLAC. In 2010, the International Institute of Health again presented the benefits of TOLAC along with its side effects and listed it as a logical method of natural childbirth for women with a history of cesarean section. This panel addressed the concern of doctors and treatment centers in terms of professional responsibility and its impact on the reduction of TOLAC performance (9).

There are mixed data in different settings regarding the rate of VBAC with several combined factors. VBAC rates are typically reported to be between 49 and 87 percent. In a detailed review of pregnancy outcomes after a previous caesarean section at Al Mfraq Hospital in Abu Dhabi, Balachandran et al. They concluded that 76% were candidates for VBAC after careful patient selection, and the success rate of VBAC was 83.47%, and only 12.6% believed that VBAC was unsuccessful (10).

However, VBAC rates are said to be very low in low-income countries due to a lack of facilities and manpower for adequate fetal monitoring. A recent study in Pretoria put the VBAC rate at under 36%, with a lack of proper counseling about birthing options being the main culprit. In a retrospective case study and online survey in Romania, the VBAC rate was less than 1%, which was attributed to a lack of VBAC support and promotion, poorly trained health care workers, and delivery practices that favor repeated cesarean deliveries, while Average European VBAC rates are reported to be between 20 and 50% (11).

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Probability of VBAC and maternal and fetal complications caused by TOLAC

Instead, recommendations based on observational studies that compared the probability of VBAC and maternal and fetal complications caused by TOLAC and scheduled cesarean delivery have been proposed (13).

Before considering the results of any analysis, the important point is to make a correct statistical and clinical comparison between TOLAC and planned repeat cesarean section. Comparing the outcomes of VBAC and repeat cesarean after TOLAC with cases of planned repeat cesarean is incorrect, because VBAC cannot be guaranteed in any disease and the benefits and risks may be mistaken, related to failure of TOLAC (14).

VBAC, in addition to allowing women with a previous cesarean history to experience a natural birth, has several potential benefits for women's health. For example, in women who achieve VBAC, they avoid an abdominal surgery and reduce the rate of bleeding, thromboembolism, infection, and the duration of the recovery period in them (15).

In addition, the risk of multiple cesarean sections (such as hysterectomy, bowel and bladder damage, infection, blood injection, placental adhesion, placental abruption, etc.) decreases in those who desire to have another pregnancy in the future (16). However, repeated elective cesarean section and TOLAC are associated with maternal and neonatal risk (17).

Maternal bleeding, infection, surgical injury, thromboembolism, hysterectomy and death can be mentioned among the side effects of both of these. Most of the maternal complications related to TOLAC happen when cesarean section is finally necessary after TOLAC (18).

Therefore, VBAC is associated with fewer complications compared to repeated elective cesarean section, while TOLAC failure is associated with more complications. As a result, maternal risks and complications are completely related to the possibility of the mother achieving VBAC (19).

Uterine rupture or dehiscence associated with TOLAC leads to the most maternal and neonatal complications. We must pay attention that the terms of tearing the uterus and opening its wound do not differ much from each other and can be used interchangeably (20).

The reported cases of uterine rupture are different because some studies put severe and complicated ruptures with mild dilation and no signs of uterine scar in one group. Although it may seem that opening the scar is less dangerous than tearing the uterus; But this meaning is not true in this article and both the words tearing and opening of the scar indicate important clinical complications (21).

One of the most effective factors for the possibility of uterine rupture is the place of previous uterine incision. For example, several extensive studies were conducted on women with a history of transversal-inferior uterine incision. The rate of uterine rupture after TOLAC in them was approximately 0.5-0.9 percent. The risk of uterine rupture is higher in other types of cesarean sections, among which the vertical-inferior section is an exception (22).

Natural birth rate in TOLAC

Categorization of candidates Most of the studies conducted on women who experience TOLAC show that 60-80 percent of these people can perform vaginal delivery. However, the probability of an individual obtaining a VBAC is different based on the obstetric and demographic indicators of the individual (23).

For example, when the cause of the first cesarean is labor interruption disorders, the probability of VBAC will be less, but in those whose cause of cesarean is things like breech presentation, the probability of VBAC is higher (24).

Also, in women who have had labor with induction or augmentation, the probability of VBAC is less than women who have had a history of labor. Other factors that have a negative effect on the possibility of VBAC include the mother's old age, high BMI, high fetal weight at birth, and advanced gestational age and more than 40 weeks. If the intervals between births are less than 19 months or the presence of pre-eclampsia also reduces the probability of achieving VBAC. Women who have had one vaginal birth have a higher chance of achieving VBAC (25).

Suitable candidate for TOLAC

The success rate of planned VBAC has been reported to be between 75% and 90%, and a consensus of evidence-based guidelines and systematic reviews has endorsed VBAC as a safe alternative to childbirth for most women with previous single lower-part CD. The risk of complications is less than 1%. Therefore, during prenatal care, there is a need for careful selection of women, appropriate counseling, and implementation of the VBAC checklist, which will improve success and prevent complications and litigation (26). Several factors have been found to positively predict successful VBAC and this should be carefully assessed throughout the entire antenatal care. Evidence-based research has established the following factors to positively impact VBAC success (27):

Most of the obtained evidences show that most women with a previous caesarean section and transverse-inferior uterine incision can be suitable candidates for TOLAC (28).

However, in all cases, the individual conditions of the patient should be considered.

For example, if a patient who is not a candidate for TOLAC comes in the advanced stages of LIBER, according to the doctor's opinion, TOLAC may be preferable for him (29).

Factors influencing VBAC

Good candidates for TOLAC are women in whom the weight of risks and complications is at the lowest possible level and the chance of success is at the highest possible level. Although the risks and benefits of one patient may not be acceptable for another patient.

Deciding on the type of delivery in the first pregnancy after cesarean can affect future pregnancies as well.

For example, maternal complications increase with the increase in the number of cesarean sections, and there is a direct relationship between the adhesion of the couple and the number of previous cesarean sections, especially in the case of breech couples; Therefore, the decision regarding TOLAC can affect the possibility of the patient becoming pregnant again in the future (30).

Although there is no general agreement and specific boundary, but the evidence shows that women with at least a 60-70% probability of achieving VBAC who undergo TOLAC experience fewer or equal maternal complications compared to elective cesarean.

On the other hand, women with less than 60 percent chance of achieving VBAC who undergo TOLAC will experience more side effects compared to elective cesarean section. Since neonatal

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complications in the process of TOLAC failure are more than in VBAC, women who have more chances to achieve VBAC face a lower risk of neonatal complications (31).

For example, in one study, it was determined that neonatal complications are equal between women who underwent TOLAC and those who underwent cesarean section with a probability of achieving VBAC of 70 percent or more.

However, the predicted success rate is not less than 70% of TOLAC contraindications. The decision to perform TOLAC is a sensitive decision and the patient's willingness is a key part for its success (32).

The benefits and harms of TOLAC in women with a history of cesarean section more than once

Studies that have examined the benefits and harms of TOLAC in women with a history of more than one cesarean delivery have reported the rate of uterine rupture between 0.9 and 3.7 percent, but the final result has only been compared with 3 patients with a history of one cesarean section (3).

Two large studies with sufficient sample size were conducted on patients with a history of 2 previous cesarean sections. One of them did not find any increase in the risk of uterine rupture in women with a single previous cesarean section compared to women with multiple previous cesarean sections (0.9% versus 0.7%).

Another study showed that the rate of uterine rupture increases from 0.9 percent in women with a history of one cesarean section to 1.8 percent in women with a history of 2 previous cesarean sections (34).

Both studies reported an increased risk of complications in women with a history of multiple cesarean sections. Although the difference in this risk was small (2.1% vs. 2.3%), in addition, the data obtained from the retrospective cohort study show that the probability of obtaining a VBAC in women with a previous history of cesarean delivery is higher. More than one caesarean section is the same (35).

Based on these studies, it seems logical that women with a history of 2 previous cesarean sections with transverse-inferior uterine incision are candidates for TOLAC, and based on other factors that affect the possibility of VBAC, they are given a mesh. The calculation of the probability of VBAC success in women with a history of 2 cesarean sections is similar to women who have undergone a cesarean section once. Information showing the risks of TOLAC in women with a history of more than 2 previous cesarean sections is limited (36).

Classic cut and VBAC

In some patients, the type of previous uterine incision is not clear. Although the safety of TOLAC in these conditions is questionable, two large studies conducted in this field show that the rate of successful VBAC and the probability of uterine rupture in these women are comparable to women who have a transversal-inferior section (37).

In addition, in a study that evaluated the risk factors of uterine rupture, no definite and significant relationship was found with unknown uterine scar. The lack of this relationship can be caused by the fact that most uterine incisions are transversal-inferior. Therefore, women with unknown

uterine incision can be candidates for TOLAC, unless the possibility of classical incision is very high; Like the history of cesarean section performed in patients with very low gestational age (very preterm) (38).

The outcome of TOLAC in twin pregnancy and singleton pregnancy

Studies show that the outcome of TOLAC in twin pregnancy is the same as in singleton pregnancy. Two analyzes of larger populations showed that women with twin pregnancies were as likely to achieve VBAC as women with singleton pregnancies. Also, these studies showed that the risk of uterine rupture and maternal and perinatal complications is not higher in twins. Women with a twin pregnancy with a history of a previous lower transverse cesarean section, who are otherwise suitable for vaginal delivery, can be candidates for TOLAC (39).

BMI and VBAC

An increase in BMI has a negative effect on the probability of performing a VBAC; Therefore, in a large cohort study, it was shown that 85 percent of women with normal weight and BMI between 9/24-5/18 achieve VBAC, but only 61 percent of women with morbid obesity (BMI equal to 40 or higher) do VBAC. Despite this, high BMI is not considered as a contraindication for TOLAC alone, because weight is only one of the factors that determine the chance of VBAC and obstetric complications in the TOLAC process (40).

In addition, women with high BMI have a higher chance of elective cesarean section complications. Women with a BMI of 30 or more, depending on their other characteristics (such as previous vaginal history), can be candidates for TOLAC (41).

LIBER management in TOLAC patients

Labor induction and augmentation Labor induction exists as an elective option in women undergoing TOLAC. However, the risk of uterine rupture is potentially increased and the chance of achieving VBAC will be potentially reduced (42).

Background of the research on the increased risk of uterine rupture during induction during TOLAC

- In the 20095, the woman was in the past, 0.52 percent of those who were lucided by the cruelty, 0.77, 0.77, Rupture cases had occurred during the induction of LIBER by means of prostaglandin. This study was not able to determine whether prostaglandin itself increases the risk of uterine rupture or the conditions requiring its use (for example, an unsuitable cervix or the need for multiple induction agents) (43).
- A large -scale study on women who were tolac (39/33/33) gave an indication that the Indian Liberian Aghamanni is added to Rahim's Parish Park. 1% for oxytocin alone, 0.9% for reinforced libs and 0.4% for self-lib) (44).
- The secondary analysis of 11,778 women in this study who had a history of a transverse-inferior section showed that the increase in the chance of uterine rupture in the case of induction occurs only in women who did not have a previous history of vaginal delivery (0.85% in 1%). This study also showed that the chance of uterine rupture in the induction of labor in unsuitable cervixes is not different from the induction of labor in suitable cervixes (45).

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- Another secondary analysis examined the relationship between the maximum dose of oxytocin and the risk of uterine rupture and showed a dose-response effect between increasing the risk of uterine rupture and the maximum dose of oxytocin. However, studies have not determined a specific threshold for uterine rupture, and the upper limit of the oxytocin dose for TOLAC has not been defined (46).
- Most of the studies that examine induction in patients with a history of previous cesarean section, compare the results obtained in women who undergo induction with women who have spontaneous labor. This comparison is misleading because Liber itself is not a clinical substitute for induction Liber (47).
- An observational study compared induction and expectant treatment in women with a history of cesarean section and showed that induction of labor increases the chance of uterine rupture; In addition, compared with spontaneous labor, induced labor reduces the chance of achieving VBAC. Also, an inappropriate cervix compared to a suitable cervix reduces the chance of VBAC (48).
- Information obtained from a retrospective observational cohort study shows that in comparison with expectant treatment, induction of labor is associated with fewer cesarean sections at 39-41 weeks of pregnancy. In another large cohort, the rate of VBAC was higher in women undergoing labor induction than expectant management (73.8% vs. 63.3%) using oxytocin to strengthen contractions, except for labor induction. Several studies have been tested. Some studies have shown the relationship between strengthening with oxytocin and uterine rupture; On the other hand, other studies have not confirmed this. Considering the different information obtained from these studies and the small risk reported in them, the reinforcement of LIBER with oxytocin can be used in TOLAC (49).

The consequences of TOLAC

1. Preparing the cervix

The studies done on the results of TOLAC in relation to specific cervical preparation factors in the conditions of labor induction are limited and it is difficult to make a decision based on them.

Randomized controlled studies regarding the methods of induction of labor in women with a previous caesarean section do not have the power to determine clinical differences in the results. Reports that evaluated mechanical methods of cervical preparation, such as butterfly insertion, have shown different results. Two previous cohort studies have shown that the risk of uterine rupture does not increase. On the other hand, a retrospective cohort study shows that the risk of uterine rupture is higher in these patients compared to patients who have spontaneous labor.

Similar to other methods of cervical preparation and labor induction, in the case of mechanical methods of cervical preparation, it is not clear whether the increased risk of uterine rupture is caused by the labor induction method or due to the existence of an inappropriate cervix.

Due to the fact that the information that supports the increase in the risk of uterine rupture due to the use of mechanical methods of preparation of the cervix and the Foley catheter is very little, candidates for TOLAC who have an unsuitable cervix can benefit from this method (50).

Studies that examine the effects of prostaglandin on uterine rupture in women with a previous caesarean section also provide inconclusive results. Prostaglandin alone (without oxytocin) does not increase the risk of uterine rupture.

Therefore, misoprostol should not be used for cervical preparation in women who have had a previous caesarean section or major uterine surgery.

Due to limited information, it is difficult to make a decision regarding the use of E2 prostaglandins (51).

2. External cephalic rotation

Few data suggest that external cephalic rotation is not a contraindication to TOLAC for breech presentation in women with a history of one previous low transverse section cesarean section. In addition, the probability of success of external cephalic rotation in these patients is equal to patients without a history of cesarean (52).

3. Painlessness

There is no evidence that epidural analgesia causes TOLAC to fail, so epidural analgesia for TOLAC can be used and sufficient analgesia can encourage more women to choose TOLAC. However, the existence of epidural analgesia should not be considered as a requirement. In addition, sufficient analgesia does not mask the symptoms of uterine rupture because the most common symptom of uterine rupture is the abnormality of the fetal heart track (53).

4. Labor curve (women with a previous caesarean section and no previous vaginal delivery)

Studies have shown that the pattern of labor in women who undergo TOLAC is similar to women without a previous cesarean history. For example, a case-control study showed that women with a history of one previous cesarean section and no previous vaginal delivery have a pattern similar to nulliparous women, and in women with a history of cesarean section and natural delivery, both women have a normal pattern (54).

A study in 2015, using information obtained from the Safe Childbirth Consortium, concluded that spontaneous vaginal delivery in term women with a history of vaginal delivery with a previous caesarean section had normal vaginal birth curves. Therefore, the same standards should be used to evaluate the progress of labor in women who undergo TOLAC and women who do not have a previous cesarean history (55).

5. Diagnosis of uterine rupture

Once labor begins, the patient who undergoes TOLAC should be evaluated by a gynecologist or midwife. Most experts recommend continuous monitoring of the fetal heart.

There is no information to show that intrauterine pressure catheter or fetal scalp electrode is preferable to external monitoring. In addition to this, there is evidence that shows that using a catheter to measure intrauterine pressure does not help in the diagnosis of uterine rupture. Personnel familiar with the potential complications of TOLAC should be present to observe the fetal heart rate pattern caused by uterine rupture. Rupture of the uterus is often sudden and catastrophic and there is no factor to predict it. The signs and symptoms of uterine rupture are diverse and include fetal bradycardia or severe uterine pain attack.

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Considering that the most common sign of uterine rupture is the abnormal heartbeat of the fetus, which is seen in 70 percent of cases; Continuous fetal heart monitoring during TOLAC is recommended (56).

6. Childbirth

There is no special point regarding the delivery of the fetus or the couple during TOLAC. Manual exploration of the uterus after VBAC and repair of asymptomatic scar rupture has not been effective in improving outcomes. Severe vaginal bleeding or symptoms of lack of volume can indicate uterine rupture, and in these cases, the reproductive system should be fully evaluated (57). Preterm delivery in the second trimester or delivery after the death of the fetus in women with previous cesarean section.

Some women with a previous caesarean section are forced to give birth in the second trimester.

In addition, more studies showed that the rate of uterine rupture during labor induction in these patients is less than 1 percent. For these women, the option of E&D seems to be logical as well as induction of Liber with prostaglandins (58).

Strategies to increase the rate of vaginal delivery after cesarean section without negatively affecting the results

Cesarean section (CS) rates have increased over decades in most countries (Betrán et al., 2016; Molina et al., 2015). Caesarean section is associated with risks for both mother and child (Molina et al., 2015; Hamilton et al., 2013; Sandall et al., 2018.

Women with a previous cesarean section or cesarean sections and obstetrician-gynecologists face difficult decisions about how to deliver their next pregnancy. According to published guidelines, cesarean (TOLAC) is a safe option to consider (59)

The success rate of VBAC is between 70 and 75% (Royal College of Obstetricians and Gynaecologists 2015). However, repeat cesarean remains the largest contributor to the overall cesarean rate, and its relative contribution may reach 46% (Tanaka and Mahomed, 2017; Kacerauskiene et al., 2017). Repeat caesarean section is associated with a higher risk of complications compared to TOLAC (Sandall et al., 2018; Herbert et al., 1999; Keag et al., 2018).

Previously, several strategies to increase VBAC rates were studied, but most of them did not have a significant effect or had a very low level of evidence. At Skåne University Hospital, Sweden, it has always been a policy that a previous caesarean section is not an indication for elective repeat caesarean section (ERCS). Furthermore, the clinical management of women with a previous caesarean section has been the subject of an ongoing and extensive research agenda for many years. Between 2008 and 2013, there were many changes in obstetric clinical routines to decrease the rate of cesarean section and increase the rate of VBAC (60).

Research limitations: One of the limitations of the research was the community of this research, which needed a lot of investigation and research due to the specificity of the subject, and the lack of new research in this field was considered as another limitation of this research.

Controversial considerations: This article is in line with the doctoral thesis of the first author, and the authors of the article know their duty to be grateful to all the participants in the research.

Conflict of interest: The authors declare that there is no conflict of interest in this study.

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