

MODULE 3

What Are the Odds of a Uterine Rupture While Laboring for a VBAC?





In rare cases, the cesarean scar in the uterine wall may separate.

This is known as a **uterine rupture.**

What Does the National Institutes of Health (USA) Say about the Risks of VBAC?

For women at low risk, laboring for a VBAC is the same as for anyone giving birth for the first time.

Cunningham, F. G., et al. (2010). NIH consensus development conference draft statement on vaginal birth after cesarean: New insights. *NIH Consensus and State-of-the-Science Statements*, 27(3), 1-42. <https://pubmed.ncbi.nlm.nih.gov/20228855/>



A Small Risk for Separation of the Uterine Scar:

- ☛ With either a planned repeat cesarean or a planned VBAC, mothers are at risk.
- ☛ Most of the separation of a uterine scar occurs during labor.

Dy, J., DeMeester, S., Lipworth, H., & Barrett, J. (2019). No. 382- Trial of labour after caesarean. *Journal of Obstetrics and Gynaecology Canada*, 41(7), 992-1011. doi: 10.1016/j.jogc.2018.11.008



The Chance a Uterine Scar Will Separate in Labor is Very Small.

With a low transverse (side-to-side) uterine scar, the risk for a uterine rupture after one prior cesarean is **less than 1 percent**.

American College of Obstetricians and Gynecologists. (2019). Practice bulletin No. 205: Vaginal birth after cesarean delivery. *Obstetrics and Gynecology*, 133(2), e110-e127. doi: 10.1097/AOG.0000000000003078

Dy, J., DeMeester, S., Lipworth, H., & Barrett, J. (2019). No. 382-Trial of labour after caesarean. *Journal of Obstetrics and Gynaecology Canada*, 41(7), 992-1011. doi: 10.1016/j.jogc.2018.11.008



What Is the Risk That a Low Transverse Uterine Scar Will Separate?

- ☞ Laboring for a VBAC with one prior cesarean —————→ 4.7 per 1,000
- ☞ With an elective repeat cesarean —————→ 2.6 per 1,000

Dy, J., DeMeester, S., Lipworth, H., & Barrett, J. (2019). No. 382-Trial of labour after caesarean. *Journal of Obstetrics and Gynaecology Canada*, 41(7), 992-1011. doi: 10.1016/j.jogc.2018.11.008



Rare Types of Cesarean Scars

Most mothers have a low transverse (side-to-side) cesarean scar—but you may have a different one.

You can still labor for a VBAC if you have:

- ☛ A low vertical scar in the lower part of the uterus.
- ☛ A low “J” or inverted “T” scar in the lower part of the uterus.

The Separation of the Scar Can Be Complete or Partial.

A **complete uterine rupture** is a tear through all three layers of the uterus:

- ☛ Endometrium (inner epithelial layer).
- ☛ Myometrium (smooth muscle layer).
- ☛ Perimetrium (serosal outer surface).

A **partial rupture** is a tear in the muscular layers (with an intact serosa or amniotic membrane).

What is a Window (Dehiscence)?

- ☛ Sometimes the scar is thin enough to cause a dehiscence (or window). This is also known as a silent or incomplete rupture or an asymptomatic separation.
- ☛ A dehiscence does not usually cause harm to mother or baby and does not require a medical response.

The Odds the Uterine Scar Might Separate Depends on **Several Factors:**

- The number of previous cesareans.
- The type of uterine scar.
- How the uterine incision was closed (single or double closure).
- The time interval between the prior cesarean and laboring for a VBAC.
- If any induction agents were used.

How You Space Your Pregnancy
after a Prior Cesarean Affects
Your Risk for the Separation
of the Uterine Scar.



Risk for Separation of the Uterine Scar by Time Interval Between Births:

| Time Interval Since Prior Cesarean | Risk for Uterine Rupture |
|------------------------------------|--------------------------|
| Less than 12 months | 4.8% |
| Less than 15 months | 4.7% |
| Less than 18 months | 1.3-7.2% |
| 18 to 24 months | 1.9% |

Risk of Separation of Uterine Scar

by Type of Cesarean Incision:

| Type of Scar | Risk for Uterine Rupture |
|------------------------------|--|
| Low transverse | 4.7 per 1,000 |
| Low vertical or unknown scar | No significant increase in rupture or dehiscence |
| Classical (high vertical) | 4-9% |

Risk of Separation of Uterine Scar by Surgical Closure of the Uterine Incision:

- ☛ During surgery, the uterine incision can be closed using a single- or double-layer closure.
- ☛ A single-layer closure is more likely to separate during labor than a double-layer closure.

Can You Predict the Risk of Separation of the Uterine Scar Using Ultrasound Measurements?

- ☛ Some people are counseled to have a repeat cesarean because their uterine scar is considered “too thin”.
- ☛ Ultrasound measurement of the thickness of the uterine scar is not an accurate predictor of the risk for rupture.
- ☛ “...the absolute cut-off between safe and unsafe trial of labour after Caesarean does not exist.”

Risk of Separation of Uterine Scar with Ripening or Induction Agent:

| Ripening and/or Induction Agent | Risk of Uterine Rupture |
|---------------------------------|-------------------------|
| Oxytocin | 1.1% |
| PGE2 (dinoprostol) | 2% |
| PGE1 (misoprostol, Cytotec) | 6% |

Problems with the Cesarean Scar Can Be Reduced.

You are less likely to have problems with the uterine scar if:

- ☛ You go into labor on your own.
- ☛ You avoid induction with an unripe cervix.
- ☛ You avoid an induction when you had a cesarean less than 18 months prior.
- ☛ If your caregiver avoids the use of Misoprostol (Cytotec), which is contraindicated for induction for people with a prior cesarean.

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Problems with the Cesarean Scar Can Be Reduced.

- ☛ Although inducing labor for pregnant people wanting to labor for a VBAC is not contraindicated, caution is recommended.
- ☛ The strongest factor for uterine rupture in mothers with a previous cesarean scar is the use of prostaglandins, followed by the use of oxytocin, to augment or induce labor.

Al-Zirqi, I., Daltveit, A. K., Forsén, L., Stray-Pedersen, B., & Vangen, S. (2017). Risk factors for complete uterine rupture. *American Journal of Obstetrics and Gynecology*, 216(2), 165. doi: 10.1016/j.ajog.2016.10.017

A Foley Catheter May Be Used to Ripen the Cervix:

- Using a Foley catheter without a cervical ripening agent does not appear to be associated with an increased risk of rupture compared to spontaneous labor.

What Happens If the Scar Separates?

- ☛ The separation of a cesarean scar is rare, but it is a life-threatening complication requiring an immediate cesarean.
- ☛ Delay in performing an emergency cesarean can have serious consequences for the mother and the baby.

Togioka, B. M., & Tonismae, T. (2020). Uterine rupture. Treasure Island, FL: StatPearls. <https://www.ncbi.nlm.nih.gov/books/NBK559209/>



What Could Happen to the Mother?

There is no single symptom that reliably confirms the separation of a uterine scar. But if the scar separates, you may experience any the following:

- Vaginal bleeding.
- Abdominal pain not related to your contractions.
- A change in the patterns of your contractions.
- Low blood pressure.
- Lightheadedness, nausea, anxiety.
- Rapid heart rate.

What Could Happen to the Mother?

- ☛ Chest pain.
- ☛ Damage to the uterus that may require a hysterectomy (removal of the uterus).
- ☛ Damage to your bladder.
- ☛ A serious infection.
- ☛ A blood clot that can travel to the lungs.
- ☛ Loss of blood that may require a transfusion.

What Could Happen to **the Baby?**

If the uterine scar separates, the baby may:

- ☞ Experience hypovolemia (decrease in blood volume, extreme drop in blood pressure).
- ☞ Experience an erratic heart rate.
- ☞ Be deprived of oxygen.
- ☞ Enter the peritoneum (the tissue that lines the abdominal wall and covers most of the organs in the abdomen).
- ☞ Recede back up the vaginal canal.
- ☞ Need resuscitation.
- ☞ Need to be admitted to the ICU (intensive care unit).



If the Uterine Scar Separates:

- ☛ The hospital staff would respond to the medical emergency.
- ☛ You would be taken to the operating room for an emergency cesarean section.
- ☛ Your baby might require special attention and cared for by a team dedicated to newborn care.

Continuous Fetal Monitoring Is Recommended during Active Labor:

“Abnormal fetal heart rate tracing using continuous fetal electronic monitoring has been reported in 33% to 100% of reported uterine ruptures. They are often present 30 to 60 minutes before the separation of the uterine scar.”



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doi: 10.1016/j.jogc.2018.11.008

Mothers can still move around, use a birth ball, and change positions during labor while continuous electronic fetal monitoring is in use.



Telemetry Monitoring:

- ☞ Uses a transmitter placed on your body to convey the baby's heart tones to the nurse's station via radio waves.
- ☞ Telemetry allows you to have continuous monitoring while having the freedom to walk and change positions.
- ☞ It is not, however, available in all hospitals.

What If the Uterine Scar Separates During Labor?

Then the risk of needing a hysterectomy is 14 to 33 percent.

How Quickly Should an Emergency Cesarean Be Performed after a Suspected Uterine Rupture?

The safety and well-being of mothers and babies depend on the location of the uterine rupture and how quickly an emergency cesarean can be performed.

How Quickly Should an Emergency Cesarean Be Performed after a Suspected Uterine Rupture?

- ☛ There is no evidence that performing an emergency cesarean within a certain time line reduces short- or long-term complications for mothers or babies.
- ☛ However, guidelines suggest the response be *as quick as possible* to reduce severe maternal complications and neonatal death.

American College of Obstetricians and Gynecologists. (2017). Practice bulletin No. 184: Vaginal birth after cesarean delivery. *Obstetrics and Gynecology*, 130(5), e217-e233. doi: 10.1097/AOG.0000000000002398

Dy, J., DeMeester, S., Lipworth, H., & Barrett, J. (2019). No. 382-Trial of labour after caesarean. *Journal of Obstetrics and Gynaecology Canada*, 41(7), 992-1011. doi: 10.1016/j.jogc.2018.11.008

Not All Hospitals with a Labor and Delivery Unit Can Provide an Emergency Cesarean:

- ☛ Professional guidelines recommend mothers should labor for a VBAC in a hospital that can provide an emergency cesarean. All Level I hospitals should be able to provide an emergency cesarean, but not all hospitals have the staff to do so.
- ☛ If you choose to give birth in a hospital, ask how long it would take to assemble a surgical team, anesthesia, operating room staff, and pediatric care in the case of a uterine rupture.
- ☛ Ask if you can be referred to a VBAC supportive hospital that can provide an emergency cesarean rather than having a routine repeat cesarean.

With a Rapid Response to a Uterine Rupture:

| | |
|--------------------|-------------------------------------|
| Maternal mortality | 0.1% (1 per 1,000 uterine ruptures) |
|--------------------|-------------------------------------|

| | |
|-----------------|------------------------------------|
| Fetal mortality | 2% (20 per 1,000 uterine ruptures) |
|-----------------|------------------------------------|

Key Points to Review:

- The risks of VBAC for mothers are the same as for any other person having a first birth.
- The separation of a cesarean uterine scar is a rare event, occurring in less than 1 percent of people who labor for a VBAC.
- Although it's a rare event, a uterine rupture is a medical emergency that requires a rapid cesarean section.
- Women with an unusual type of uterine scar may be able to labor for a VBAC.

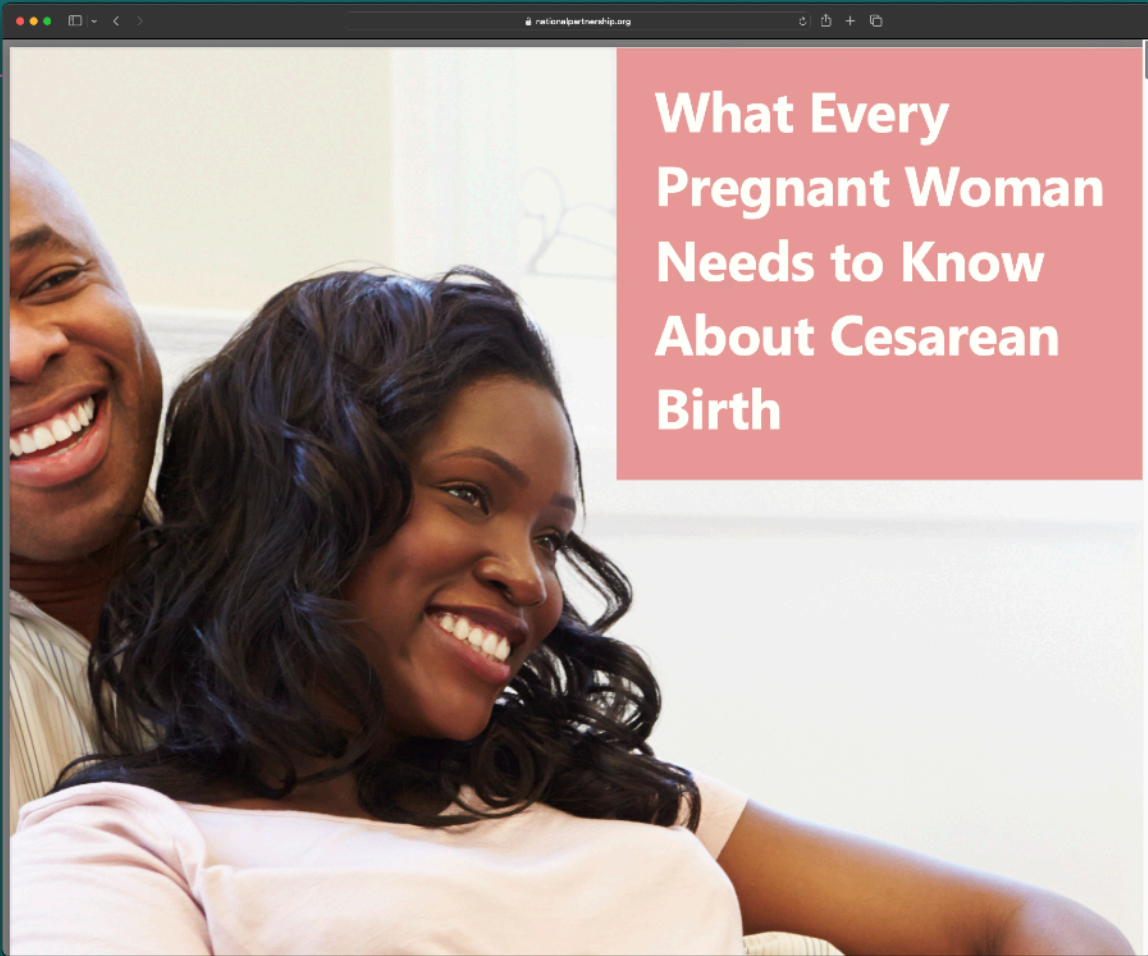
Checklist for Parents:

- ☛ During your prenatal visits, talk with your caregiver about your specific medical history and your concerns for a uterine rupture. How can these be reduced?
- ☛ The majority of uterine cesarean scars are low transverse (side-to-side).
- ☛ If you are considering laboring for a VBAC and are not sure what type of uterine scar you may have, try to obtain your operative records (documentation of your surgery only).
- ☛ Go over your operative record with your caregiver to see what kind of incision was made in your uterus.

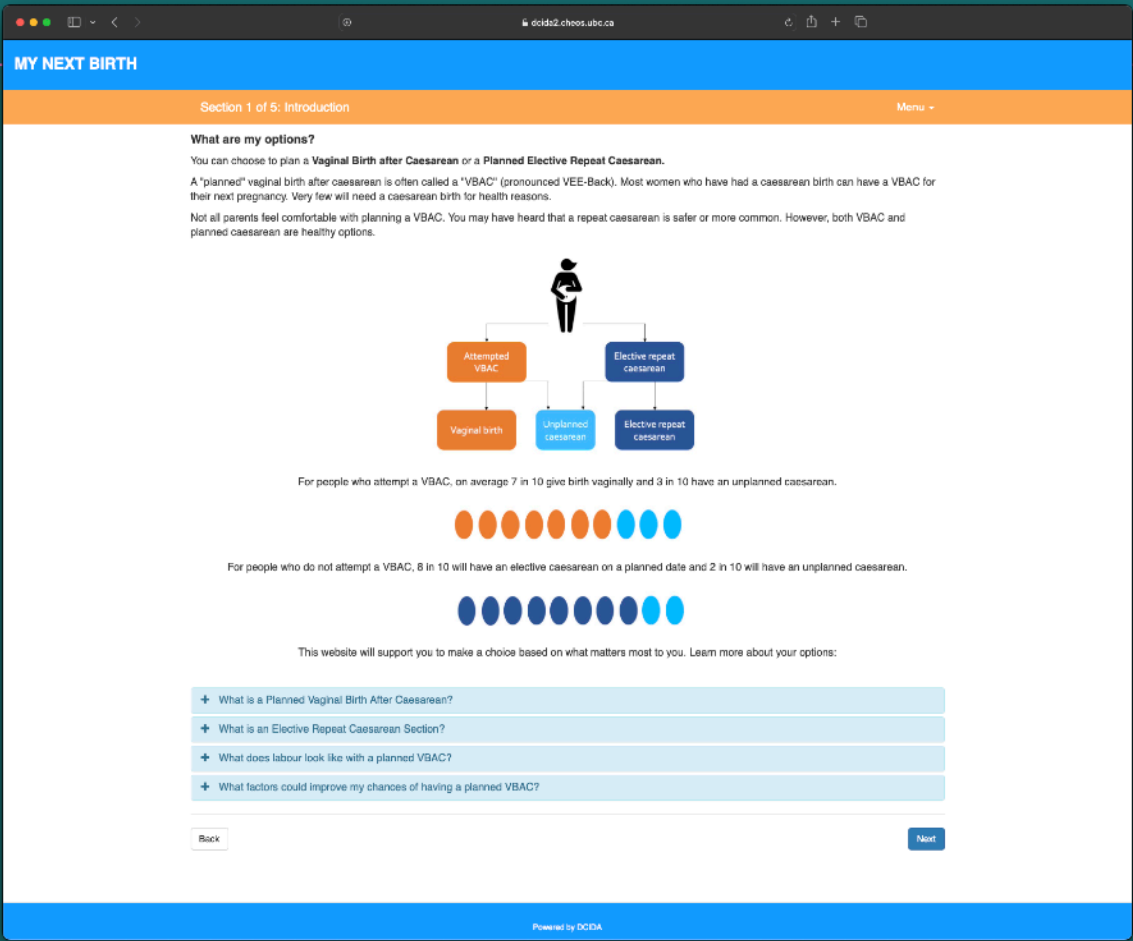
Checklist for Parents:

- ☛ Find out if your uterine incision was closed with a single-layer or double-layer closure. With a single-layer closure, you may need acute monitoring during labor.
- ☛ If you are planning a hospital birth, ask your caregiver if the staff is specifically trained to care for women laboring for a VBAC. How would it respond in the case of a uterine rupture.
- ☛ If you are thinking of having your baby in a birth center or at home, ask your caregivers how they plan to monitor your labor and how they would respond to signs of a potential uterine rupture.

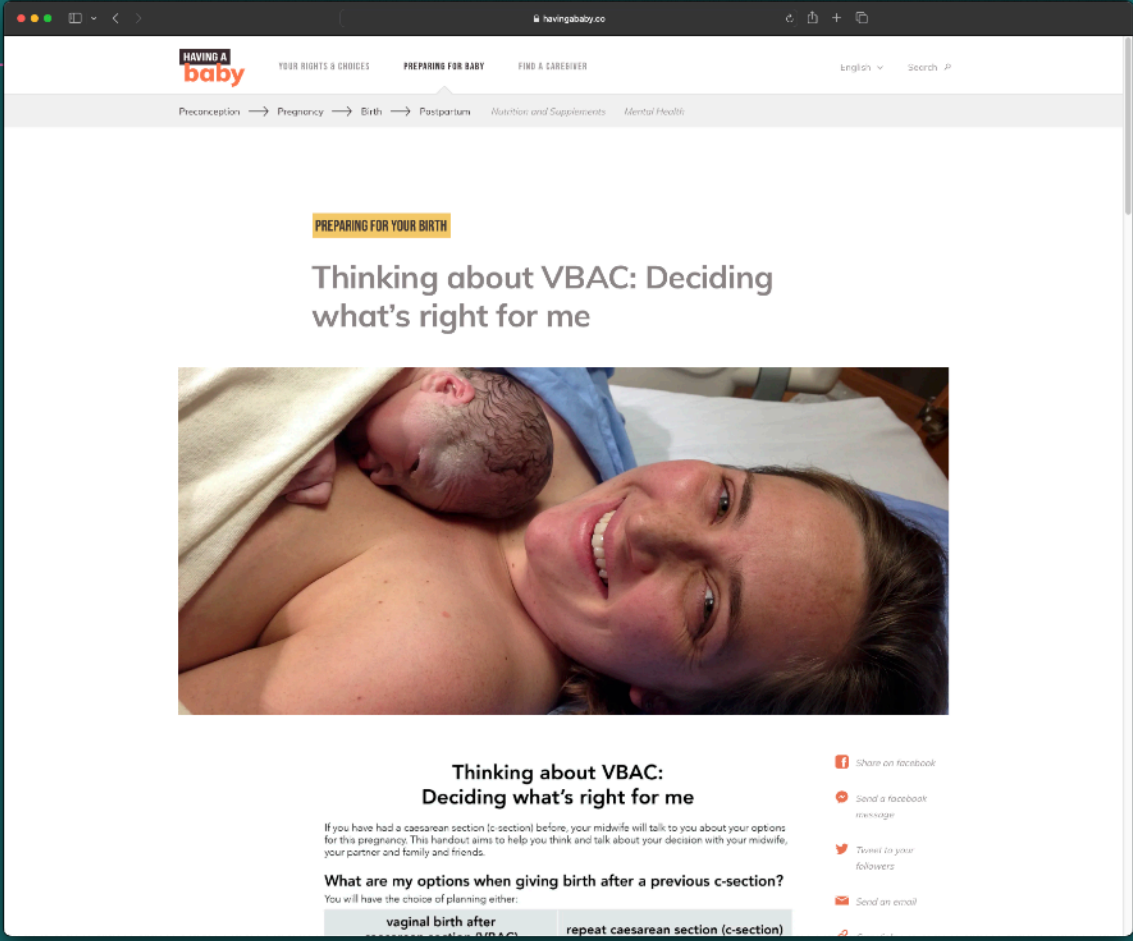
Resources



[What Every Pregnant Woman Needs to Know About Cesarean Birth](#)



[My Next Birth](#)



[Thinking about VBAC: Deciding What's Right For Me](#)