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Uterine Rupture: What Impacts the Risk?

Uterine rupture is when the wall of the uterus opens. This serious complication is probably the most well-known risk associated with vaginal birth after cesarean (VBAC). It's also the one about which there is the most misinformation!

There are a few factors that impact uterine rupture rates, and here we will talk about the three most important:

1. Scar type
2. If the VBAC labor is induced or augmented
3. The number of prior cesareans

Scar type refers to the type and location of the uterine scar. If you don't know what type you have, that information can be found on your operative report. Note that the uterine scar can be different than the scar on your abdo-men.

Most who had their cesarean in the United States have what is called a "bikini cut" (or "low transverse") scar. This type of scar or cut is associated with the lowest rate of uterine rupture in future pregnancies.[1]

The term "special scar" describes when a cesarean scar goes into the upper part of the uterus, called the fundus. They are associated with higher rates of rupture because the fundus does all the work during labor. But no one can say exactly how much the risk increases because the studies on "special scars" include too few people in order to give us reliable rates.

Plus those studies don't say whether the ruptures occurred in induced, augmented, or spontaneous labors. Since the type of labor impacts rupture rates, that's an important piece of information that we don't have about special scars.

Remember: "Induced" means the birthing parent who is not in labor is given a medication - such as Pitocin - to cause contractions. "Augmented" is when the woman is already in labor, but she is given a medication - like Pitocin - to intensify or speed up contractions. Spontaneous labor is when labor begins without the aid of any medication.

Because these studies don't give us good answers, the actual rate of spontaneous uterine rupture with a special scar is unknown. Those who want to plan a special scar VBAC must accept this unknown level of risk.

So how does our second factor in uterine rupture rates - the type of labor (induced, augmented, or spontaneous) - impact a planned VBAC?

One study compared spontaneous versus Pitocin induced or augmented rupture rates after one prior low "bikini cut" cesarean.[1] This study reported the following rates:

- 0.4% (4 in 1000) in spontaneous labors
- 0.9% (9 in 1000) in augmented labors
- 1.0% (10 in 1000) in induced labors

You can see from the chart below how these rates compare to other obstetrical complications that can also require an emergency cesarean. Hospital with labor & delivery units should have standard protocols in place to respond to these events.

When you're looking at this chart, you'll notice they use a range of rates. That's because the chart includes different studies that found different rates, and may have been conducted in different ways on different groups of people.

Rate of selected obstetrical complications	
Uterine Rupture	7 - 8 out of 1000 planned VBACs
Placental Abruption	11 - 13 out of 1000 labors
Umbilical Cord Prolapse	1 - 6 out of 1000 labors
Shoulder Dystocia	6 - 14 out of 1000 labors

Source: Komorowski 2010 & Ahmed 2018

Now let's talk about VBAC after multiple cesareans. One of the reasons why it's so important for birthing parents to have access to VBAC after one prior cesarean is that a variety of risks increase with each subsequent pregnancy regardless of how the woman births.

Uterine rupture is one of those risks, but again we don't have great data on how much the risk increases. The rates of uterine rupture after two cesareans reported by medical studies vary greatly from 0.9% - 3.7%.[2]

Keep in mind that since these studies induce, that range reflects a lot of induced VBA2Cs. In some studies, up to 50% of the labors were induced or augmented! As a result, we don't know the actual rate of spontaneous uterine rupture after two cesareans.

Additionally, since so few women have a VBAC after three or more cesareans, we do not have strong data on the risk of rupture in those deliveries. That is another area of unknown risk.

We do have compelling data documenting how a variety of complications increase with each prior cesarean surgery. This includes things like placenta accreta (where the placenta abnormally attaches to the uterine wall), placenta previa (when the placenta implants low on the uterine wall), as well as hysterectomy, excessive bleeding, and admission to the intensive care unit.[3,4]

In light of these cesarean-related complications, especially for those who are planning large families, the American College of Obstetricians and Gynecologists' (ACOG's) VBAC guidelines state that "most" women with one prior cesarean and "some" women with two prior cesareans are candidates for VBAC.[2] ACOG also clarifies that hospitals with even basic care should offer VBAC.

Despite that recommendation, the VBAC rate after one cesarean in the United States is only 14%.[5] And that rate drops down to a measly 4% after two or more cesareans.[5] Yes, 96% of women with two or more cesareans have repeat cesareans!

Other factors often connected with uterine rupture - like single vs. dual layer sutures, birth interval (the time between birth to conception or birth to birth), and uterine thickness - have not been sufficiently studied. Because this evidence is so weak, ACOG does not risk out VBAC candidates by suture style, birth interval, or uterine thickness.

To sum up, a spontaneous planned VBAC after one low bikini cut cesarean scar has the lowest rate of uterine rupture in women who have had a cesarean.

Remember, statistics help us see what happens with large groups of people, but they don't dictate how an individual person should give birth. They are just one key piece of the puzzle.

This is why it's important for you to review with a VBAC supportive doctor or midwife your individual situation and the risks and benefits of your options. Remember, both VBAC and repeat cesarean are valid options. Only you can decide what is right for you.

Want to learn more? Download our free checklist outlining the 5 key steps every parent planning a VBAC should take at http://vbacfacts.com/checklist.

RESOURCES:

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2. American College of Obstetricians and Gynecologists. (2017). ACOG Practice Bulletin No. 184: Vaginal birth after cesarean delivery. *Obstetrics & Gynecology*, 130, e217-33.
3. Silver, R. M., Landon, M. B., Rouse, D. J., & Leveno, K. J. (2006). Maternal Morbidity Associated with Multiple Repeat Cesarean Deliveries. *Obstetrics & Gynecology*,107, 1226-32.
4. American College of Obstetricians and Gynecologists. (2018). Placenta accreta spectrum number 7 (replaces committee opinion no. 529, July 2012). *Obstetrics & Gynecology*, e259-e275.
5. Curtin, S. C., Gregory, K. D., Korst, L. M., & Uddin, S. F. (2015). Maternal Morbidity for Vaginal and Cesarean Deliveries, According to Previous Cesarean History: New Data From the Birth Certificate, 2013. *National Vital Statistics Reports,* 64(4).

Chart Credit: Komorowski, J. (2010, Oct 11). A Woman's Guide to VBAC: Putting Uterine Rupture into Perspective. Giving Birth with Confidence: http://www.givingbirthwithconfidence.org/p/bl/ar/blogaid=181; Ahmed, W., & Hamdy, M. (2018). Optimal management of umbilical cord prolapse. *International Journal of Women's Health*, 10, 459-465.