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This guide was written by maternal-fetal medicine specialist and was revised by a team of specialized professionals to create accurate, practical, and useful content that can be consulted on a daily basis by staff caring for obstetric patients.

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	CLINICAL GUIDE: TOLAC Trial of labor after caesarean  CHU Sainte-Justine Le centre hospitalier universitaire mère-enfant Pour l'amour des enfants Université de Montréal	
	Overview	
	Ideal conditions to minimize the risk of uterine rupture during a TOLAC	
	Known hysterotomy Uncomplicated low transverse cesarean Closed in two layers Overlock stitch/not cross stitch Interval between caesarean section and TOLAC is greater than 16 months Normal spontaneous labour	However: Induction of labour can be considered if the cervix is favorable. In any other case deviating from ideal conditions, caution should be exercised and continued fetal and maternal monitoring should be maintained throughout; be alert for signs and symptoms that suggest uterine rupture.
	Antepartum assessment	
	Below is a link to a calculator developed by the Maternal-Fetal-Medicine Units Network (MFMU) that can be used in the antepartum period to predict the likelihood of a successful vaginal birth after a previous cesarean section.	

TOLAC calculator

VAGINAL BIRTH AFTER CESAREAN	
Height & weight optional; enter them to automatically calculate BMI	
Maternal age	18 ☒ years
Height (range 54-80 in.)	in
Weight (range 80-310 lb.)	lb
Body mass index (BMI, range 15-75)	25 ☒ kg/m ²
African-American?	no ☒
Hispanic?	no ☒
Any previous vaginal delivery?	no ☒
Any vaginal delivery since last cesarean?	no ☒
Indication for prior cesarean of arrest of dilation or descent?	no ☒
Calculate	

[CLICK HERE](#) for calculator based on information available at admission.

This calculator is based on the equation published in the article "Development of a nomogram for prediction of vaginal birth after cesarean" cited below. It is designed for educational use and is based on a population of women who received care at the hospitals within the MFMU Network. Responsibility for its correct application is accepted by the end user.

Grobman WA, Lai Y, Landon MB, Spong CY, Leveno KJ, Rouse DJ, Varner MW, Moawad AH, Cantis SM, Harper M, Wapner RJ, Sorokin Y, Rodolakis K, Carpenter K, O'Sullivan RJ, Sibai BM, Langer O, Thorp JM, Ramin SM, Mercer BM; National Institute of Child Health and Human Development (NICHD) Maternal-Fetal Medicine Units Network (MFMU). "Development of a nomogram for prediction of vaginal birth after cesarean delivery." *Obstetrics and Gynecology*, volume 109, pages 806-12, 2007.

Risks of uterine rupture based on the following factors:

1. Type of low transverse hysterotomy

1.1 Unknown (operating protocol not available)

1.1.1 Risk of rupture similar to low transverse cesarean section since this type of hysterotomy is practiced worldwide as the first choice in cases of term pregnancies. (Two good supporting studies).

1.2 J-extension

1.2.1 Little data - possible increased risk

1.3 T-extension

1.3.1 Increased risk of uterine rupture, consider classic cesarean section

1.4 Cervical extension

1.4.1 Risk factor associated with prematurity in subsequent pregnancies

1.4.2 Not a risk factor for uterine rupture in labour

1.5 Vertical hysterotomy (classic cesarean section)

1.5.1 Increased risk of rupture: 5% - 10%

1.5.2 Uterine rupture can occur before active labour - consider elective caesarean section from 37 weeks

2- Closure of the hysterotomy

2.1 Closure in two layers

2.1.1 Risk of uterine rupture less than 1%	
2.2 Closure in one layer	
2.2.1 Increased incidence of the lower uterine segment measuring less than 2 mm, resulting in increased risk of uterine rupture.	
2.2.2 When the hysterotomy is performed without labour or at the start of labour, i.e. with a poorly developed lower uterine segment, one-layer closure is associated with an increased incidence of loss of integrity of the myometrium, hence the increased risk of uterine rupture.	
3- Type of overlock	
3.1 Simple overlock	
3.1.1 Risk of breakage less than 1%	
3.2 Overlock cross stitch	
3.2.1 Associated with dehiscence due to ischemia: Risk of uterine rupture likely increased.	
4- Number of cesarean sections	
4.1 One cesarean	
4.1.1 Risk of rupture evaluated between .5% and .9%	
4.2 Two cesareans	
4.2.1 Risk of rupture evaluated between .9% and 1.8%	
4.3 Three cesareans or more	
4.3.1 Risk of rupture probably greater than 2% (not much literature on this)	
5- Time interval between cesarean section and TOLAC	
5.1 Sixteen months and under	
5.1.1 Probable increased risk of uterine rupture	
5.2 More than sixteen months	
5.2.1 Risk of uterine rupture less than 1%	
6- History of successful TOLAC	
6.1 Risk of rupture still exists, however, it is less than 1%	
7- Induction of labour	
7.1 Favorable cervix - Risk of uterine rupture 1.1%	
7.2 Unfavorable cervix - Risk of uterine rupture 1.5% to 2.5%	
8- Cervical ripening	

	8.1 Balloon catheter - Risk of uterine rupture 1.1%	
	8.2 Prostaglandins - Risk of uterine rupture 1.5% to 2.5%	
	9- Protracted labour	
	9.1 Stimulation with oxytocin: With caution, risk may be increased depending on oxytocin dose and duration of labor	
	9.2 Length of labour	
	10- Precipitous labour	
	10.1 Risk of uterine rupture could be increased	
	11- Prolonged second stage	
	11.1 Avoid because there is an increased risk of uterine rupture Increased risk of rupture if: Stimulation with high dose of oxytocin Delayed pushing by more than 1 hour History of successful vaginal birth, but second stage is more than 2 hrs	
	12- Uterine overdistension	
	12.1 Macrosomia: very little data; could be associated with increased risk	
	12.2 Twin pregnancy: Probably the same risk as with a singleton	
	12.3 Polyhydramnios: little data	
	Signs and symptoms suggesting uterine rupture	
	1- Acute abdominal pain persisting between contractions	4- Vaginal bleeding
	2- Altered uterine contractions	5- Shoulder pain
	3- Abnormal fetal heart tracing	6- Maternal tachycardia and hypotension