2. Management of Pregnancy in the Presence of Uterine Scar

Contributed by

Dr. Hemantha Perera
Dr. R. Fernandopulle
Dr. R. Pathiraja
Dr. Ajith Fernando
Prof Jayantha Jayawardana
Dr. Madawa Karunarathna

Management of Pregnancy in the Presence of Uterine Scar

Contents **Page**

Introduction

This guideline is to provide recommendations to aid General Practitioners and Obstetricians in the management of **Pregnancy in the Presence of Uterine Scar.** This treatment could be initiated in a primary care setting or in centres with advanced facilities The objective of management of pregnancy in the presence of a uterine scar is to make an early identification, appropriate referral, prevent complications and consequently to improve quality of life.

2.1 Scope of the guideline

The most frequent indications for Caesarean Section are previous Caesarean Section or previous uterine scar, dystocia, mal-presentation, and non-reassuring fetal status.

The data available is limited by 3 important factors:

- There are no randomized controlled studies of trial of labour in the presence of a scar versus elective repeat Caesarean Section.
- Adverse maternal or perinatal outcomes are rare and large study populations are necessary to observe a significant difference in maternal and perinatal outcomes.
- The woman's choice to attempt a trial of labour (TOL) in the presence of previous uterine scar is heavily influenced by her health-care provider and local resources, often leading to selection bias in published reports.

A trial of labour is an option and should be considered in women who present for prenatal care with a history of previous uterine scar in the absence of

contraindications. In certain situations, trial of labour (TOL) may be detrimental to feto-maternal out come and should be considered as contraindicated and a Caesarean Section will be advised. But in most cases, successful vaginal birth can be achieved safely for both mother and infant.

Women and their health-care providers will need to discuss the risks and benefits of a trial of labour (TOL) in the presence of previous uterine scar when planning the vaginal birth. The following facts are the current evidence regarding trial of labour versus elective repeat Caesarean Section.

- The success rate of trial of labour after Caesarean ranges between 50% and 85%.

Predictors of successful trial of labour include a history of previous vaginal delivery and nonrecurring indications for Caesarean birth, such as malpresentations and gestational hypertension; where success rates are as high as 82%.

However the decision to allow a vaginal delivery in the presence of uterine scar should be individualized and made by the consultant after deliberating with the patient.

2.2Diagnosis and assessment

2.2.1 Diagnosis

A pregnant woman with a previous uterine scar attending an antenatal clinic should be identified at the booking/ first attendance at the clinic. All necessary documents, information and details of the previous Caesarean Section, myomectomy and uterine perforations should be looked for and recorded in the present clinic records. Every effort should be made to fill any deficiencies in these required data. At the first visit these women should be seen by the most senior member of the team. In non-specialist units these women should be referred to a specialist unit at the earliest opportunity for management and or shared care. **(Grade X)**

An ultrasound scan should be performed for accurate dating and to check placental localization and exclude abnormal placentation (morbid adherence). **(Grade X)**

2.2.2 Assess facilities and resources

A trial of labour after Caesarean is always associated with a risk of uterine rupture, even if the risk is small.

For this reason, a trial of labour (TOL) in the presence of uterine scar should only be considered in a hospital where provisions for performing an immediate Caesarean Section are available. **(Grade X)**

- Hospitals which provide a trial of labour (TOL) in the presence of previous uterine scar should have a policy in place to manage such patients so that all

resources could be mobilized promptly if an intrapartum emergency occurs.

- Obstetric, anaesthetic, and paediatric teams to attend to such an emergency should be identified and available within the hospital premises. **(Grade X)**
- Women who live in areas where local hospitals cannot offer an immediate Caesarean Section should be offered the opportunity for early transfer to a facility where this service is available.

The members of the team who could be called urgently in a case of an intrapartum complication (anaesthetic, paediatric, and obstetric services) should be pre-warned when there is a patient with a scarred uterus in labour and their availability confirmed.

2.2. Assess contraindications to vaginal birth

i. Absolute contraindications

- Previous classical or inverted 'T' uterine scar.
- Previous hysterotomy or myomectomy entering the uterine cavity.
- Previous uterine rupture.
- The presence of a contraindication to labour such as placenta praevia.
- Malpresentation.

ii. Relative contraindications

- Previous surgery for stress urinary incontinence
- Previous 3rd-4th degree perineal tears

In the absence of contraindications, a woman with one previous Transverse Lower-Segment Caesarean Section should be offered a trial of labour (TOL) with

appropriate discussion of maternal and perinatal risks and benefits. **(Grade Y)**

When the woman requests an elective Cesarean Section in the absence of contraindications for vaginal delivery her wishes should be respected.

2.2.4 Assess previous records **(Grade X)**

- In most cases, this information can be obtained by reviewing the operative records from the previous surgery.
- Searching for the location and type of uterine incision used during the previous surgery is mandatory.
- Other information in this record, such as the indication for the Caesarean Section and the opinion of the previous surgeon, may be helpful.
- The fact that the record has been reviewed and that no contraindications to a trial of labour (TOL) in the presence of previous uterine scar are present, should be documented clearly on the antenatal record.
- If the record is not available, the scar is considered "unknown".
- Whether the previous Section was elective or emergency Caesarean Section should be documented. Observations in previous lower segment Caesarean Section Should be noted.

2.2.5Assess risk of uterine rupture **(Grade X)**

2.2.4.1 Risk of uterine rupture

- It is an uncommon complication of a scarred uterus but when it occurs is associated with significant maternal and perinatal morbidity and mortality

- Incidence
  - 0.2% to 1.5% in a woman who attempts labour after a transverse lower-uterine-segment incision.
  - 1% to 1.6% after a vertical incision in the lower uterine segment.
  - 4% to 9% with a classical or 'T' incision.

For this reason, a trial of labour (TOL) in the presence of last two uterine scars is contraindicated.

- The risk of uterine rupture decreases after the first successful vaginal birth in a scarred uterus. The risk of uterine rupture after 0, 1, 2, and 3 vaginal deliveries in a scarred uterus decreases to 1.6%, 0.3%, 0.2%, and 0.35%, respectively.
- The relative risk of uterine rupture, maternal morbidity, and perinatal mortality or severe morbidity is increased in those undergoing a trial of labour (TOL) in the presence of previous uterine scar compared to elective Caesarean Section, but the absolute risk remains very low.
- In some cases of uterine rupture, perinatal acidosis could not be avoided despite very rapid 'decision to delivery time' being recorded.

2.2.4.2 Prediction of uterine rupture

There is evidence that ultrasonographic measurement of the lower uterine segment's myometrial thickness 36 to 38 weeks' gestation is a predictor of uterine rupture .If the lower segment thickness was less than 3.5 mm. the risk of uterine rupture or dehiscence was 11.8%; and if the measurement was greater than 3.5 mm. the risk of uterine rupture was minimal.

2. Management

2.1 Counselling a patient

i. Compared to a Caesarean Section, there is less blood loss with a successful trial of labour (TOL) in the presence of previous uterine scar and a shorter hospital stay with more rapid recovery and return to full activity.

ii. Risk of febrile morbidity is low in women who attempt a trial of labour (TOL) in the presence of previous uterine scar and is lowest in those who succeed, compared to elective Caesarean Section. But is increased in those who attempt a trial of labour (TOL) and ultimately deliver by Caesarean Section.

iii. Scaring of the uterus is associated with an increased risk of placenta praevia, and abruptio placentae.

iv. A repeat Caesarean Section has been associated with an increased risk of placenta praevia and placenta accreta in subsequent pregnancies.

v. A meta-analysis of published data demonstrated that the overall risk of perinatal death is increased in those attempting a trial of labour (TOL) in the presence of previous uterine scar due to the result of ruptured uterus. However, the risks of perinatal mortality and severe morbidity are directly related to uterine rupture.

2.2 Protocol for intrapartum management

(Grade X)

i. The patient should be advised to present to hospital early in labour or where transport is difficult admit before labour.

ii. Intravenous access should be established and blood should be cross-matched.

iii. The patient should be kept fasting.

iv. Labour should be monitored using the partogram and any abnormalities (e.g. tachycardia above 160, bradycardia below 120, loss of base line variation ,type 1 and type 2 dips) should be notified to the SHO/Registrar/ Consultant who should perform an assessment.

v. Continuous fetal heart rate monitoring is mandatory. In the rare instance very close observation of fetal heart with the Doppler/Sonic aid or Pinnard every 15 minutes in first stage and after each contraction in second stage might be a reasonable compromise.

(Grade Z)

vi. There is no contraindication to epidural analgesia. However, lack of pain sensation makes closer observation of uterine contractions and other parameters essential.

Be vigilant for the symptoms and signs of scar rupture, which may include:

- Suprapubic tenderness and/or changing pattern of abdominal pain. Pain which continues between contractions is ominous,
- Maternal tachycardia,
- Vaginal bleeding,
- Fetal tachycardia or fetal heart decelerations,
- Cessation of contractions,
- Appearance of haematurea.

2.3 Monitoring in labour (TOL) **(Grade X)**

i. Maintaining the national partogram is mandatory to identify lack of progress of labour to avoid uterine rupture.

ii. Continuous electronic fetal monitoring in labour is recommended for all women undergoing a trial of labour (TOL) in the presence of previous uterine scar, as the most reliable first sign of uterine rupture is an abnormal fetal heart tracing which may be sudden in onset.

iii. Other clinical signs indicating uterine rupture include vaginal bleeding, cessation of contractions, and loss of the presenting part on vaginal examination, disappearance of fetal parts, abdominal pain, haematurea and maternal cardiovascular instability.

2.□.4 Postpartum evaluation

Routine digital exploration of the Caesarean Section scar postpartum is not necessary, except when signs or symptoms suggest uterine rupture.

2.4 Special circumstances

2.4.1 Use of oxytocics

- A multicentre randomized controlled trial (RCT) revealed that there is no increase in the risk of uterine rupture, maternal morbidity, or perinatal morbidity or mortality when oxytocin is used to augment the spontaneous labour in a planned trial of labour (TOL) in the presence of previous uterine scar. **(Grade Y)**
- Careful monitoring of the woman for progress of labour is essential. **(Grade X)**
- The use of other agents (e.g.: prostaglandins, Mesoprostol, etc.) to augment labour is not recommended. **(Grade X)**

2.4.2 Induction of labour

The possibility of uterine rupture with the use of agents to induce labour in women who have a scarred uterus must be stressed and discussed in detail. **(Grade X)**

- There was a trend towards a higher rate of uterine rupture, but this was not statistically significant in (0.7% vs. 0.3%) those who underwent either amniotomy or oxytocin but is significantly increased in those who underwent induction with prostaglandin E2 or mesoprostol.
- Medical induction of labour with prostaglandin E2 (dinoprostone) is associated with an increased risk of uterine rupture and should not be used. **(Grade X)**

2.4.□ Trial of labour in a more than one previous lower segment Caesarean Section

The available data suggest that a trial of labour in women with more than one previous uterine scar may be successful but is associated with a higher risk of uterine rupture. Hence trial of labour is not recommended. **(Grade Y)**

2.4.4 Multiple pregnancy

Evidence is insufficient as studies examined a small number of women. However, greater numbers would be required to detect outcomes such as uterine rupture and maternal and perinatal mortality. Management should be individualized and decision should be taken by the Consultant. **(Grade Z)**

2.4.5 Breech presentation

A large multicentre trial demonstrated that a planned Caesarean birth is associated with better perinatal

and neonatal outcomes in breech presentations at term. Elective Caesarean Section is recommended. **(Grade Y)**

External cephalic version is contraindicated in a woman with a previous uterine scar. **(Grade X)**

2.4.6 Diabetes mellitus

Diabetes mellitus should not be considered as a contraindication to a trial of labour (TOL) in the presence of previous uterine scar. The likelihood of successful vaginal birth after Caesarean (VBAC) decreases with increasing birth weight and is lowest in those who have never had a successful vaginal birth.

2.4.7 Inter-delivery interval

- A shorter interval of less than 18 months was associated with a 3-fold increase in the risk of uterine rupture.
- Women delivering before 24 months of a Caesarean Section should be counselled about an increased risk of uterine rupture in labour.

2.4.8 Postdates

Risk of uterine rupture in a trial of labour (TOL) in the presence of previous uterine scar, after 40 weeks was not significantly increased when compared to those who delivered before 40 weeks, whether in spontaneous labour or following induction.

2.4.9 Unknown scar

In situations where the scar is unknown, information concerning the circumstances of the previous

delivery would help in determining the likelihood of a low transverse incision. If the likelihood of a lower transverse incision is high, trial of labour (TOL) may be offered.

(Grade Z)

2.5 Summary

1. To conduct a labour in the presence of a uterine scar the woman should be delivered in a hospital where facilities for immediate Caesarean delivery is available. The woman and her health-care provider must be aware of the hospital resources and the availability of obstetric, anaesthetic, paediatric and operating-room staff. **(Grade X)**

2. In the absence of contraindications, a woman with one previous transverse lower-segment Caesarean Section should be offered a trial of labour (TOL) with appropriate discussion of maternal and perinatal risks and benefits. **(Grade Y)**
   The process of informed consent with appropriate documentation should be an important part of the delivery plan in a woman with a previous uterine scar. **(Grade X)**

3. The intention of a woman undergoing a trial of labour (TOL) after uterine scar should be clearly stated and documentation of the details of the previous uterine scar should be clearly marked on the prenatal record. **(Grade X)**

4. Every effort should be made to obtain the previous operative report to determine the type of uterine incision used. In situations where the scar is unknown, information concerning the circumstances of the previous delivery is helpful in determining the location of the scar.

5. Women delivering within 24 months of a uterine scar should be counselled about an increased risk of uterine rupture in labour.
6. Continuous electronic fetal monitoring of women attempting a trial of labour (TOL) in the presence of previous uterine scar is recommended. **(Grade Z)**
7. Suspected uterine rupture requires urgent attention and expedited laparotomy in order to attempt to decrease maternal and perinatal morbidity and mortality. **(Grade X)**
8. Oxytocin augmentation is not contraindicated in women undergoing labour with a uterine scar but the decision of using oxytocin should be made by the consultant. **(Grade X)**
9. Medical induction of labour with oxytocin is not contraindicated but may be associated with an increased risk of uterine rupture and should be decided by the consultant after appropriate counselling and should be monitored appropriately. **(Grade X)**
10. Medical induction of labour with prostaglandin E2 (dinoprostone) is associated with an increased risk of uterine rupture and should not be used. **(Grade X)**
11. Prostaglandin E1, mesoprostol is associated with a high risk of uterine rupture and should not be used as part of a TOL. **(Grade X)**
12. A foley catheter may be used safely to ripen the cervix). **(Grade Y)**
13. Women with more than one previous scar elective Caesarean Section is recommended. **(Grade X)**
14. Multiple gestation, diabetes mellitus and postdatism by itself are not a contraindication to a trial of labour (TOL).
15. Suspected or proven fetal macrosomia is a contraindication to a trial of scar.

2.6 References

Local papers

1. Fernando L: Aberwardena M (1992, 93) Trends in Caesarean Section Sri Lanka J. Obstet Gynaecol 16 : 14 – 20
2. Rudra T. Perera WSE, 1995. Influence of oxytocin on the outcome of previous Caesarean Section scar. Paper presented at the 28th annual scientific sessions of the Sri Lanka College of Obstetricians and Gynaecologists, September 1995, Abstract book p. 12
3. Pandare A, Amerasinghe WI, 1998. Foundation of a Predictive Score System for patients undergoing trial of scar. Paper presented at the 31st annual scientific sessions of The Sri Lanka College of obstetricians and Gynaecologists; August 1998. Abstract book p. 14
4. Randeniya c 2001. Does antenatal assessment of lower uterine segment by abdominal ultrasound a worthwhile exercise in patients with previous Caesareans Section scar. Paper presented at the 34th annual scientific sessions of the Sri Lanka College of Obstetricians and Gynaecologists, August 2001: Abstract book p. 10
5. Karunakaran KE, et.al. 2005 Outcome of pregnancy with previous Caesarean Section at T.H Batticaloa. J Batticaloa Medical association; 1: 44 - 48
6. Goonewardena M, Gunaratna K A, 2001 Why are Caesarean Section rates rising Sri Lanka J. Obstet Gynaecol 23: 20 - 27
7. Epitawela D, De silva P, Perara H, 2004; Once a Caesarean Section need not be another caesarean –Paper Presented at the annual scientific Sessions of SLCOG Vol. 26 P 39

Regional papers

1. Arulkumaran S, Gibb DMF, Ingmarsson I, Kitchener HC, Ratnam SS, 1989. Uterine activity during spontaneous labour after previous lower segment section. Br. J. Obstet. Gynaecol 96 : 933 - 938
2. Arulkumaran S, Ingermasson I, Ratnam SS, 1989. Oxytocin augmentation in dysfunctional labour after previous Caesarean Section. Br. J. Obstet Gynaecol 96 : 939 - 941
3. Chattopadhyay SK, Sherbeeni MM, Anokute CC, 1994. Planned Vaginal delivery after two previous Caesarean Sections Br. J. Obstet Gynaecol 101: 49
4. Chua S, Arulkumaran S, Haththotuwa R, 1996 Management of women with previous Caesarean Sections scar. In

Arulkumaran S, Ratnam SS, Bhaskar Rao K, eds. The Management of Labour; Orient Longman Limited pp 317 - 327

International papers

1. Leitch CR, Walker JJ, 1998. The rise in Caesarean Section rate: the same indication but lower uterine threshold. Br. J. Obstet. Gynaecol 105; 621 – 626 8 - 500