Guideline for the Management of a Ruptured Uterus

Author/Owner	**Lead consultant obstetrician/ Consultant obstetrician lead for labour ward/ Practice Educator Midwife/ Maternity Guideline Group**	
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1.0 Introduction

Uterine rupture is a rare event, occurring in just 2 per 10 000 pregnancies. However, when it does occur it frequently results in life threatening maternal and/or fetal compromise.
In a UK study, 87% of uterine ruptures occurred in women who had a uterine scar, with just 13% occurring in women with an unscarred uterus.

The incidence among women who have had a previous caesarean section and plan to have a normal birth is 21 per 10,000 pregnancies, which is higher than in those who elect for another caesarean section, where the incidence is 3 per 10,000 births.

The risk increases with the number of caesarean sections; with two previous caesarean sections carrying a three to five-fold increase in risk compared to one previous caesarean section. Uterine rupture in an unscarred uterus is mainly confined to multiparous women in labour. However, uterine rupture can occur without any predisposing factors.

Type of uterine rupture	Definition
Complete uterine rupture	Involves a full thickness disruption of the uterine wall and the overlying visceral peritoneum.
Incomplete uterine rupture	Involves the myometrium but not the peritoneum.

Uterine scar dehiscence involves disruption and separation of a pre-existing scar.

The risk of uterine rupture increases if women with a uterine scar also have the following factors:

- Short inter-delivery interval (< 12 months)
- Post dates pregnancy
- Maternal age over 40
- Obesity
- Low prelabour Bishop score
- Macrosomia
- Multiple pregnancy
- Polyhydramnios

The perinatal mortality is ten times greater than the maternal mortality.

2.0 Objective

To ensure the timely management of a suspected ruptured uterus.

3.0 Scope

This guideline applies to all medical and midwifery staff working on the maternity unit.

4.0 Main body of the document

4.1 Risk factors

- Previous uterine scar
- Overuse of intravenous oxytocic drugs
- Overuse of prostaglandins (especially in multiparous women)
- Instrumental vaginal deliveries (extended cervical tear)
- Obstetric manipulations both internal and external e.g. External Cephalic Version (ECV)
- Obstructed labour

Based on limited observational data, women who have experienced a previous uterine rupture are reported to have a higher risk (5% or higher) of recurrent uterine rupture with labour. Hence, previous uterine rupture is considered a contraindication to vaginal birth.

Women who have had one previous caesarean section should be informed of the seven - fold increased risk of uterine rupture and around 1.5-fold increased risk of caesarean delivery in induced and/or augmented labour compared with spontaneous Vaginal Birth After Caesarean (VBAC) labour.

4.2 Clinical features associated with uterine scar rupture

The following are clinical features associated with uterine scar rupture (diagnosis is confirmed intraoperatively and managed according to individual findings at the time):

- Abnormal Cardiotocography (CTG), in particular prolonged fetal heart rate deceleration or fetal bradycardia
- An increasing requirement for pain relief in labour should raise awareness of the possibility of an impending uterine rupture
- Sudden tearing abdominal pain even with an adequate epidural caused by the uterine contents e.g. meconium irritating the peritoneum
- Severe abdominal pain, especially if persisting between contractions
- Acute onset scar tenderness
- Cessation of previously efficient uterine activity
- Loss of station of the presenting part
- Change in abdominal contour and inability to pick up fetal heart rate at the old transducer site
- Abnormal vaginal bleeding
- Haematuria
- Signs of hypovolemic shock – increased respiratory rate, hypotension, pallor, cold sweaty peripheries, maternal tachycardia, fainting
- Maternal collapse with loss of consciousness

It is important to note that scar dehiscence may be asymptomatic in up to 48% of women, and the classic triad of a complete uterine rupture (pain, vaginal bleeding, and fetal heart rate abnormalities) may present in less than 10% of cases. A ruptured uterus can occur in any woman but extra vigilance is required in women with a previous uterine scar.

4.3 Management of a suspected ruptured uterus

Communication:	Clinical actions:
• Call for help – Activate the emergency buzzer • Put out an emergency code yellow plus the consultant on call for the birthing centre • Liaise with the haematologist regarding blood products – it may be necessary to initiate the major haemorrhage protocol • Alert theatre staff to prepare for laparotomy • Inform paediatrician and the neonatal team	• Check Airway, Breathing and Circulation (ABC) and maintain the airway • Monitor maternal observations and level of consciousness • Administer oxygen via face mask at 15L per minute • Commence/maintain continuous electronic fetal monitoring • If the labour is being augmented - turn off the oxytocin • Gain intravenous (IV) access and obtain bloods for FBC, group and save and coagulation screen • Commence IV infusion of a crystalloid solution. Infuse rapidly to attempt to maintain circulatory volume until blood available • Nurse the woman in a left lateral tilt • Perform catheterisation • Transfer to theatre as soon as possible where management will be dependent upon individual findings at the time **(Repair will be performed by a Consultant Obstetrician or supervised registrar)**

4.4 Management in the postnatal period

The woman will be nursed in the birthing centre High Dependency Unit (HDU) or Intensive Care Unit (ICU) dependent upon the level of care required.
Care will be managed by a multi-disciplinary team following the guidelines for Admission to Labour Ward High Dependency Unit/ Transfer to Intensive Care Unit.

Postnatal care:

- Commence HDU chart
- Maintain IV infusions as instructed. (IV Oxytocin / Blood products)
- Record vital signs: blood pressure, pulse, respirations, temperature and continuous SpO_2 monitoring. (If SpO_2 falls to <95% inform senior obstetrician/anaesthetist)
- Observe urine output and measure hourly. Aim for a urine output of 0.5ml/kg/hour
- Consider IV antibiotics for 48 hours and subsequently oral antibiotics for five days
- Ensure appropriate thromboprophylaxis

In cases where there is fetal demise follow the Guideline for the Management of Fetal /Early Neonatal Loss.
The patient must be debriefed by a senior obstetrician and informed about the risk of uterine rupture in a subsequent pregnancy.

Offer the woman an appointment in the Birth Afterthoughts clinic and a six to eight week postnatal appointment with her consultant.

5.0 Roles and responsibilities

5.1 Midwives

To provide the best evidence-based care for women in accordance with appropriate guidance from diagnosis to delivery.

5.2 Obstetricians

To provide care for women in accordance with appropriate guidance from diagnosis to delivery.

5.3 Paediatricians

To attend delivery when their presence is requested.

5.4 Anaesthetists

To attend when their presence is requested and provide anaesthesia to the women for operations and procedures as appropriate.

6.0 Associated documents and references

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Uterine Rupture by Intended Mode of Delivery in the UK: A National Case-Control Study
PLoS Med 9(3): e1001184. doi:10.1371/journal.pmed.1001184. March 13, 2012
Al Qahtani NH, Al Hajeri F. Pregnancy outcome and fertility after complete uterine rupture: a report of 20 pregnancies and a review of literature. *Arch Gynecol Obstet* 2011;284:1123–6.

Chibber R, El-Saleh E, Al Fadhli R, Al Jassar W, Al Harmi J. Uterine rupture and subsequent pregnancy outcome – how safe is it? A 25-year study. *J Matern Fetal Neonatal Med* 2010;23:421–4.

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Perinatal review- Obstetric emergencies Uterine rupture. http://www.perinatal.nhs.uk/reviews/oe/oe_uterine_scar_rupture.htm

Naef RW 3rd, Ray MA, Chauhan SP, Roach H, Blake PG, Martin JN Jr. Trial of labor after cesarean delivery with a lower-segment, vertical uterine incision: is it safe? *Am J Obstet Gynecol* 1995;172:1666–73; discussion 1673–4.

Ofir K, Sheiner E, Levy A, Katz M, Mazor M. Uterine rupture: differences between a scarred and an unscarred uterus. *Am J Obstet Gynecol* 2004;191:425–9.

Royal College of Obstetricians and Gynaecologists (RCOG). Greentop Guideline No.45 (October 2015) https://www.rcog.org.uk/globalassets/documents/guidelines/gtg_45.pdf

Silver RM, Landon MB, Rouse DJ, Leveno KJ, Spong CY, Thom EA, et al.; National Institute of Child Health and Human Development Maternal–Fetal Medicine Units Network. Maternal morbidity associated with multiple repeat cesarean deliveries. *Obstet Gynecol* 2006;107:1226–32.

Zwart JJ, Richters JM, Ory F, de Vries JI, Bloemenkamp KW, van Roosmalen J. Uterine rupture in The Netherlands: a nationwide population-based cohort study. *BJOG* 2009;116:1069–78; discussion 1078–80.

7.0 Training and resources

Training will be delivered as outlined in the Maternity Training Needs Analysis. This is updated on an annual basis.

8.0 Monitoring and audit

Any adverse incidents relating to the management of uterine rupture will be monitored via the incident reporting system. Any problems will be actioned via the case review and root cause analysis action plans. The action plans are monitored by the governance midwife to ensure that improvements in care are made. The trends and any root cause analysis are discussed at the monthly risk meetings to ensure that appropriate action has been taken to maintain safety.

The guideline for uterine rupture will be audited in line with the annual audit programme, as agreed by the CBU. The audit action plan will be reviewed at the monthly risk management meetings on a quarterly basis and monitored by the risk midwife to ensure that improvements in care are made.

9.0 Equality and Diversity

This section is mandatory for all Trust Approved Documents and must include the statement below:

The Trust is committed to an environment that promotes equality and embraces diversity in its performance as an employer and service provider. It will adhere to legal and performance requirements and will mainstream equality, diversity and inclusion principles through its policies, procedures and processes. This guideline should be implemented with due regard to this commitment.

To ensure that the implementation of this guideline does not have an adverse impact in response to the requirements of the Equality Act 2010 this policy has been screened for relevance during the policy development process and a full equality impact assessment is conducted where necessary prior to consultation. The Trust will take remedial action when necessary to address any unexpected or unwarranted disparities and monitor practice to ensure that this policy is fairly implemented.

This guideline can be made available in alternative formats on request including large print, Braille, moon, audio, and different languages. To arrange this please refer to the Trust translation and interpretation policy in the first instance.

The Trust will endeavor to make reasonable adjustments to accommodate any employee/patient with particular equality, diversity and inclusion requirements in implementing this guideline. This may include accessibility of meeting/appointment venues, providing translation, arranging an interpreter to attend appointments/meetings, extending policy timeframes to enable translation to be undertaken, or assistance with formulating any written statements.

9.1 Recording and Monitoring of Equality & Diversity

This section is mandatory for all Trust Approved Documents and must include the statement below:

The Trust understands the business case for equality, diversity and inclusion and will make sure that this is translated into practice. Accordingly, all guidelines will be monitored to ensure their effectiveness.

Monitoring information will be collated, analysed and published on an annual basis as part of Equality Delivery System. The monitoring will cover the nine protected characteristics and will meet statutory employment duties under the Equality Act 2010. Where adverse impact is identified through the monitoring process the Trust will investigate and take corrective action to mitigate and prevent any negative impact.

Appendix 1
Equality Impact Assessment – required for policy only

Appendix 2
Glossary of terms

ABC	Airway Breathing Circulation
CTG	Cardiotocography
ECV	External Cephalic Version
HDU	High Dependency Unit
ICU	Intensive Care Unit
IV	Intravenous
VBAC	Vaginal Birth After Caesarean

Appendix 3 (must always be the last appendix)
Maintain a record of the document history, reviews and key changes made (including versions and dates)

Version	Date	Comments	Author
3	03/09/2020	Minor changes to be made then approved	Practice Educator Midwife

Review Process Prior to Ratification:

Name of Group/Department/Committee	Date
Reviewed by Maternity Guideline Group	03/09/2020
Reviewed at Women's Business and Governance meeting	13/11/2020
Approved by CBU 3 Overarching Governance Meeting	26/05/2021
Approved at Medicines Management Committee (if document relates to medicines)	N/A

Trust Approved Documents (policies, clinical guidelines and procedures)

Approval Form

Please complete the following information and attach to your document when submitting a policy, clinical guideline or procedure for approval.

Document type (policy, clinical guideline or procedure)	Guideline
Document title	Uterine rupture
Document author (Job title and team)	Lead consultant obstetrician/ Consultant obstetrician lead for labour ward/ Practice Educator Midwife/ Maternity Guideline Group
New or reviewed document	Reviewed
List staff groups/departments consulted with during document development	Consultant obstetricians, lead midwives, senior midwives
Approval recommended by (meeting and dates):	Maternity guideline group Date: 03/09/2020 Women's Business and Governance Meeting Date: 13/11/2020 CBU 3 Overarching Governance Meeting Date: 26/05/2021
Date of next review (maximum 3 years)	26/05/2024
Key words for search criteria on intranet (max 10 words)	Uterine Rupture Ruptured uterus
Key messages for staff (consider changes from previous versions and any impact on patient safety)	
I confirm that this is the FINAL version of this document	**Name: Charlotte Cole** **Designation: Practice Educator Midwife**

FOR COMPLETION BY THE CLINICAL GOVERNANCE TEAM

Approved by (group/committee): CBU3 Governance **Date approved: 26/05/2021** **Date Clinical Governance Administrator informed of approval: 03/06/2021**

Date uploaded to Trust Approved Documents page: 08/06/2021