

MATERNITY UNIT

GUIDELINE:

UTERINE RUPTURE

SCOPE:

All midwives and obstetricians working in the Maternity Unit

AUTHOR:

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PURPOSE:

To promote awareness of the potential causes of uterine rupture, recognition of the signs and symptoms and its management should it occur

DEFINITIONS:

Complete spontaneous disruption of the uterine wall (serosa, myometrium and decidua), which is usually accompanied by bleeding and at times accompanied by extrusion of part or all of the fetal-placental unit. It may occur before or during labour and can be associated with severe maternal haemorrhage and fetal morbidity or fetal demise.

TOLAC - trial of labour after caesarean section

ERCS - elective repeat caesarean delivery

GUIDELINE:

Data from observational studies show that TOLAC is associated with a higher risk of uterine rupture than ERCS and women who have a uterine rupture are at high risk of maternal morbidity and fetal morbidity/mortality.

Incidence — Most uterine ruptures occur in women with prior caesarean deliveries, but rupture can occur after other types of uterine incisions, such as after a myomectomy. The actual magnitude of risk depends upon several factors, the most important of which is the location of the previous hysterotomy incision. The US National Institutes of Health (NIH) Consensus Development conference on TOLAC concluded the overall incidence of uterine rupture with a prior caesarean delivery was approximately 325/100,000 (0.325%). (1) Rupture during labour may also occur in an unscarred uterus but this is very rare.

Risk factors — No single or combination of risk factors is sufficiently reliable to be clinically useful for prediction of uterine rupture. Although numerous risk factors have been cited for uterine rupture during labour in women with a previous caesarean delivery, the risk factors have not been consistent across studies and the studies were generally hampered by having only a few cases of uterine rupture.

Risk factors for uterine rupture after a previous caesarean delivery are, from high to low risk:

- **Previous uterine rupture** –The risk of recurrent rupture appears to be highest when the previous rupture was in the fundus or longitudinal. Recurrent rupture can occur rarely as early as the second trimester and is difficult to predict.
- **Previous fundal or vertical hysterotomy** – This includes an inverted T or J incision or extension of a low transverse incision into the upper uterine segment. After a previous classical (fundal) incision the reported risk of rupture ranges from 1 to 12%. The uterine rupture rate with a prior low vertical incision was 2% versus 0.7% with a prior low transverse incision.
- **Induction** - The incidence of rupture is higher in women with a prior caesarean section who undergo induction than in women who experience spontaneous labour. The rate of rupture is estimated at 1.5%.The risk of rupture is significantly higher with the use of prostaglandins, estimated at 2.45%. Induction of labour with syntocinon alone also appears to marginally increase the risk of rupture to 1.1%. Data on mechanical methods of cervical ripening with prior caesarean section are limited by small sample size and retrospective analysis and are generally reassuring although ruptures have been reported. In most studies of women with previous caesarean deliveries undergoing induction with a transcervical Foley catheter/syntocinon, uterine rupture rates of 0 to 1.6 percent have been reported. The Society of Obstetricians and Gynaecologists of Canada guidelines on mechanical methods of cervical ripening state “a Foley catheter may be safely used to ripen the cervix in a woman planning a TOLAC”. The American College of Obstetricians and Gynecologists (ACOG) position is “given the lack of compelling data suggesting increased risk with mechanical dilation and transcervical catheters, such interventions may be an option for TOLAC candidates with an unfavorable cervix”.
- **Labour** – Spontaneous onset of labour with normal progress is less likely to result in uterine rupture compared to labours that are induced. The risk of uterine rupture is increased if there is a low Bishops score on admission to Maternity and/or dystocia, particularly at advanced dilatation (>7cm). Slow cervical dilatation in the first stage and prolonged second stage also appear to increase the risk of rupture.
- **Possible risk factors** – Factors inconsistently reported to be associated with an increased risk of uterine rupture include increasing maternal age, gestational age >40 weeks, birth weight >4000gm, inter-delivery interval <18-24 months, single layer uterine closure, and multiple caesarean sections. None of these are sufficiently reliable to be clinically useful for the prediction of rupture.

Factors that decrease the risk of rupture – A prior vaginal delivery either before or after the caesarean delivery significantly reduce the risk of rupture.

Clinical manifestations – Antepartum or intrapartum women with uterine rupture may have none, some or all of the following. The actual diagnosis is made surgically at the time of laparotomy with visualization of complete disruption of all uterine layers.

- **Abnormal CTG** – Sudden development of abnormal CTG patterns are consistently reported with uterine rupture, but no one pattern is pathognomonic of rupture. The most common abnormality seen is bradycardia. The onset can be sudden or preceded by decelerations.
- **Haemodynamic instability** – Intra-abdominal or vaginal bleeding can result in maternal tachycardia and hypotension. The onset of tachycardia and hypotension can be rapid or insidious. Vaginal bleeding may be modest even with significant intra-abdominal bleeding.
- **Weakening contractions** –there may be a gradual decline in the intensity of contractions shown on the electronic fetal heart trace or felt when palpating for contractions. However this is not consistently seen and even an intrauterine monitor may show no change at all.
- **Position of the fetal head** – The presenting part may rise with uterine rupture. This would suggest partial or complete extrusion of the fetus into the maternal abdomen.
- **Abdominal pain** – Uterine rupture can be associated with sudden onset of abdominal pain. This pain may be partially or completely masked by epidural anaesthesia.
- **Haematuria** - Haematuria can occur if the uterine rupture tears into the bladder.

Management – Declare an obstetric emergency; call 777 requesting the obstetrician, anaesthetist and paediatrician. The O&G will notify the theatre team. Haemodynamic unstable women should be stabilized with fluids and a blood transfusion, the anaesthetist will manage this during this emergency situation. Prepare for a crash caesarean using the red checklist and transfer to theatre immediately.

As with all emergency LSCS, cord blood gases will be required if obtainable.

Outcome

Maternal – Maternal death is a known but extremely rare outcome of uterine rupture. Major maternal morbidities include primarily transfusion and hysterectomy, with rates of hysterectomy reported from 14-33%.

Perinatal – The perinatal death rate associated with uterine rupture is 5-6%. In a study by the NIH Maternal Fetal Medicine Units Network, the incidence of hypoxic-ischemic encephalopathy associated with uterine rupture was seven cases among 114 infants born after uterine rupture (6%). Two of the seven infants did not survive. Prompt intervention after uterine rupture did not always prevent severe acidosis and neonatal morbidity and mortality. Perinatal mortality/morbidity is higher in fetuses who experience complete extrusion into the maternal abdomen than in those who are not extruded.

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