Frimley Health
NHS Foundation Trust

Cervical stitch (cerclage) for preventing preterm birth in singleton pregnancy

Key Points

- Cervical insufficiency remains a significant risk factor for preterm labour.
- The risks have to be carefully balanced against the benefit from mechanical support to the cervix.

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Abbreviations

PPROM	Preterm prelabour rupture of membranes
USS	Ultrasound scan

Contents

1. Introduction

Prematurity is leading cause of perinatal death & disability. Around 60,000 babies are born prematurely in the UK each year putting them at a higher risk of developing health problems. This is one of the highest rates in the Europe and it's still rising. Cervical insufficiency remains a significant risk factor for preterm labour.

Has been suggested that cervical insufficiency complicates about 1% of an obstetric population (McDonald 1980) and 8% of a recurrent miscarriage population who have suffered mid-trimester pregnancy losses (Drakeley 1998).

The diagnosis of cervical insufficiency cannot be made or excluded in nonpregnant women by any test.

2. Indications for cervical cerclage

The indication must be documented in the woman's notes.

Elective (History – Indicated)	• Women with singleton pregnancies and three or more previous preterm births should be offered a history-indicated cervical cerclage[1] • History-indicated cerclage should not routinely be offered to women with less than three previous preterm births and/or second trimester losses without additional risk factors[1] It is unknown if the specific characteristics of the previous adverse event are helpful in the decision to place a history-indicated cerclage. (e.g. painless dilatation, rupture of membranes, prior cervical surgery)[4]
USS – Indicated	Ultrasound-indicated cerclage is performed on asymptomatic women who do not have exposed fetal membranes in the vagina. Sonographic assessment of the cervix is usually performed between 14 and 24 weeks of gestation by transvaginal scan and with an empty maternal bladder For women with a singleton pregnancy and no other risk factors for preterm birth, insertion of cervical cerclage is not recommended in women who have a short cervix incidentally identified on a late second trimester ultrasound scan Women with a history of one or more spontaneous second trimester loss or preterm births who are undergoing ultrasound surveillance of cervical length should be offered cerclage if the cervix is 25mm or less at gestations less than24 weeks An ultrasound-indicated cerclage is not recommended for funnelling of the cervix (dilatation of the internal os on ultrasound) in the absence of cervical shortening to 25 mm or less (the closed length of the cervix) Women with a history of spontaneous second trimester loss or preterm birth who have not undergone a history-indicated cerclage may be offered serial sonographic surveillance, as those who experience cervical shortening (less than 25mm) may benefit from ultrasound-indicated cerclage

	The insertion of a history- or ultrasound-indicated cerclage in women with multiple pregnancies is not recommended.
Rescue Cerclage	• The decision to place a rescue suture should be individualised. A consultant obstetrician should be involved in making the decision. • Consider 'rescue' cerclage for women between 16^{+0} - 27^{+6} weeks of pregnancy with a dilated cervix and exposed, unruptured fetal membranes, with no signs and symptoms of infection. Discuss with a consultant obstetrician and consultant paediatrician. (NICE guideline), take into account gestational age (being aware that the benefits are likely to be greater for earlier gestations) and the extent of cervical dilatation. • Explain to women for whom 'rescue' cerclage is being considered (and their family members or carers as appropriate): the procedure that it aims to delay the birth, and so increase the likelihood of the baby surviving and of reducing serious neonatal morbidity (NICE guideline) • Advanced dilatation of the cervix (more than 4cm) or membrane prolapse beyond the external os appears to be associated with a high chance of cerclage failure (3- uncontrolled studies) **Re timing of Emergency Cerclage:** • There is no clear evidence that the gestation at which the cerclage is inserted affects the magnitude of prolongation of the pregnancy; however, consideration should be given to the fact that, in cases presenting before 20 weeks of gestation, insertion of a emergency cerclage is highly likely to result in a preterm birth before 28 weeks of gestation Emergency cerclage can rarely be justified beyond 24 weeks' gestation, due to the potential risk of iatrogenic membrane rupture and subsequent preterm birth. **Checks prior to Rescue Cerclage:** • Maternal observations (temperature, pulse rate, blood pressure and respiratory rate) • Examination - abdominal palpitations (fundal height, tenderness, uterine activity) • Vaginal assessment - speculum examination of cervical dilation exclude PPROM, bleeding, abnormal vaginal discharge • Gentle digital exam ONLY if evidence of advanced dilation and birth thought imminent discuss with consultant on-call • HVS • Urine dip and if positive to be sent for MSU • FBC, CRP • If no visual signs of dilation and effacement consider a transvaginal scan for cervical length and transabdominal scan for fetal wellbeing, unless birth imminent • Discuss with NICU

Consider prophylactic vaginal / rectal progesterone for women who have either:

- a history of spontaneous preterm birth (up to 34+0 weeks of pregnancy) or loss (from 16+0 weeks of pregnancy onwards), or
- results from a transvaginal ultrasound scan carried out between 16+0 and 24+0 weeks of pregnancy that show a cervical length of 25 mm or less.

In August 2019, this was an off-label use of vaginal progesterone. See NICE's information on prescribing medicines. **[2019, amended 2022]**[5]

3. Contraindications to cervical cerclage

- Active preterm labour
- Clinical evidence of chorioamnionitis
- Active vaginal bleeding
- Evidence of fetal compromise
- Pre labour preterm rupture of membrane PPROM
- Lethal fetal condition
- Fetal death

Fetal anomaly: depends on the anomaly, to discuss with fetal medicine team

4. Investigations Prior to cervical cerclage

- Ultrasound & Screen for aneuploidy to ensure viability & absence of lethal/ major fetal abnormality
- Before ultrasound-indicated or emergency cerclage, it is preferable to ensure an anomaly scan has been performed[4]
- Maternal white cell count and C-reactive protein to detect chorioamnionitis before insertion of a emergency cerclage can be used to aid management. The decision to perform these tests should be based on the overall clinical picture, but in the absence of clinical signs of chorioamnionitis, the decision for emergency cerclage need not be delayed[2]
- Routine genital tract screening should not be undertaken before cerclage insertion[4]
- In the presence of a positive culture from a genital swab, antimicrobial therapy should be decided on an individual basis after discussion with the microbiology team[4]
- The decision for antibiotic prophylaxis at the time of cerclage placement should be at the discretion of the operating team[1]

5. Types of Cerclage

The choice of cerclage is up to obstetrician and the clinical circumstances.

Transvaginal Route:

- **Transvaginal cerclage (McDonald):** A transvaginal purse-string suture placed at the cervical isthmus junction, without bladder mobilization McDonald technique

- **High transvaginal cerclage requiring bladder mobilization (including Shirodkar):** A transvaginal purse-string suture placed following bladder mobilization, to allow insertion above the level of the cardinal ligamentsShirodkar technique

Total cervical occlusion
In addition to the standard cerclage, the external cervical os is closed with non-absorbable suture. The rationale for this technique is based on the observation that mucous plug has a double role in preventing the preterm labour; it is a mechanical barrier between the vagina and uterus and its intrinsic richness in immune components makes it a very important element in defending the fetal compartment from ascending infections, thereby increasing the innate defence of cervical canal.

Transabdominal Route:
A suture performed via a laparotomy or laparoscopy, placing the suture at the cervicoisthmic junction. This approach is used for women when vaginal stitches have failed, or when a woman has short, scarred cervix making vaginal stitch insertion technically difficult (Anthony 1997; Gibb 1995).

- In women with a previous unsuccessful transvaginal cerclage, insertion of a transabdominal cerclage may be discussed and considered[1]
- Transabdominal cerclage can be performed pre-conceptually or in early pregnancy. Pre-conceptual procedures may be more effective and are not associated with sub-fertility[4]
- Laparoscopic and open abdominal cerclage have similar efficacy. The laparoscopic approach is associated with fewer complications, and can be considered where suitable surgical expertise is available[2]

How should women who experience delayed miscarriage or fetal death be cared for?

- Decisions on care and treatment in cases of delayed miscarriage or fetal death in women with an abdominal cerclage can be difficult and women's decision making should be aided by a senior obstetrician[4]
- Complete evacuation through the stitch by suction curettage or by dilatation and evacuation (up to 18 weeks of gestation) may be performed; alternatively, the suture may be cut, usually via a posterior colpotomy. Failing this, a hysterotomy maybe required or caesarean section may be necessary; the woman's decision should be aided by a senior obstetrician.[4]

At Frimley Health NHS at present can not offer service of transabdominal cerclage so referral to the tertiary centre should be considered if transabdominal cerclage is indicated.

6. Risks of cerclage / Complications

These risks have to be carefully balanced against the benefit from mechanical support to the cervix. Overall risks < 1%.

- Bladder damage
- Cervical Trauma
- Bleeding
- Membrane rupture
- Shirodkar suture may require anaesthesia for removal

- Cervical laceration/ trauma if spontaneous labour start & suture insitu have been reported < 5%
- Vaginal cerclage insertion is not associated with an increased risk of PPROM, chorioamnionitis, induction of labour, or caesarean section(1+)
- The insertion of a cervical suture is not associated with an increased risk of preterm birth or second trimester loss (1+)
- Prior to cerclage insertion, women should be given appropriate verbal and written information; patient information can be found on the RCOG website

7. Operative Issues

- There is no evidence to support the use of perioperative tocolysis in women undergoing insertion of cerclage. This should be considered on an individual basis[4]
- There is no evidence to use antibiotic prophylaxis at the time of cerclage placement. The decision for antibiotic prophylaxis at the time of cerclage placement should be at the discretion of the operating team[1]
- Routine use of progesterone supplementation following cerclage is not recommended.
- The choice of suture material should be at the discretion of the surgeon, this should be considered on an individual basis[4]
- The choice of transvaginal cerclage technique (high vs low cervical insertion) (Shirodkar Vs McDonald) should be at the discretion of the surgeon, but the cerclage should be placed as high as is practically possible[2]
- There is no difference between using two purse-string sutures and one single suture and should be at the discretion of the surgeon[1]
- The insertion of cervical occlusion suture in addition to the primary cerclage is not routinely recommended[1]
- The choice of anaesthesia should be made by the operating team in conjunction with the woman[2]
- Elective cerclage can safely be performed as a day-case procedure

8. Postoperative care

- Most patients can be discharged after recovery from the anaesthetic and when able to ambulate and void
- Recommended check fetal heart with USS or sonic aid prior to discharge home.
- Bed rest should not be routinely recommended, but the decision should be individualised.
- Abstinence from sexual intercourse following cerclage insertion should not be routinely recommended
- While routine serial sonographic measurement of the cervix is not recommended it may be useful in individual cases following ultrasound-indicated cerclage to offer timely administration of steroids or in utero transfer[3]
- In the presence of history-indicated cerclage additional ultrasound-indicated cerclage is not routinely recommended as, compared with expectant management, it may be associated with an increase in both pregnancy loss and birth before 35 weeks of gestation[3]
- The decision to place an emergency cerclage following an elective or ultrasound-indicated cerclage should be made on an individual basis taking into account the clinical circumstances[4]

- Routine fetal fibronectin testing is not recommended post-cerclage, However, the high negative predictive value of fetal fibronectin testing for subsequent birth at less than 30 weeks of gestation in asymptomatic high-risk women with a cerclage in place may provide reassurance to women and clinicians in individual cases[2]
- Patients are told to report any leakage of fluid from the vagina so that they can be evaluated for membrane rupture.
- They should also be told to expect some spotting, cramps, and dysuria (due to minor muscle injury from the vaginal wall retractors) which will abate within a few days.

9. Time of removal of cerclage

- A transvaginal cervical cerclage should be removed between 36^{+1} – 37^{+0} weeks of gestation
- If delivery is by elective caesarean section in which case suture removal could be delayed until this time.
- In women presenting in established preterm labour, the cerclage should be removed to minimise potential trauma to the cervix.
- Recommends that delayed removal of the cerclage for 48 hours can be considered in women with PPROM between 24^{+0} - 34^{+0} weeks of gestation and without evidence of infection or preterm labour. During this time a course of prophylactic steroids for fetal lung maturation can be completed and/or in utero transfer arranged.
- Given the risk of neonatal and/or maternal sepsis and the minimal benefit of 48 hours of latency in pregnancy with PPROM before 23 and after 34 weeks of gestation, delayed suture removal is unlikely to be advantageous in this situation.[1]
- Delayed suture removal until labour ensues, or birth is indicated, is associated with an increased risk of maternal/fetal sepsis and is not recommended.[1]

10. Management of future pregnancies following cerclage in index pregnancy

- Prior successful history-indicated cerclage – recommend repeat history-indicated cerclage for these patients.
- Prior successful ultrasound-indicated cerclage (delivery after 34 weeks) – recommend transvaginal ultrasound cervical length screening in future pregnancies.
- Prior unsuccessful ultrasound-indicated cerclage – For women with a prior ultrasound-indicated cerclage who went on to have an early spontaneous delivery (e.g., <34 weeks), recommend a history-indicated cerclage at 12 - 14 weeks of gestation in the next pregnancy.

11. Multiple Pregnancies

- Current data do not support the use of cerclage in multiple pregnancies even when there is a history of preterm labour. The literature does not support the insertion of cerclage in multiple gestations on the basis of cervical length.
- The insertion of a history- or ultrasound-indicated cerclage in women with multiple pregnancies is not recommended.

12. Auditable standards

<u>Maternity Unit:</u>

- Number of women who referred to consultant obstetrician before 12 weeks of gestation as a proportion of those eligible for elective cerclage

- Review of the indications for cerclage in women having undergone a procedure in line with local protocol.
- Proportion of women receiving aneuploidy screening before history- indicated cerclage insertion.
- Pregnancy loss rate at < 24 weeks of gestation and preterm delivery at 24 – 34 weeks of gestation following cervical cerclage insertion.
- Proportion of women who are given information about risks and potential outcome after rescue cerclage.
- Accuracy of documentation

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Guidelines Lead(s):	Mr Veluppillai Vathanan (Consultant Obstetrician and Gynaecologist, WPH) Miss Neena Garg (Consultant Obstetrician and Gynaecologist FPH)
Contributor(s):	Despoina Kitmiridou (Specialty Registrar, Obstetrics and Gynaecology, WPH) Hend Hadawi (Clinical Fellow Obstetrics and Gynaecology)
Lead Director / Chief of Service:	Anne Deans, Chief of Service
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1.0	September 2019	Hend Hadawi Miss Neena Garg Mr Veluppillai Vathanan	Final	First cross site version
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Related Documents

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