

Policy

Perinatal Practice Guideline

Cervical Insufficiency and Cerclage

Objective file number:

Policy developed by: SA Maternal, Neonatal & Gynaecology Community of Practice

Approved SA Health Safety & Quality Strategic Governance Committee on:
14 November 2017

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Summary The purpose of this guideline is to provide information on the indications for, diagnosis of and management of cervical shortening and cerclage.

Keywords Perinatal practice guideline, PPG, cervical insufficiency, cervical cerclage, short cervix, shortened cervix, cervical funnelling, abdominal cerclage, cervical suture, cervical incompetence, transvaginal cervical cerclage, progesterone

Policy history Is this a new policy? **N**
Does this policy amend or update an existing policy? **Y v3.0**
Does this policy replace an existing policy? **N**
If so, which policies?

Applies to All Health Networks
CALHN, SALHN, NALHN, CHSALHN, WCHN, SAAS

Staff impact All Staff, Management, Admin, Students, Volunteers
All Clinical, Medical, Midwifery, Nursing, Allied Health, Emergency, Mental Health, Pathology, SAAS

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South Australian Perinatal Practice Guidelines

Cervical Insufficiency and Cerclage

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Note:

This guideline provides advice of a general nature. This statewide guideline has been prepared to promote and facilitate standardisation and consistency of practice, using a multidisciplinary approach. The guideline is based on a review of published evidence and expert opinion.

Information in this statewide guideline is current at the time of publication.

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Health practitioners in the South Australian public health sector are expected to review specific details of each patient and professionally assess the applicability of the relevant guideline to that clinical situation.

If for good clinical reasons, a decision is made to depart from the guideline, the responsible clinician must document in the patient's medical record, the decision made, by whom, and detailed reasons for the departure from the guideline.

This statewide guideline does not address all the elements of clinical practice and assumes that the individual clinicians are responsible for discussing care with consumers in an environment that is culturally appropriate and which enables respectful confidential discussion. This includes:

- The use of interpreter services where necessary,
- Advising consumers of their choice and ensuring informed consent is obtained,
- Providing care within scope of practice, meeting all legislative requirements and maintaining standards of professional conduct, and
- Documenting all care in accordance with mandatory and local requirements

Explanation of the aboriginal artwork:

The aboriginal artwork used symbolises the connection to country and the circle shape shows the strong relationships amongst families and the aboriginal culture. The horse shoe shape design shown in front of the generic statement symbolises a woman and those enclosing a smaller horse shoe shape depicts a pregnant women. The smaller horse shoe shape in this instance represents the unborn child. The artwork shown before the specific statements within the document symbolises a footprint and demonstrates the need to move forward together in unison.



Australian Aboriginal Culture is the oldest living culture in the world yet Aboriginal people continue to experience the poorest health outcomes when compared to non-Aboriginal Australians. In South Australia, Aboriginal women are 2-5 times more likely to die in childbirth and their babies are 2-3 times more likely to be of low birth weight. The accumulative effects of stress, low socio economic status, exposure to violence, historical trauma, culturally unsafe and discriminatory health services and health systems are all major contributors to the disparities in Aboriginal maternal and birthing outcomes. Despite these unacceptable statistics the birth of an Aboriginal baby is a celebration of life and an important cultural event bringing family together in celebration, obligation and responsibility. The diversity between Aboriginal cultures, language and practices differ greatly and so it is imperative that Perinatal services prepare to respectively manage Aboriginal protocol and provide a culturally positive health care experience for Aboriginal people to ensure the best maternal, neonatal and child health outcomes.

Purpose and Scope of PPG

The purpose of this guideline is to provide information on the indications for, diagnosis of and management of cervical shortening and cerclage.

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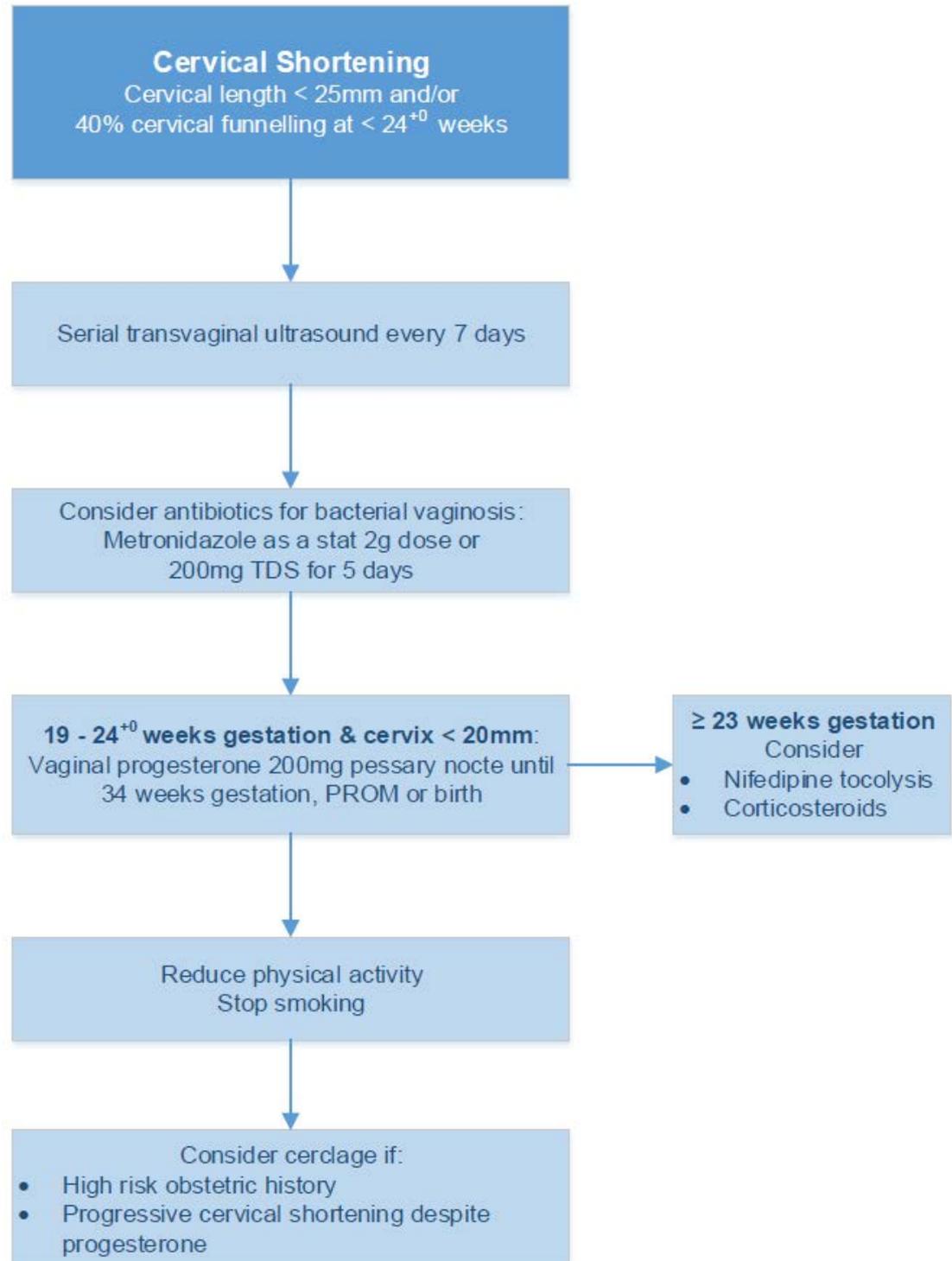
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Cervical Insufficiency and Cerclage

Flowchart 1: Management of cervical shortening

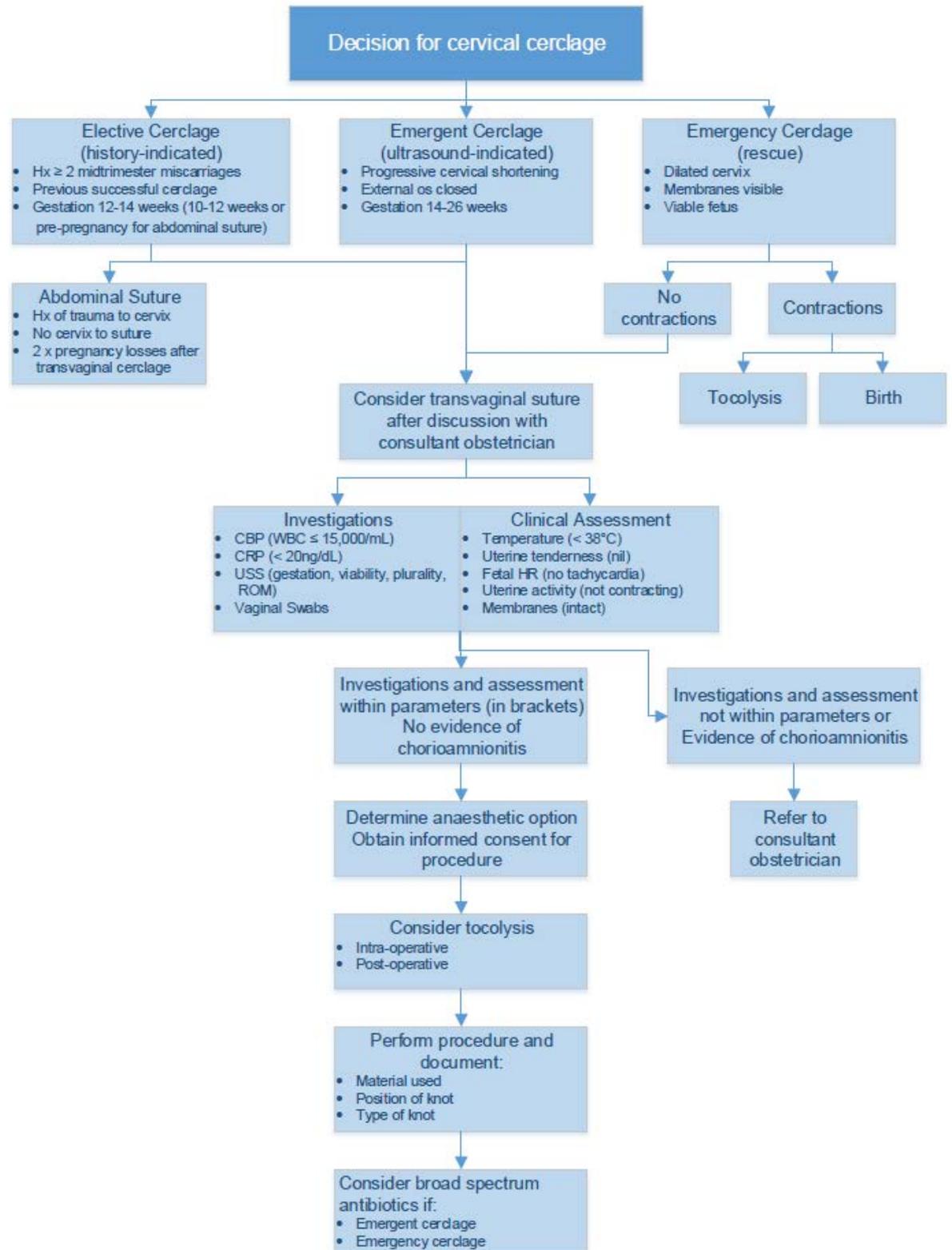


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Flowchart 2: Decision for cervical cerclage

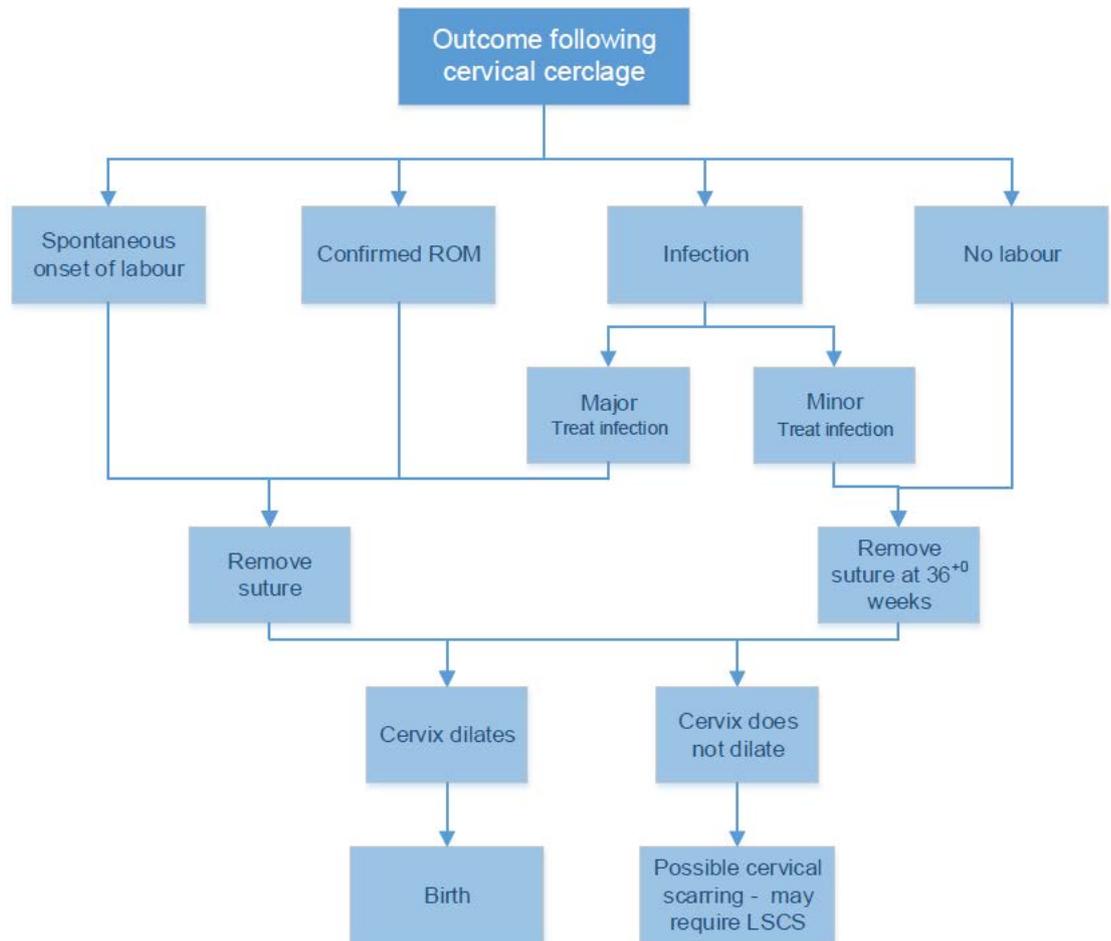


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Flowchart 3: Outcome following transvaginal cervical cerclage



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Cervical Insufficiency and Cerclage

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Summary of Practice Recommendations

Consideration should be given to serial ultrasounds between 15 and 24 weeks gestation for women with risk factors for cervical insufficiency.

Cervical cerclage reduces preterm birth in women with a previous spontaneous preterm birth and a cervical length <25mm.

Perioperative tocolytics, corticosteroids and antibiotics should be used with caution.

Cervical cerclage is associated with increased medical intervention and doubles the risk of pyrexia.

Transabdominal cervical cerclage is associated with increased morbidity when compared with transvaginal cerclage and is therefore only used in selected cases.

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Cervical Insufficiency and Cerclage

Abbreviations

°C	Degrees in Celsius
CBP	Complete Blood Picture
cm	Centimetre(s)
CRP	C-reactive Protein
D+C	Dilatation and curettage
e.g.	For example
et al.	And others
g	Gram(s)
LLETZ	Large Loop Excision of the Transformation Zone of the cervix
mg	Milligram(s)
mL	Millilitre(s)
ng/dL	NanoGram per decilitre
%	Percentage
PROM	Prelabour rupture of membranes
PPROM	Preterm prelabour rupture of membranes
ROM	Rupture of membranes
TOP	Termination of pregnancy
USS	Ultrasound scan
WBC	Leucocyte (White blood cell)

Definitions

Cervical cerclage	A variety of surgical procedures in which sutures or synthetic tape are used to mechanically increase the tensile strength of the cervix, thereby reducing the occurrence of preterm birth ¹
Cervical insufficiency	A structural weakness of the cervix causing painless dilatation and shortening of the cervix in the absence of contractions and is associated with premature and sometimes pre-viable birth
Shortened cervix	A cervix is one that measures < 25 mm (10th centile) on a transvaginal ultrasound scan at 20-24 ⁺⁰ weeks gestation ²
Cervical funnelling or 'beaking'	The separation of the internal os from the two sidewalls of the upper end of the cervical canal

Literature Review

A 2011 meta-analysis³ demonstrated that in women with a previous spontaneous preterm birth and a cervical length <25mm, cerclage significantly prevents preterm birth (RR 0.70; 95% CI 0.55-0.59) and composite perinatal mortality and morbidity (RR 0.64; 95% CI 0.45-0.91).

The CIPRACT study⁴ found therapeutic cerclage with 48 hours of bed rest reduced preterm birth before 34 weeks.

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Cervical Insufficiency and Cerclage

No randomised trials presented findings free of confounding variations to support the routine use of tocolysis, corticosteroids and antibiotics with cervical cerclage⁵.

A 2007 study suggested that pregnancy loss and death before discharge from hospital was greater in twin pregnancies treated by cerclage than without cerclage⁶. However, this is being disputed in pregnancies with ultrasound directed emergent suture.

Incidence

Cervical insufficiency affects 1 % of pregnancies and occurs in 8 % of women with recurrent mid-trimester losses⁷. It is associated with:

- Bulging and / or prelabour rupture of the membranes
- Preterm birth
- Intra-amniotic infection
- Fetal loss

Risk factors

Historical risk factors:

- Mid trimester loss suggesting cervical insufficiency
- Previous preterm prelabour rupture of membranes < 27⁺⁰ weeks
- Previous cervical trauma (e.g. repeat TOP, miscarriage, cone biopsy, LLETZ, D+C)⁸

Congenital / hereditary risk factors

- In utero diethylstilbestrol exposure
- Uterine anomalies (congenital cervical hypoplasia or aplasia)
- Connective tissue abnormalities (e.g. Ehlers-Danlos syndrome)

Diagnosis

Early identification of women at risk of cervical insufficiency is important as there is no diagnostic test for cervical insufficiency.

Medical expert consensus recommends serial ultrasound examination (1-2 weekly), should be considered in a woman with historical risk factors for cervical insufficiency and should occur between 15 and 24 weeks of gestation⁹.

Other causes of preterm labour and birth (see "Preterm Labour" PPG in A-Z list available at www.sahealth.sa.gov.au/perinatal), need to be excluded.

Digital examination is subject to inter-examiner variability. However, transvaginal ultrasound has been demonstrated to be a valid and replicable method of cervical assessment¹⁰

Management of Cervical Insufficiency

The decision to perform cervical cerclage is based on obstetric history and clinical assessment of the cervix during pregnancy. Women should be counselled regarding risks and benefits of cerclage. Consider use of perioperative antibiotics and tocolytics with caution.

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Cervical Insufficiency and Cerclage

Cervical shortening

Cervical length < 25 mm and / or > 40 % cervical funnelling at < 24+0 weeks

- Serial transvaginal ultrasound every 7 days
- Consider antibiotics for bacterial vaginosis (give metronidazole as a stat 2 g dose or 200 mg three times a day for 5 days)
- A 200 mg vaginal progesterone pessary nocte to women who are shown to have a cervix < 20 mm at 19-24⁺⁰ weeks gestation until 34 weeks gestation, prelabour rupture of the membranes or birth can be recommended^{2,11,12}
- Reduce physical activity
- Stop smoking
- Consider cerclage if high risk obstetric history

> 23+0 weeks

- Consider nifedipine tocolysis 60 - 160 mg per day
- Consider corticosteroids - administer IM betamethasone in two doses of 11.4 mg (5.7 mg x 2) 24 hours apart. If betamethasone is unavailable, give IM dexamethasone in two doses of 6 mg, 24 hours apart.

Transvaginal ultrasound

- Clinically useful to identify signs of effacement (funnelling or beaking)
- Transfundal pressure is more effective than coughing or standing in eliciting cervical changes and signs of progressive second trimester cervical shortening during active assessment of the cervix¹³
- Cervical shortening is analogous with a change from the normal 'T' shaped endocervical canal to a 'Y' shape with initial effacement. With progressive shortening, the endocervical canal becomes 'V' shaped and eventually 'U' shaped

Elective (history-indicated) cerclage

Prophylactic measure

Consider cervical cerclage for women with a history of:

- Two or more second trimester pregnancy losses (after excluding other risk factors and in the presence of cervical shortening)
- Each loss earlier in gestation than the previous pregnancy

Investigations

- Complete blood picture (leukocyte count \leq 15,000 / mL)
- C-reactive protein (< 20ng/dL)
- High and low vaginal swabs
- Ultrasound to exclude fetal anomalies, preterm pre-labour rupture of the membranes, confirm gestational age

Observations

- Exclude regular uterine activity
- Exclude preterm rupture of the membranes
- Maternal temperature < 38°C
- No uterine tenderness
- No fetal tachycardia
- Ensure informed consent is signed

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Placement

Usually between 12-14 weeks², but may be placed up to 26 weeks gestation in individual cases.

Regional anaesthesia is usually preferred but each case requires anaesthetic and obstetric consultation as a general anaesthetic may be a better option, particularly with emergency (rescue) cerclage.

Emergent (ultrasound-indicated) cerclage

Therapeutic measure

Consider cervical cerclage for women with a history of:

- Changes to cervical length on serial ultrasound
- External os remains closed

Investigations and observations as above

Consider broad spectrum antibiotics

Placement

Usually between 14-24 weeks, but may be placed up to 26 weeks gestation in individual cases

Emergency (rescue) cerclage

Consider cervical cerclage for women with a combination of:

- Cervix dilated > 2 cm with no perceived uterine contractions
- Premature cervical effacement > 50 %
- Presence of pelvic pressure
- Heavy mucoid vaginal discharge
- Bulging membranes through the cervical os

Investigations and observations as above

Consider broad spectrum antibiotics. NB: there must be no evidence of chorioamnionitis

Transvaginal Cervical Cerclage Technique

The two main techniques are:

- Insertion of the suture in bites with no dissection
- Less commonly a sub epithelial suture with dissection of the bladder

Suture materials used include mersilene tape, nylon and silk. There is no evidence to recommend a particular technique or suture material over another.

Site of Suture:

- McDonald suture
- Shirodkar suture
- High cervical suture¹³

Knots placed anteriorly are the easiest to see and remove.

The position and type of knot used needs to be accurately documented.

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Complications

The MRC / RCOG report¹⁴ showed that the use of cerclage is associated with increased medical intervention and doubles the risk of puerperal pyrexia. The risk and nature of complications is influenced by whether the cerclage is inserted electively or as an emergency with membranes bulging through the cervix.

Complications include:

- Chorioamnionitis
- Prelabour preterm rupture of membranes
- Suture displacement
- Preterm labour
- Cervical dystocia
- Cervical laceration

Removal of cerclage

The cerclage can be removed electively at 36⁺⁰ weeks gestation. Usually it is easiest for the obstetrician who inserted the cerclage to remove it prior to birth. Removal can be performed without anaesthesia.

There is evidence that removal of the cerclage followed by immediate artificial rupture of the membranes or spontaneous onset of labour is more likely to be associated with chorioamnionitis with coliforms than if this is delayed for 48 hours or longer. Antibiotic prophylaxis (e.g. benzylpenicillin) should be given for the duration of labour.

Women who go into labour with the suture insitu should have the suture removed as early as possible. If this cannot be achieved, remove the suture after birth. The onset of preterm labour unresponsive to tocolysis and / or a strong suspicion of sepsis are indications for the removal of the cerclage as an emergency

Transabdominal cervico-isthmic cerclage

Transabdominal cervical cerclage is more complicated than transvaginal cervical cerclage and is associated with greater morbidity (wound infection, bleeding)¹⁵. Only used in selected cases where:

- 2 attempts at transvaginal cervical cerclage have failed
- cervical anatomy does not allow the placement of a vaginal suture (e.g. post LLETZ or cone biopsy)
- congenital cervical anomaly (e.g. double cervix) may make it difficult to perform a vaginal cervical cerclage

Surgical procedure

It is an elective procedure that should only be undertaken by an Obstetrician with appropriate expertise. The traditional approach is via laparotomy, but a laparoscopic approach may also be undertaken¹⁵.

Suture material may be mersilene tape or a number 2 Portex infant feeding tube threaded onto a number 4 taper point mayo needle (provides greater elasticity).

Consider single dose perioperative prophylactic antibiotics.

Cervical Insufficiency and Cerclage

Timing of procedure

Before pregnancy (interval suture)

An advantage is that the procedure is less vascular.

If the 'more elastic' option of the Portex infant feeding tube is used as the suture material then the tension of the suture can be adjusted so that it extrudes a No 5 Hegar dilator placed in the cervical canal before insertion of the intra-abdominal cerclage. This ensures that the cervical canal is not completely obliterated so that in the event of aneuploidy / missed abortion the suture is sufficiently elastic to enable a No 5 Karmen suction catheter to be passed to evacuate the uterine contents without disturbing the suture.

Between 10-12 weeks of gestation (intra-pregnancy suture)

The procedure is more vascular.

The timing allows for first trimester screening to be completed and missed miscarriage to be diagnosed and treated.

Prophylactic hospitalisation is not required for any pregnancy after the procedure

Birth

Ideally around 36 weeks of gestation by caesarean section.

The suture may remain insitu for any future pregnancies.

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References

1. Norwitz ER, Lockwood CJ, Barss VA. Transvaginal cervical cerclage. Up to Date 2007.
2. 3centres Collaboration. Cervical shortening. Cervical insufficiency. Clinical Practice Guidelines 2011. Available from URL: <http://3centres.com.au/guidelines/cervical-shortening-and-cervical-insufficiency/>
3. Bergella V, Rafael TJ, Szychowski et al. Cerclage for short cervix on ultrasonography in women with singleton gestations and previous preterm birth: A meta-analysis. *Obstet Gynecol*. 2011. 117(3): 663-671.
4. Althuisius SM, Dekker GA, Hummel P, Bekedam DJ, Van Geijn HP. Final results of the cervical incompetence prevention randomized cerclage trial (CIPRACT): Therapeutic cerclage with bed rest versus bed rest alone. *Am J Obstet Gynecol* 2001; 185: 1106-12 (Level I).
5. Harger J. Cerclage and cervical insufficiency: An evidence based analysis. *Obstet Gynecol* 2002; 10(6):1313-27.
6. Jorgensen AL, Alfirovic Z, Tudur Smith C, Williamson P; on behalf of the cerclage IPD Meta-analysis Group. Cervical stitch (cerclage) for preventing pregnancy loss: individual patient data meta-analysis. *BJOG* 2007; 114:1460–1476 (Level I).
7. Drakeley AJ, Roberts D, Alfirovic Z. Cervical stitch (cerclage) for preventing pregnancy loss in women. *Cochrane Database of Systematic Reviews* 2003, Issue 1. Art. No.: CD003253. DOI: 10.1002/14651858.CD003253. (Level I). Available from: URL: http://onlinelibrary.wiley.com/doi/cochrane/clsystrev/articles/CD003253/pdf_fs.html
8. Kyrgiou M, Arbyn M, Martin-Hirsch P et al. Increased risk of preterm birth after treatment for CIN. *British Medical Journal*. 2012. 345: e5847
9. American College of Obstetrics and Gynecology (ACOG). Practice Bulletin No. 48. Cervical insufficiency. *Obstet Gynecol* 2003; 102: 1091-96.
10. Incerti M, Ghidini A, Locatelli A et al. Cervical length <25mm in low risk women: A case control study of cerclage with rest versus rest alone. *American Journal of Obstetrics and Gynecology*. 2007. 197(1): 105
11. Royal Hospital for Women. Progesterone prevention of preterm labour. *Obstetric Clinical Guidelines Group* September 2008
12. Romero R, Nicolaidis K, Conde-Agudelo A, Tabor A, O'Brien JM, Cetingoz E, Da Fonseca E, Creasy GW, Klein K, Rode L, Soma-Pillay P, Fusey S, Cam C, Alfirovic Z, Hassan SS. Vaginal progesterone in women with an asymptomatic sonographic short cervix in the midtrimester decreases preterm delivery and neonatal morbidity: a systematic review and metaanalysis of individual patient data. *Am J Obstet Gynecol* 2012; 206:124.e1-19.
13. Guzman ER, Pisatowski DM, Vintzileos AM, Benito CW, Hanley ML, Ananth CV. A comparison of ultrasonographically detected cervical changes in response to transfundal pressure, coughing, and standing in predicting cervical incompetence. *Am J Obstet Gynecol* 1997; 177:660-5.
14. MRC / RCOG Working Party on Cervical Cerclage. Final report of the Medical Research Council / Royal College of Obstetricians and Gynaecologists multicentre randomised trial of cervical cerclage. *Br J Obstet Gynaecol* 1993; 100: 516-523
15. Umstad MP, Quinn MA, Ades A. Transabdominal cervical cerclage. *ANZJOG* 2010; 50: 460-464
16. Berger NB, Brolmann HA, Einarsson JI. Effectiveness of abdominal cerclage placed via laparotomy or laparoscopy: A systematic review. *Journal of Minimal Invasive Gynecology*. 2011. 18: 696-704

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