Cervical Cerclage - An Indian Gift to Obstetricians

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Abstract: ***A cervical cerclage is a treatment that involves temporarily sewing the cervix closed with stitches. This may help the cervix hold a pregnancy in the uterus. A cerclage is done in the second trimester of pregnancy to prevent preterm birth. The purpose of this article is to highlight the salient features of recent RCOG Green –top Guidelines June 2022 guidelines which supplement NICE guidelines (NG25) Preterm labor and birth.***

Keywords: cervical cerclage, Shirodkar, Pre term

1. Introduction

Cervical insufficiency is an imprecise clinical diagnosis frequently applied to women with history where it is assumed that the cervix is 'weak 'and unable to remain closed during pregnancy. The cervical integrity is influenced by factors related not solely to the intrinsic structure of the cervix but also to processes driving premature effacement and dilatation. While cerclage may provide some level of support to a 'weak 'cervix, its role in maintaining the cervical length and the endocervical mucus plug as mechanical barrier to ascending infection. There is lack of consensus on the optimal cerclage technique, timing of suture placement, role of amniocentesis before cerclage insertion and optimal care following insertion. The purpose of this article is to highlight the salient features of recent RCOG Green –top Guidelines June 2022 guidelines which supplement NICE guidelines (NG25) Preterm labor and birth. (1)

Terminology

The salient feature being the previous terminology like prophylactic, planned procedure, emergency, urgent, rescue for cervical encirclage have been proclaimed ambiguous. More appropriate terms based on indication for cervical suture is now recommended. The terms used now are – History Indicated Cerclage, Ultrasound indicated cerclage, Emergency cerclage or physical examination indicated. (2)

History indicated cerclage

The factors in a women's obstetric or gynecological history which indicate an increase in the risk of spontaneous second trimester loss of preterm birth. (3) Thus history – indicated placement of suture on cervix is performed as a prophylactic measure in asymptomatic women and usually inserted as a planned procedure at 11 - 14 weeks of gestation.

Ultrasound indicated cerclage

USG guided cerclage is done in cases of cervical length shortening seen on transvaginal ultrasound. Ultrasound indicated cerclage is performed on asymptomatic women who do not have exposed fetal membranes in vagina (3). Sonographic assessment of the cervix is usually performed between 14 and 24 weeks of gestation by transvaginal scan with an empty bladder.

Ultrasound surveillance of cervical length is advocated in women at high and intermediate risk.

Women with high risk include
a) Those with a previous preterm birth or second trimester loss (16 - 34 weeks gestation)
b) Previous preterm prelabour rupture of membranes (PPROM) less than 34 weeks
c) Previous use of cerclage
d) Known uterine variant
e) Intrauterine adhesions
f) History of trachelectomy

These high risk class of women should be evaluated at 12 weeks or with the dating scan whichever is sooner and offered transvaginal cervix scanning as a secondary screening test every 2 - 4 weeks between 16 - 24 weeks.

Women with Intermediate risk include
- Women including those who have history of a previous full dilatation cesarean section
- Significant cervical excision surgery i. e large loop excision of the transformation zone (LLETZ) with an excision depth greater than 1 cm, or more than one procedure or a cone biopsy

These women should undergo a transvaginal scan no later than 18 weeks as a minimum. Women with short cervix on serial ultrasound scan but who do not have history of previous preterm birth, an ultrasound indicated cerclage may be considered. Emergency/ physical examination indicated /emergency cerclage

Insertion of cerclage as a salvage measure in the case of premature cervical dilatation with exposed fetal membranes in the vagina. (3) This may be first revealed by ultrasound examination of cervix or as a result of a speculum / physical examination performed for symptoms such as vaginal discharge, bleeding or sensation of pressure. It can be performed up to 27 +6 wks of gestation. (4)

Occlusion cerclage

Occlusion cerclage indicated in cases with occlusion of the external os by placement of a continuous non absorbable suture. This probably benefits by retening the mucus plug and confining the pregnancy. (5, 6)

Types according to application
a) Vaginal – McDonald
b) Vaginal – Shirodkar
c) Transabdominal

Key recommendations (8)
a) Women with singleton pregnancy and with three or more previous preterm births should be offered history indicated cervical cerclage (grade B) (9)
b) History Indicated cerclage should not routinely be offered to women with less than 3 previous preterm births and / or second trimester loss without additional risk factors.
c) Women with singleton pregnancy and a history of spontaneous second trimester loss preterm birth who have not undergone a history indicated cerclage may be offered serial sonographic surveillance. Those with cervical shortening may benefit from ultrasound indicated cerclage while those whose cervix remain long (greater than 25 mm) have a low risk of preterm birth (10) (Grade B)
d) Cervical cerclage is not recommended in women who have an incidentally identified short cervix with singleton pregnancy (Grade B) (11)
e) An ultrasound indicated cerclage is not recommended for funneling 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) (12, 13)
f) The role of history or ultrasound indicated cerclage (14, 15) is uncertain
g) Insertion of a history or ultrasound indicated cerclage in women with multiple pregnancies is not recommended. (Grade B) (16, 17, 18)
h) In other high risk groups who indicate no additional risk factors such as women with mullerian anomalies, previous cervical surgery (cone biopsy, LLETZ, or destructive procedure such as laser ablation or diathermy) or multiple dilatation and evacuation (19, 20) (Grade B)
i) Insertion of a history or ultrasound indicated cerclage in women with multiple pregnancies is not recommended. (Grade B) (16, 17, 18)
j) Cerclage is effective in women with a raised BMI (Grade B) (21)
k) In women with a previous unsuccessful transvaginal cerclage, insertion of a transabdominal cerclage may be considered (Grade D) (22, 23, 24)
l) The insertion of emergency cerclage in women with singleton pregnancy may delay birth by an average of 34 days compared to expectant management and bed rest alone. (25) (Grade B)
m) The choice of transvaginal cerclage technique i. e high cervical insertion with bladder mobilization or low insertion should be at the discretion of the surgeon (Grade C), but the cerclage should be placed as high as practically possible. (26, 27)
n) In women with previous unsuccessful transvaginal cerclage, insertion of a transabdominal cerclage may be discussed and considered (Grade A) (28.)
o) Transabdominal cerclage may be performed during preconception period or early pregnancy.
p) Laparoscopic and open abdominal cerclage have similar efficacy Laparoscopic approach is associated with fewer complications and can be considered where suitable surgical expertise is available (Grade C) (26)
q) Decisions on care and treatment in cases of delayed miscarriage or fetal death in women with abdominal cerclage can be difficult and women's decision making should be aided by a senior obstetrician.
r) Complete evacuation through the stitch by suction curettage or by dilatation and evacuation up to 18 weeks of gestation may be performed alternately, the suture may be cut, by posterior colpotomy. Flling this, a hysterotomy may be required or cesarean section may be necessary; the women decision being aided by senior obstetrician.

Contraindications of cerclage (28, 29)
a) Active preterm labor
b) Clinical evidence of chorioamnionitis
c) Continuous vaginal bleeding
d) PPROM
e) Evidence of fetal compromise
f) Lethal fetal defects
g) Fetal death

Protocols for cerclage insertion
Before history or ultrasound indicated cerclage insertion women should be given verbal and written information about potential complications. The patient should be explained that there is a small risk of intra operative bladder damage, cervical trauma, membrane rupture and bleeding during the insertion of cerclage (29). Cervical cerclage may be associated with a risk of cervical laceration / trauma, membrane rupture if there is spontaneous labor with the suture in place. High vaginal cerclage inserted with bladder mobilization usually requires anesthesia for removal and the risk involved in repeated use of an aesthetic agents.

Women should be offered a first trimester ultrasound scan and screening for aneuploidy before the insertion of a history indicated suture to ensure both viability, singleton pregnancy, and the absence of lethal / major fetal anomaly. Before ultrasound indicated or emergency cerclage, it is preferable to ensure an anomaly scan has been performed. Maternal white cell count and C - reactive protein (30, 31) to detect chorioamnionitis before insertion of a emergency cerclage can be used to aid management. However, in the absence of clinical signs of chorioamnionitis, the decision for emergency cerclage need not be delayed.

There is insufficient evidence to recommend routine amniocentesis (32, 33) before rescue or ultrasound indicated cerclage as there are no clear data demonstrating improved outcomes. In select cases where there is suspicion of intraamniotic infection amniocentesis may be performed (34). There is absence of data to either refute or support the use of amnioreduction before insertion of a emergency cerclage and this should therefore not be carried out. (35, 36, 37)

Every case of cerclage should be managed on an individual basis. Routine genital tract screening should not be undertaken before cerclage insertion. In the presence of positive cultures from a genital swab, antimicrobial therapy should be initiated. There is no evidence to support the use

of routine tocolytics in women undergoing insertion of cerclage and should be considered on individual basis. The decision for antibiotic prophylaxis at the time of cerclage placement should be at the discretion of operating team. Also the choice of anesthesia should be in conjuction with the women needs and the operating team demands. Elective transvaginal cerclage can be performed as a day care procedure.

The choice of suture material should be at the discretion of the surgeon; a non absorbable suture should ideally be used. The choice of transvaginal cerclage i. e high cervical insertion with bladder mobilization or low cervical insertion should be at the discretion of the operating surgeon and preferably be as high as is practically possible. There is no difference between using two purse string sutures or single suture (40, 41, 42). The insertion of cervical occlusion suture in addition to the primary cerclage is not routinely recommended. (38)

Bed rest after cerclage should be individualized (39), taking into account the clinical circumstances and potential adverse effects that bed rest could have due to prolonged immobilization. Abstinence from sexual intercourse following cerclage insertion should not be routinely recommended.

Post cerclage surveillance

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 (40). 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 (43). The decision to place a emergency cerclage following an elective or ultrasound indicated cerclage should be made on an individual basis taking into account the clinical circumstances (41). Routine use of progesterone supplements following cerclage is not recommended.

Removal of cerclage

A transvaginal cervical cerclage should be removed before labor, usually between 36+1 and 37 +0 weeks of gestation, unless birth is by pre labor caesarean section, in which case suture removal could be delayed until this time. (44) In women presenting with preterm labor, the cerclage should be removed to minimize potential trauma to the cervix. A high inserted cerclage with bladder mobilization will usually require anesthesia for its removal. All women with abdominal cerclage require birth by caesarean birth, and the abdominal suture may be left in place following birth.

In women with PPROM between 24 and 34 weeks of gestation and without evidence of infection or preterm labor, delayed removal of the cerclage for 48 hours can be considered to facilitate in utero transfer. Delayed suture removal until labor ensues or birth is indicated, is associated with an increased risk of maternal or fetal sepsis and is not recommended. 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 after34 weeks of gestation, delayed suture removal is unlikely to be advantageous in this situation. (45)

2. Conclusion

The antenatal surveillance is incomplete without eliciting the detailed history, physical examination and relevant Ultrasound at regular intervals. The need for cerclage is to prevent early pregnancy loss or preterm births which merely add to the financial burden of the state and the family. The recommendations of the RCOG Clinical guidelines are framed to address this problem and the article highlights the salient features for consideration of encircklage in antenatal period.

Conflict of interest –Nil

Sources of Funding – Nil

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