

## Rescue Cervical Cerclage (RCC): A case report and review of literature

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**ABSTRACT:** The authors report the case of a 26 years old woman with a medical history of three late fetal loss (between 20 to 22 weeks) who benefit in her actual pregnancy a rescue cervical cerclage at 20 weeks of gestation. It allowed the continuation of the pregnancy until 38 weeks after elective suture removal at 36SA. The patient give birth by natural delivery to a baby girl in good condition. Prophylactic cerclage was recommended to the patient in later pregnancies. Through this case and based on recent literature reviews, the authors discuss the indications, contraindications, technical aspects and prognosis of rescue cervical cerclage.

**KEYWORDS:** Rescue cervical cerclage, preterm labour, late miscarriage, Prolapsed fetal membranes.

### 1 INTRODUCTION

Preterm is defined as babies born alive before 37 weeks of pregnancy are completed. There are sub-categories of preterm birth, based on gestational age: extremely preterm (<28 weeks); very preterm (28 to <32 weeks) and moderate to late preterm (32 to <37 weeks). It is the most common cause of neonatal morbidity and mortality [1]. One of the various interventions that have been tried, cervical cerclage is the most beneficial. It is performed in an attempt to reduce the likelihood of late miscarriage and preterm delivery [2]. Emergency cervical cerclage is a procedure not commonly performed in general clinical practice [3]. It may be inserted when the patient presents with a cervix that is already dilated with the membranes bulging into the vagina [4]. Based on recent literature reviews many questions regarding the RCC are now answered but others still remain unanswered [5].

### 2 CASE HISTORY

Our case is about a 26 years old woman, Gravida 4, Para 0, with a medical history of three late fetal loss, (between 20 to 22 weeks). The patient was admitted at 20 weeks of gestation for uterine contractions. The overall examination showed a patient in good general condition, without fever and with normal blood pressure. Speculum examination showed a completely effaced cervix opened with membranes protruding into the cervical canal (photo 1). There was no bleeding. Ultrasound showed a scalable singleton pregnancy with normal biometrics and normal morphology, placenta was normally inserted and the quantity of amniotic fluid was normal. Infectious balance was normal and rhesus grouping was positive. After 48 hours of tocolysis by intravenous nicardipine, intramuscular delay progesterone and a broad-spectrum antibiotics, a rescue cervical cerclage was performed under spinal anesthesia using the technique of Mac Donald: Patient in Trendelenburg position, a slight pull on the cervix by a Forester clamp and slight pressure on the membranes with a small pad mounted on a clamp which facilitated their return in intrauterine. The follow-up was normal with tocolytic treatment and rest. It allowed the continuation of the pregnancy until 38 weeks after elective suture removal at 36SA. The patient gives birth by natural delivery to a baby girl in good condition. Prophylactic cerclage was recommended to the patient in later pregnancies.

### 3 DISCUSSION

There is a confusion regarding the terminology of the cerclage procedure, the contemporary nomenclature identify three groups:

- 1- History indicated cerclage or prophylactic cerclage or elective cerclage: It is a prophylactic measure inserted in asymptomatic high-risk women based on risk factors ascertained in the obstetrical history, usually at 12–14 weeks of pregnancy.
- 2- Ultrasound-indicated cerclage or urgent cerclage: It is a therapeutic measure inserted in women usually asymptomatic with a short cervical length without cervical dilation with or without prior obstetrical complications, before 24 weeks of pregnancy. The short cervical length is discovered by transvaginal ultrasound.
- 3- Emergency or emergent or rescue cervical cerclage (RCC): It is essentially a salvage procedure to prolong gestation in women with dilated cervix and fetal membranes protruding into the cervical canal or past the cervical canal. The cervical changes and prolapsed membranes are identified by transvaginal ultrasound, speculum, or manual examination carried-out in the presence of symptoms such as vaginal bleeding, discharge, or pelvic pressure sensation. The insertion is performed in the mid trimester or early third trimester [5-9], like in our case.

Actually, it is certain from available literature that RCC is safe and has a role in the prevention of PTB in women with an incidental finding of premature cervical dilation and prolapsed fetal membranes [2,7,9,10]. It may prolong pregnancy by an average of 4–5 weeks [8]. Notably, a higher chance of cerclage failure is expected if cervical dilatation exceeds 4 cm or if the fetal membranes are bulging into the vagina [8]. The use of RCC in twin and multiple pregnancies is a big source of debate but it might be beneficial [8]. The RCC is performed when the cervix is dilated with fetal membranes protruding into the cervical canal or past the cervical canal. The cervical changes and prolapsed membranes are identified by transvaginal ultrasound or speculum examination. The insertion is performed in the mid trimester or early third trimester [2,4-8,10]. Before an RCC insertion all contraindications to RCC should be excluded, namely signs of established PTB, evidence of chorioamnionitis, heavy vaginal bleeding, preterm premature rupture of membranes (PPROM), evidence of fetal compromise, major fetal anomalies and fetal death [2,3,8]. The best timing for RCC insertion is unknown and an observation period of 12–24 hours before RCC insertion has been reported to ensure that PTB, abruption, and infection are excluded.

Different techniques of cerclage are described but no one has been shown to be superior [9,11]:

Transvaginal cerclage: The two most common techniques are Shirodkar and McDonald. A Shirodkar suture is a transvaginal purse string suture inserted after bladder mobilization above the level of the cardinal ligaments, and a McDonald suture is inserted lower, at the cervicovaginal junction, without bladder mobilization [5]. The McDonald technique is the most frequently employed and it is technically easier to perform in an emergency situation [8,9]. Application of transverse sutures from the anterior to the posterior parts of the cervix (Wurm technique) has also been described[8].

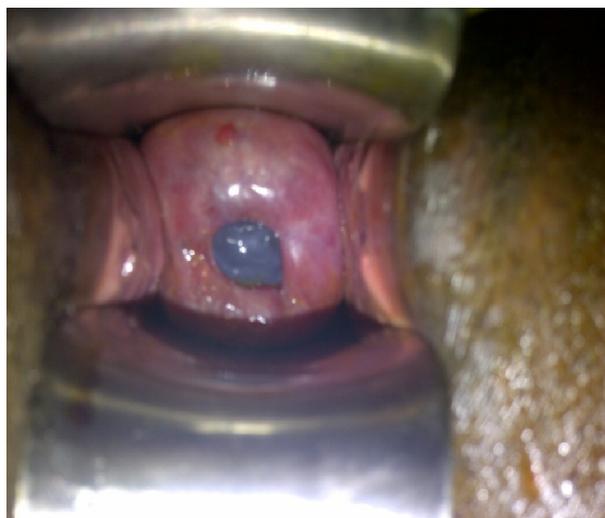
Transabdominal cerclage is often used in cases of a failed transvaginal cerclage. A suture is placed either laparoscopically or via a Pfannenstiel [5].

Occlusion cerclage, a procedure where the epithelial lining of the cervical canal is removed surgically and/or the external cervical is occluded using a continuous suture. It is still being performed despite a lack of evidence for its efficacy [5].

The prolapsed membranes must be replaced in the uterine cavity before the procedure to avoid the high risk of iatrogenic PPRM. This is accomplished least traumatically by placing the patient in the lithotomy position with a steep Trendelenburg tilt, combined with the administration of tocolytics, and allowing gravity to retract the membranes. Bladder overfilling through a urinary catheter can also help to reposition the membranes in the uterus. However, a full bladder tends to reduce exposure of the operative field and push the cervix higher up into the pelvis. Another option is to place a ring forceps or stay sutures of 00 silk or polyglycolic acid around the circumference of the external os, followed by gently pulling and shaking the cervix or traction on all stay sutures gathered in a parachute fashion to help ease the membranes back into the uterus. Invasive methods for reducing the fetal membranes include directly pushing them back with a smooth-surfaced device, such as a Foley catheter balloon (a 25-mL inflated bulb of a size-22 Foley catheter can be used to hold the membranes in the uterus while the cerclage is placed; it is deflated and removed just before the knot is secured), aninflated balloon of the type used for endoscopic preperitoneal dissection, or a metreurynter or mini metreu (a rubber balloon device) inside the cervical os. However, such techniques may be associated with an increased risk of iatrogenic PPRM. Alternatively, transabdominale amniocentesis and amnioreduction under ultrasound guidance can be performed to reduce the volume and pressure of the amniotic fluid in the prolapsed sac, thereby allowing the fetal membranes to retract back into the uterine cavity[8].

In perioperative, the use of short-term tocolytics, especially indomethacin for its anti-inflammatory and tocolytic effects, for 48 hours and the prophylactic administration of broad-spectrum antibiotics for a few days is support. However, it is difficult to recommend or refute the value of these treatments. A single course of corticosteroids is recommended in women with a pregnancy duration of 24 weeks or more to enhance fetal lung maturation. No studies are available comparing general with regional anesthesia for cerclage insertion and the decision should be individualized [8].

In postoperative, it is good practice for the patient to remain in the hospital for a postoperative observation period of at least 24 hours, because of the increased risk of complications such as PPROM, early PTB, abortion, and infection. On discharge, instructions are usually given to limit physical activity, avoid intercourse, and attend a prenatal clinic for assessment at 2-week intervals. Prescribe supplemental progesterone as empiric medical therapy, but it is noteworthy that there is no evidence to confirm that this is helpful. There are no studies assessing the usefulness of fetal fibronectin testing for the prediction of spontaneous PTB following RCC insertion[2,8]. A follow-up by transvaginal scan for cervical length is likely to be helpful in prolonging the pregnancy and thus improving outcome [3], but its efficacy is not assessed [5]. An elective suture removal at 36–37 weeks of pregnancy is preferable given the risk of cervical trauma should spontaneous labor occur with the suture in place, unless an elective cesarean delivery is to be performed with suture removal during the same setting, an evidence of infection, chorioamnionitis, preterm labour or an antepartum hemorrhage[2,8]. In women with PPROM between 24–34 weeks of pregnancy and no infection or PTB, it is advisable to delay suture removal for 48 hours. This allows completion of a prophylactic course of steroids for fetal lung maturation and/or arrangement of an in-utero transfer. However, it is not recommended to delay suture removal until the onset of labor, to avoid the risk of maternal and fetal sepsis. Importantly, delayed suture removal is not beneficial in women with PPROM before 23 and after 34 weeks of pregnancy[8]. The RCC is generally a safe procedure. The risk of perioperative complications is 0,6 % regardless of the indication or diagnosis, the intraoperative complications include anesthetic complications, and the postoperative complications include contractions and bleeding after cerclage placement (either immediate or remote) and fetal death. Other peripartum complications are chorioamnionitis (6.2%), preterm premature rupture of membranes (11-52%), preterm labour (20%), and delivery before 32 weeks' gestational age (8%). Cervical cerclage is associated with a higher rate of maternal side effects (vaginal discharge and bleeding, pyrexia). The caesarean section rates are also significantly higher after cervical cerclage (RR 1.19). These complications are however small and manageable [2,9]. The inherent risks of extending the pregnancy from previability to severe prematurity have to be considered. 40% of pregnant women delivered prior to 28 weeks' gestation. RCC often prolongs the pregnancy from previability to borderline survival in addition to the possibility of long-term adverse outcome related to severe prematurity [9].



*Photo 1: Fetal membranes protruding into the cervical canal.*



*Photo2: Cervix after cerclage by McDonald procedure*

#### 4 CONCLUSION

Actually, the question is no longer whether RCC should be placed but, rather, what the optimal circumstances surrounding its placement should be. The RCC is an effective and safe procedure to prolong gestation in women with advanced cervical changes. Although maternal and neonatal complications associated with rescue cerclage are well known. The decision to insert an RCC should be individualized and undertaken after comprehensive patient counseling and a review of the specific circumstances. The available evidence is limited, so future research are needed and many decisions should therefore be individualized and left to the clinician's discretion.

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