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Case Report
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# "Near miss" maternal morbidity following repeat rescue cerclage for twin pregnancy

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## Abstract

**Objective:** Repeat cervical cerclage is one of the treatment options described in the literature for when the primary cerclage suture fails. However, infectious complications of cerclage placement may be encountered which are more obvious for the newborn. In our presented case, severe acute maternal morbidity was encountered for the sake of prolonging pregnancy.

**Case:** Twenty-seven year old nullipar patient at 23+5 gestational weeks with dichorionic diamniotic pregnancy was admitted to our emergency clinic with complaints of "pain" and "vaginal bleeding". At 18 weeks of pregnancy she had a Shirodkar cerclage procedure indicated by a short cervical length (14 mm) at our hospital. She presented with "bulging of membranes" to a different institution and underwent a repeat cerclage at 23+3 weeks. Chorioamnionitis was suspected and the patient was counselled for a pregnancy termination. After termination of pregnancy, "cardiac arrest" developed. After 2 minutes of resuscitation sinus rythm was obtained. The patient was admitted to the ICU.

**Conclusion:** The role of repeat cerclage is controversial. Efforts should be maximized to rule out underlying intrauterine infection prior to placement of a cerclage suture for there to be a therapeutic benefit of prolonging the pregnancy.

**Keywords:** Cervical cerclage, repeat cerclage, preterm birth, chorioamnionitis, maternal morbidity.

## *Özet:* İkiz gebelik için acil serklajı izleyen "kaybedilmeye yakın *(near miss)*" maternal morbidite

**Amaç:** Yinelenen servikal serklaj, literatürde primer serklaj sütürünün başarısız olduğu durumlar için tanımlanan tedavi seçeneklerinden biridir. Ancak yenidoğan için daha belirgin olan serklaj uygulamasının enfeksiyöz komplikasyonları görülebilir. Çalışmamızda, uzamış gebelikten faydalanmak adına karşılaşılan şiddetli akut maternal morbidite olgusunu sunduk.

**Olgu:** Dikoryonik diamniyotik gebeliği olan 27 yaşında ve 23+5 gebelik haftasındaki nullipar hasta, "ağrı" ve "vajinal kanama" ile acil kliniğimize başvurdu. Olguya, gebeliğinin 18. haftasında hastanemizde kısa servikal uzunluk (14 mm) ile endike Shirodkar serklajı uygulandı. "Membran sarkması" şikayetiyle başvurduğu bir başka kurumda hastaya 23+3 haftada yinelenen serklaj uygulandı. Koryoamniyonit şüphesiyle hastaya gebeliğin sonlandırılması önerildi. Gebeliğin sonlandırılmasının ardından kardiyak arrest gelişti. İki dakikalık resüsitasyon sonrasında sinüs ritmi elde edildi. Hasta yoğum bakım ünitesine sevk edildi.

**Sonuç:** Yinelenen serklajın rolü tartışmalıdır. Uzamış gebeliğin terapötik faydasından yararlanabilmek için, serklaj sütürü uygulamasından önce altta yatan intrauterin enfeksiyon ihtimalini elemek için tüm çaba sarf edilmelidir.

**Anahtar sözcükler:** Servikal serklaj, yinelenen serklaj, erken doğum, koryoamniyonit, maternal morbidite.

## Introduction

Twin pregnancies have a 50% rate of preterm birth (PTB) and 5 times higher risk of neonatal death compared to singleton pregnancies. Various treatment modalities have been attempted to delay the time of delivery to prevent PTBs in twin gestation. Cervical cerclage for twin pregnancy is not routinely indicated but appears beneficial for patients with a history of PTB or very short and/or dilated cervix.[1] Second trimester cervical length in twin pregnancies is similar to that of singletons, but a higher ratio of twins have cervical length <15 mm (4.5% versus 1.5%). Cervical length <15 mm is associated with 30% risk for PTB.[2] Cervical cerclage placement inherently beholds complications. The most common; preterm premature rupture of membranes (PPROM), chorioamnionitis, preterm labor, cervical trauma, suture displacement, and bleeding. Maternal mortality is rare.

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We hereby present a case of twin pregnancy where a repeat cerclage placement endangered the life of the mother.

## Case Report

Twenty-seven year old nullipar patient at 23+5 gestational weeks with dichorionic diamniotic pregnancy was admitted to our emergency clinic with complaints of "pain" and "vaginal bleeding". Her vitals were stable and she did not have a fever; however, she had moderate abdominal tenderness. Her medical history revealed that she had a uterine septum resection followed by repeated IVF treatments for infertility two years ago. At 18 weeks of pregnancy she had a Shirodkar cerclage procedure indicated by a short cervical length (14 mm) on ultrasonography at our hospital. She presented with "bulging of membranes" to a different institution and underwent a repeat cerclage at 23+3 weeks. Her primary cerclage (Braun, Aesculap, Tutlingen, Germany) was removed and replaced with a prolene stitch. Upon her presentation to our institution at 23+5 gestational week, her obstetric ultrasound verified fetal cardiac activity and normal amniotic fluid volume in the non-presenting twin. The presenting fetus had decreased amniotic fluid and a fetal heart beat was not present. The cervical length was: 18 mm. The speculum examination yielded no vaginal bleeding and her cerclage suture appeared intact with a closed cervical os. Her blood analysis revealed that she had mild leucocytosis (white blood cell count: 10,300/μL), thrombocytopenia (platelets: 11,000/μL) and an elevated C-reactive protein (81 mg/L) level. Chorioamnionitis was suspected and the patient was counselled for a pregnancy termination. An adequate supply of blood products were prepared in consultation with the blood bank and the intensive care unit (ICU) with the anticipation of imminent bleeding. The cerclage suture was removed and after oxytocin augmentation the pregnancy was terminated within hours. The cervical os contracted after the first placenta was delivered. In order to remove the second placenta the patient was given anesthesia. A Bakri balloon was inserted into the uterine cavity post-procedure because of postpartum hemorrhage. During awakening from anesthesia, the patient developed "cardiac arrest". After 2 minutes of resuscitation sinus rythm was obtained. The patient was admitted to the ICU. In the ICU she developed new-onset fever, tachycardia and hypotension. Multi-organ dysfunction and critical sepsis developed (INR: 2.95, procalcitonin 166 ng/mL). Multidrug resistant *Escherichia coli* grew in blood cultures. After 7 days of meticulous and supportive antibiotic treatment she was discharged with no sequelae.

## Discussion

Cervical cerclage in twin pregnancies remains controversial. Although there are some favorable results, a meta-analysis published in 2015 concludes that "cerclage cannot currently be recommended for clinical use in twin pregnancies with a maternal short cervical length in the second trimester".[3] Large trials are still necessary.

Commonly reported complications of cervical cerclage include PPROM, chorioamnionitis, preterm labor, cervical trauma, suture displacement, bleeding and cerclage failure. Cerclage failure can occur following primary cerclage. Frequently no further intervention is performed. However, one possible treatment modality that can be considered (if the diagnosis of PPROM/chorioamnionitis is ruled out in the beginning) is the placement of a "repeat cerclage" suture such as the occasion in our case. However, the patient in our report went on to develop chorioamnionitis and maternal sepsis. This was possibly because of a subclinical infection. The management in this case involved the cutting of the cerclage suture and induction of prompt delivery. The incidence of subclinical intra-amniotic infection in patients with mid-trimester cervical dilation which was demonstrated by amniotic fluid cultures has been reported as high as 51%.[4] On the other hand, performing a cervical cerclage in patients without intraamniotic infection increases the possibility of achieving a favorable pregnancy outcome.

In the study by Song et al. 22 patients with prolapsed membranes after cerclage placement were evaluated.[5] The median gestational age at delivery, birthweight and survival rates were significantly higher in the repeat cerclage group compared to the bed rest group.[5] However, there was an increase in the incidence of PPROM associated with emergency cerclage placement[6] and chorioamnionitis was described in 12.5–50% of cases by Namouz et al.[7]

It is apparent that the incidence of "neonatal" complications following emergency cervical cerclage are high. This is notably important where some associated co-factors could be aggravated in the presence of infection which in turn worsens the risk of long-term handicap in preterm neonates. One of the largest studies

which reports infectious complications of cervical cerclage placement concludes that "when the cerclage procedure is performed after the twentieth week of gestation, there is a higher incidence of chorioamnionitis, and intrauterine infection".[8] In our case the repeat cerclage was performed at 23 weeks of gestation which we believe caused the incidence of septic maternal outcome.

In our presented case "maternal sepsis" and severe acute maternal morbidity was encountered for the sake of prolonging pregnancy. This scenario was preceded by a subclinical intrauterine infection which rapidly developed into a full blown infectious state. The World Health Organization describes severe acute maternal morbidity (SAMM), also known as "near miss", as "a very ill pregnant or recently delivered woman who would have died had it not been that luck and good care was on her side".[9] When we searched the literature for complications following cerclage procedure, we came across exclusively "neonatal outcomes". No maternal morbidity or mortality was reported in the last 5 years.[10,11] There are randomized controlled trials and 3 Cochrane systematic review articles and various meta-analysis evaluating the role of cerclage, often with conflicting results.[12–14] The value of repeat rescue cerclage is controversial and we wanted to contribute to the literature in reporting this case and help create vigilance in underlining that obstetrics is the science which takes care of both the mother and her future babies.

## Conclusion

The role of repeat cerclage is controversial. Efforts should be maximized to rule out underlying intrauterine infection prior to placement of a cerclage suture for there to be a therapeutic benefit of prolonging the pregnancy.

**Conflicts of Interest:** No conflicts declared

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