



## Case report

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## AMNIOREDUCTION AND EMERGENCY CERCLAGE WITH BULGING MEMBRANES

### SUMMARY

Emergency cerclage in the second trimester is a recognized treatment for a dilated cervix. In cases with advanced cervical dilatation and bulging membranes, it has been referred to as “heroic cerclage” due to its poor success rate.

We report a case of a successful cerclage performed in a 25-year-old woman in her second pregnancy. On admission, cervical dilatation was 4 cm and membranes were bulging. There were no clinical and laboratory signs of infection. Although the cervical cerclage in advanced cervical dilatation with bulging membranes is controversial, we suggest and perform the “heroic” cerclage with amnioreduction at the same time. The postoperative course with intensive intravenous tocolysis and broad-spectrum antibiotics were without complications and she was dismissed in the 24<sup>th</sup> week of pregnancy.

The need for cerclage in the second trimester of pregnancy is not rare. According to our experience, we advise cervical cerclage with amnioreduction in pregnant women with advanced dilatation and bulging membranes in the second trimester.

Despite generally bad prognosis, successful outcome is not impossible, along with adequate antibiotic therapy, intensive tocolysis and bed rest. Postoperative transvaginal ultrasound cervical examination is likely to be helpful in prognosis of the pregnancy outcome.

*Keywords:* cerclage, amniocentesis, amnioreduction, miscarriage

### INTRODUCTION

Cervical incompetence is, in the diagnosis, traditionally surgically treated by cerclage, between the 12<sup>th</sup> and 15<sup>th</sup> week of pregnancy, or urgently in the second trimester. Unexpected cervical incompetence is usually followed by lower abdominal pain, pain in the back or as premenstrual pain with increased vaginal secretion and sometimes blood (1). By speculum examination, the burst of fetal membranes should be excluded. If fetal membranes are visible and are bulging into the vagina, the prognosis of

neonatal survival is dramatically decreased, but emergency cerclage can be attempted. Infection is the most frequent cause and complication that follows this state, so it is of importance to find the signs of infection (increased temperature, increased number of leukocytes and increased C-reactive protein-CRP) (2). Amniocentesis in such cases is not a frequent procedure, but can contribute to adequate diagnosis of intraamniotic infection (culture of fetal water), aimed therapy, and the decrease in intra-amniotic pressure facilitates the reposition of bulging fetal membranes and insertion of cerclage (3).

### Case report

A twenty-five-year-old woman, in her second pregnancy, was admitted to hospital in the 21<sup>st</sup> week of the pregnancy. Her first pregnancy terminated with miscarriage at the 18<sup>th</sup> week of gestation. The main discomfort on admission was lower abdominal pain. Clinical treatment reported the cervix to be shortened to 1 cm, cervix dilated by 4 cm, with the membranes bulging into the vagina (Figure 1).



Figure 1. Bulging membranes

On reception, the woman was afebrile, without the evidence of infection. Ultrasound reported pregnancy age and fetal vitality and excluded large congenital anomalies. The same day, after the consultation about the way of performance, intervention risks and obtained written consent, amniocentesis with amnioreduction and following cerclage were performed. Fetal water (30 ml) was sent to karyotyping and microbiological analysis. After amniocentesis, the fetal membranes were gently repressed with Foley catheter with 30 ml water in the balloon. The cervical edges were identified and grasped and modified Shirodkar's suture was inserted (Figure 2).

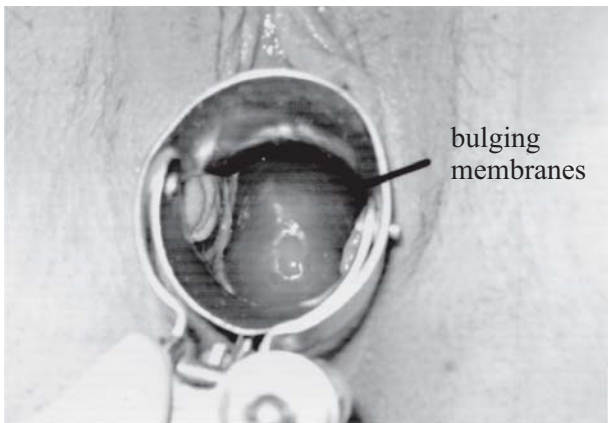


Figure 2. Cervix remodeled by cerclage

Before the intervention, the analysis of blood and C-reactive protein (CRP) was carried out, urine was taken for urinoculture, and during the intervention, vaginal and cervical swabs were taken.

Postoperatively, she was treated with continuous intravenous tocolysis (hexaprenalin) for 48 hours. Meantime, intravenous antibiotic therapy with 2g of ceftriaxon daily and 500mg of metronidazole per 8 hours for three days was administered. The results taken before operation showed the absence of vaginal, urinal and intraamniotic infection. Clinically, she was afebrile without lower abdominal pain. Repeated laboratory and microbiological analyses on the 10<sup>th</sup> day after the intervention were within referential values. Repeated transvaginal ultrasound examinations pointed out well-formed cervix (25 mm long), without funneling signs (Figure 3).



Figure 3. Ultrasound presentation of the cervix remodeled by cerclage

The pregnant woman had accurate fetal karyotype, blood and microbiological analysis, and was discharged from hospital in the 24<sup>th</sup> week of pregnancy to home treatment with oral tocolytic therapy and bed rest treatment. During the control, in 28<sup>th</sup> week of pregnancy, transvaginal ultrasound examination showed that the cervix was 20-25 mm long and that there were no funneling signs.

In the 35<sup>th</sup> week of pregnancy, she was received for abdominal pains, confirmed by cardiotocography. Intravenous tocolysis was attempted, but after 12 hours there was a preterm premature rupture of membranes (PPROM), which indicated removing of cerclage and terminating of intravenous tocolysis. Because of pelvic fetus presentation, delivery was finished with Caesarian section. Vital male baby was born, 2700 g heavy and 48 cm long, with Apgar score 8. Because of prematurity, the newborn baby was placed in neonatal intensive care. Postoperative recovery of the mother was regular. Generally in good state, both mother and child were discharged after 8 days.

## DISCUSSION

Incompetence of uterine orifice was recognized as the cause of miscarriage in the second trimester or early preterm delivery. Classical description of pregnancy loss caused by cervical incompetence is painless miscarriage or delivery, but that is rare. More frequent cervical shortening and opening are followed by painful contractions. The probable mechanism is that the degree of cervical incompetence is insufficient to cause sudden pregnancy loss, exposes the fetal membranes to vaginal and cervical bacteria – infection, responsible for the onset of miscarriage or labour (1). Emergency cerclage in the second trimester is controversial treatment of cervical dilatation. In cases of advanced dilatation of uterus orifice and prolapsed fetal membranes, an emergency cerclage is described, that is the heroic cerclage referring to its uncertain success (3). Cervical cerclage in advanced cervical dilatation with bulging membranes in the second trimester is controversial. The outcome of these pregnancies is frequently poor, but without cerclage, miscarriage or preterm delivery is almost always inevitable. Survival rate following emergency cerclage varies from 12.5 – 63% in women with cervical dilatation  $\geq$  3 cm. With bulging membranes and more advanced dilatation, the outcome is worse (1).

Amniocentesis is not a common treatment together with emergency cerclage, but decrease in intraamniotic pressure can facilitate the reposition of fetal membranes and decrease the danger of intraoperative damaging. Simultaneous cariotypisation and microbiological analysis of fetal water can contribute to successful sequel of pregnancy (3).

Infection is the main cause of miscarriage in the second trimester and therefore the infection screening before cerclage insertion can be the prognostic outcome factor. However, in cases of bulging membranes, postponing of the intervention increases the risk of infection, because of longer contact of fetal membranes and vaginal bacteria (4).

Transvaginal ultrasound examinations after the cerclage insertion can help predict the outcome of pregnancy before the 36<sup>th</sup> week if there is the funneling above the suture.

Although some authors have seen improvements in the state of the cervix after ultrasound-indicated cerclage, this has not been reported after cerclage with advanced cervical dilatation (emergency cerclage) (5).

However, it is suggested that despite an advanced degree of cervical dilatation, the insertion of cervical suture may lead to remodeling of the cervix. The postoperative findings of cervical closure above and below the suture support this theory (6).

Amnioreduction, repositioning of fetal membranes and forming the cervix, reduce the risk of exposure to vaginal bacteria. Simultaneous antibiotherapy with correction, according to antibiogram, reduce the risk of inflammatory process responsible for cervical opening, onset of contractions and PPRM. This allows the cervix, as a dynamic organ, the functional reconstruction (to close and lengthen) during pregnancy (7).

According to our experience, we suggest cervical cerclage with amnioreduction in pregnant women with advanced dilatation and bulging membranes in the second trimester.

Despite its overall poor prognosis, a successful outcome is not impossible.

Postoperative transvaginal ultrasound examination of the cervix is likely to be helpful in predicting the outcome of the pregnancy (7).

## CONCLUSION

The need for cerclage in the second trimester of pregnancy is not rare. According to our experience, we advise cervical cerclage with amnioreduction in pregnant women with advanced dilatation and bulging membranes in the second trimester (10).

Despite generally bad prognosis, successful outcome is not impossible, along with adequate antibiotic therapy, intensive tocolysis and bed rest. Postoperative transvaginal ultrasound cervical examination is likely to be helpful in prognosis of the pregnancy outcome (8, 9, 11).

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## AMNIOREDUKCIJA I URGENTNI SERKLAŽ KOD PROLABIRANOG VODENJAKA

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### SAŽETAK

Slabost materičnog ušća je relativno česta pojava u trudnoći, praćena spontanim pobačajem ili prevremenim porođajem. Ispravno postavljena dijagnoza pre trudnoće predstavlja indicaciju za planski serklaž između 12. i 15. nedelje trudnoće. Terapijski problem predstavlja neprepoznata slabost materičnog ušća koja najčešće dovodi "neme" dilatacije materičnog ušća i potrebe za urgentnim serklažom. Prikazujemo slučaj 25 godina stare drugorotke, kod koje je prethodna trudnoća dovršena spontanim pobačajem u drugom trimestru. Primljena je u 21. nedelji trudnoće zbog bolova u donjem delu trbuha. Posle obavljenog kliničkog, ultrazvučnog i laboratorijskog pregleda, pri dilataciji materičnog ušća od 4 centimetra, dužini grlića od 1 centimetra i prolabiranih plodovih ovojaka, uz pismenu saglasnost, urađena je amniocenteza sa amnioredukcijom, repozicija plodovih ovojaka i serklaž. Postoperativno tretirana antibioticima i tokoliticima. Opuštena je u 24. nedelji trudnoće na kućni tretman. Porođena je u 35. nedelji trudnoće carskim rezom zbog karlične prezentacije i prevremenog preterminskog prsnuća plodovih ovojaka.

**Ključne reči:** serklaž, amniocenteza, amnioredukcija, spontani pobačaj