

Modified transabdominal cervico-isthmic cerclage: analysis of 16 cases

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Abstract

Objective: The aim of the study is to evaluate 16 cases retrospectively who underwent modified transabdominal cervico-isthmic cerclage.

Methods: The cases that had unsuccessful vaginal cerclage history and underwent abdominal cervico-isthmic cerclage were analyzed retrospectively. Sociodemographic characteristics of the cases, problems encountered during and after the operation and gestational outcomes were recorded by investigating patient files. Descriptive methods were used for the statistical analysis of the data.

Results: None of the cases developed intraoperative complication. Mean week of gestation and mean week of delivery for the operation were found as 14±4 and 34.4±6 days, respectively. Gestation reached to 34 weeks and above in 81.25% of the cases. Premature rupture of membrane developed in two cases and these pregnancies were terminated with anterior hysterectomy. The rate of complication at early period after the operation was found as 12.5%. Preterm labor occurred in one case after 12 weeks (at 29 weeks of gestation) following the operation; there was no response to the tocolytic treatment, therefore cesarean section was performed. All patients had cesarean section and the rate of live birth after the operation was 87.5%.

Conclusion: Modified transabdominal cervico-isthmic cerclage practice is considered as an initiative to get successful perinatal outcomes in cases which are inappropriate for vaginal approach.

Keywords: Live birth, modified transabdominal cervico-isthmic cerclage, pregnancy.

Özet: Servikal yetmezlikte modifiye transabdominal serviko-istmik serklaj: 16 olgunun analizi

Amaç: Çalışmanın amacı modifiye transabdominal serviko-istmik serklaj uygulanan 16 olgunun retrospektif olarak değerlendirilmesidir.

Yöntem: Başarısız vajinal serklaj öyküsü bulunan ve abdominal serviko-istmik serklaj uygulanan olgular retrospektif olarak analiz edildi. Olguların sosyodemografik özellikleri, operasyon esnasında ve sonrasında karşılaşılan sorunlar ile gebelik sonuçları hasta dosyaları incelenerek kayıt altına alındı. Verilerin istatistiksel analizi için tanımlayıcı metodlar kullanıldı.

Bulgular: Olguların hiçbirinde intraoperatif komplikasyon gelişmedi. Operasyonun uygulandığı ortalama gebelik haftası 14±4 gün, ortalama doğum haftası 34.4±6 gün olarak tespit edildi. %81.25 olguda gebelik 34 hafta ve üzerine ulaştı. İki olguda erken membran rüptürü gelişti ve bu gebelikler anterior histerotomi ile sonlandırıldı. İşlem sonrası erken dönemde komplikasyon gelişme oranı %12.5 olarak tespit edildi. Bir olguda operasyondan 12 hafta sonra (29. gebelik haftasında), preterm eylem ortaya çıktı, tokolitik tedaviye yanıt alınmadı ve sezaryen ile doğum yaptırıldı. Tüm hastalara sezaryen ile doğum yaptırıldı ve işlem sonunda eve canlı bebek götürme oranı %87.5 olarak tespit edildi.

Sonuç: Modifiye transabdominal serviko-istmik serklaj uygulaması, vajinal girişim için uygun olmayan olgularda, başarılı perinatal sonuçlar alınabilecek bir girişim olarak görünmektedir.

Anahtar sözcükler: Gebelik, modifiye transabdominal serviko-istmik serklaj, canlı doğum.

Introduction

“Cervical insufficiency” or “early cervical dilatation” is a significant reason for gestational losses at the second trimester. It is a condition resulting with the rupture of

membranes and the removal of fetus not reached to maturity to live yet following the painless dilatation of cervix at second trimester or early third trimester of the pregnancy.^[1] While its incidence is not known clearly, it

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is observed in 0.1–1% of all pregnancies and in 8% of women who have a history of two or more losses of pregnancy.^[2] Its diagnosis is usually established with anamnesis and clinical examination. While hystero-graphy, cervical dilators or catheter balloons can be used for pre-pregnancy diagnostic purposes, the only diagnostic method during pregnancy is transvaginal ultrasonography.

The success of non-surgical methods such as bed rest, pesser practice and pharmacological agents preferred for the treatment of cervical insufficiency has not been revealed clearly, and the treatment method for cervical insufficiency with proven activity today is to apply closing suture called cerclage to the cervix through transvaginal or abdominal way.^[3]

Transvaginal cerclage has been used since it was recommended in 1950s by Shirodkar from India and McDonald from Australia, and its success rate is high.^[4,5] As transvaginal cerclage cannot be applied to those having cervical insufficiency history and congenital short cervix and those surgically amputated cervix, placing cerclage to cervico-isthmic region transabdominally, which is known as transabdominal cervico-isthmic cerclage, was recommended by Benson and Durfee in 1965.^[6] This procedure was made more popular by Novy, and by extending its indications, it was recommended to apply it to previous failed cerclage procedures in particular and to wide conizations causing tissue loss in the cervix and to the cases with cervicovaginal fistula developing after miscarriage.^[7] With this method, fetal survival rate varying between 82 and 95% was reported.^[8,9]

In our study, we present the retrospective analysis of the patients who underwent modified transabdominal cervico-isthmic cerclage procedure in our clinic.

Methods

The results of 16 patients, who admitted to the Gynecology and Obstetrics Department of the Faculty

of Medicine of Firat University between 2003 and 2014, required abdominal cervical cerclage and underwent modified transabdominal cervico-isthmic cerclage, were evaluated retrospectively. The ages, number of pregnancy and weeks of gestation of the patients were recorded.

All patients were applied partially modified version of abdominal cervico-isthmic cerclage, defined by Benson and Durfee.^[6] In brief, the operation was applied under general anesthesia and the abdomen was reached with transverse incision. After reaching abdomen, anterior peritoneum in the cervico-isthmic area was dissected and without dissecting uterine vessels laterally, 5 mm Mersilene tape was passed through myometrium in the cervico-isthmic area and fastened up in the front. All patients were administered 1 g cefazolin prophylaxis before the procedure and bed rest and hydration treatment were applied after the procedure. The complications developed during and after the procedure were found from the operation notes. Definitive methods were used for statistical analysis.

Results

The demographic characteristics and the operation findings and results of the patients who underwent modified transabdominal cervico-isthmic cerclage are shown in the **Table 1**. Emergency cerclage was not applied to any patient. Presence or absence of congenital cervical hypoplasia was not detected in any patient and it was found that all patients had the history of unsuccessful vaginal cerclage. Only one case had a living child. No major complication was found in any patient during abdominal cerclage procedure; also, no complication developed during cesarean section operations in the same patients. Mean week of gestation and mean week of delivery for the operation were found as 14 ± 4 and 34.4 ± 6 days, respectively. Gestation reached to 34 weeks and above in 81.25% of the cases. Premature rupture of

Table 1. Demographic characteristics and operation findings and results of the cases.

Number of cases	16
Age (year)	27.6±5
Mean number of pregnancy	3.4±2
Mean week of gestation during the operation	14±4
Mean week of gestation during the delivery	34.4±6
Perinatal outcome	Premature preterm labor and delivery in one case

membrane developed in two cases. These pregnancies were terminated with anterior hysterotomy due to the development of premature membrane rupture and anhydramnios after 4 days following the operation (17 weeks and 3 days) in one case and after 4 weeks following the operation (20 weeks and 4 days). Preterm labor occurred in one case after 12 weeks (at 29 weeks of gestation) following the operation; there was no response to the tocolytic treatment, therefore cesarean section was performed. All patients had cesarean section and the rate of live birth after the operation was 87.5%.

Discussion

In the diagnosis of cervical insufficiency, obstetric history has still been the most significant detail and classically, patients have the history of repeating second trimester pregnancy loss. Due to the non-availability of standardization in the diagnostic methods, the rate of performing cerclage operation varies between 1/180 and 1/1800 per delivery.^[10] When the studies performed are analyzed, it is seen that excessive dilatation of the cervix during pregnancy termination, and traumatizing cervix with obstetric lacerations and operations such as conization and loop electrosurgery excision procedure (LEEP) are the most significant reasons of the cervical insufficiency.

The treatment of cervical insufficiency is surgical and it includes the reinforce of weak cervix with a kind of purse string suture. While applying cervical suture after first trimester in a planned way is called prophylactic (primary) cerclage, applying it after monitoring cervical changes is called therapeutic (secondary) cerclage and applying it after advanced effacement-dilatation and the formation of prolapsed membranes is called emergency (tertiary) cerclage.^[11] We applied primary cerclage to all our patients.

Abdominal cerclage can be before or during pregnancy.^[12] It provides a better field of vision during pre-conceptional period and it also has less risks such as bleeding. It is not preferred to apply cerclage after the first trimester because it becomes difficult to reach isthmus due to growing corpus and the manipulations to be done on the uterus may cause gestational complications. Even though there is no randomized studies comparing the success of preconceptional and postconceptional applications, in a meta-analysis reviewing abdominal cerclage cases published between 1990 and 2013 report-

ed similar live birth rates.^[13] We applied cerclage during postconceptional period to all our patients because the patients were referred to our hospital during their post-conceptional period and mean cerclage week was 14±4.

Compared to vaginal cerclage, abdominal cerclage has superiorities such as placing suture to an upper location at the level of internal os, decrease in the risk of suture migration, absence of any foreign body which will cause infection in the vagina, and prevention of cervical insufficiency by the suture left in its position for the further pregnancies.^[14] The most significant disadvantage of this method is that the laparotomy is required twice during the pregnancy. In our two patients, pregnancy was terminated by performing anterior hysterotomy due to the development of premature rupture of membrane and anhydramnios.

The major intraoperative complication seen in the patients who underwent abdominal cerclage is the development of bleeding as a result of traumatized adjacent vessels and this complication can be decreased by applying the surgical intervention during the preconceptional period where vessels are thinner.^[15] The complications defined in case series or case reports are fetal death, intrauterine growth retardation, suture migration, infection, premature labor, premature rupture of membranes, uterine rupture and rectovaginal fistule.^[16,17] In our series, two patients had premature labor due to the premature rupture of membrane and anhydramnios after the procedure and one patient had premature labor due to inevitable labor at 29 weeks of gestation. Since it was not required to lateralize uterine walls due to the modified technique applied during the procedure, no major bleeding occurred associated with the trauma of these vessels. Another superiority of modified transabdominal cervico-isthmic cerclage procedure is the absence of migration risk as the suture passes through the tissue.

In our study, we administered no medication such as 17- α hydroxyprogesterone routinely to the patients who underwent cerclage during the pregnancy. Tocolysis was applied only in one patient after labor started, but it was an unsuccessful attempt. Therefore, the success offered in the study only depends on the surgical method.

All viable pregnancies were ended with cesarean section. Uterus incisions were carried out over the cerclage suture. As all our patients were planning pregnancy

again, the suture was not removed during the cesarean section. It is recommended in other studies to keep the suture in its location when patients plan pregnancy again and even when they are not sure if they want pregnancy.^[18] We could not reach the information on the obstetric histories of our patients in their further lives.

Conclusion

Our study is retrospective and it has no separate control group. This is the limitation of our study. On the other hand, in cases candidate for the abdominal cerclage, planning a prospective randomized controlled study is not ethical. Our study shows that high fetal survival rate can be achieved together with low complication rate thanks to the modified transabdominal cervico-isthmic cerclage.

Conflicts of Interest: No conflicts declared.

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