

**Cervical Cerclage Application: A Retrospective Analysis****Servikal Serklaj Uygulaması: Retrospektif Analiz**

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**ÖZET**

**Amaç:** Servikal yetmezliğin tedavisinde en yaygın kullanılan yöntem serviksi kapatıcı sütün konmasıdır. Çalışmamızda servikal serklaj uyguladığımız olguları ve gebelik sonuçlarını değerlendirmek amaçlandı.

**Gereçler ve Yöntem:** Hastanemizde 2007-2012 yılları arasında servikal yetmezlik tanısı konulan, McDonald tekniği ile serklaj yapılan hastaların gebelik sonuçları retrospektif olarak değerlendirildi. Profilaktik, terapötik ve acil serklaj uygulanan tüm hastalar (n=41) çalışmaya dahil edildi. Daha önceden en az iki ve üzeri, sebebi bilinmeyen, servikal yetmezliğe bağlı olduğu düşünülen, spontan erken doğum ve ikinci trimester gebelik kaybı hikâyesi olan, 14-16. gebelik haftalarındaki hastalara profilaktik servikal serklaj uygulandı (n:33). Seri servikal kanal uzunluğu takibine alınan hastalarda ölçüm 15 mm ve altında ise terapötik serklaj yapıp, yatak istirahati önerildi (n:6). Servikal açıklığı olan 2 olguya acil serklaj uygulandı (n:2). Hastaların yaşı, gebelik haftaları, gravida, parite, vücut kitle indeksi, gebelik sonuçları kaydedildi

**Bulgular:** Hastaların ortalama yaşı 28,5±4,5 idi. Çalışmamızda serklaj uygulanan 41 hastadan 39'u tekil, 2'si ikiz gebelikti. 33 hastamıza profilaktik, 6'sına terapötik, 2 hastaya da acil serklaj operasyonu yapılmıştır. Profilaktik serklaj yapılan 33 hastanın 18 (%54.54)'inde miad doğum gerçekleşmiş, 10'unda preterm eylemle, 5 tanesi abortusla sonlanmış. Acil serklaj yapılan 2 hastanın her ikisinde de preterm doğum gerçekleşmiştir. 6 terapötik serklaj yapılan hastanın 2'si terme ulaşmış, 4 tanesi preterm doğum yapmıştır (2 tanesi ikiz gebeliktir).

**Sonuç:** Profilaktik serklaj uygulanan hastaların %54'ü terme ulaşmıştır.

**Anahtar Kelimeler:** Servikal serklaj, servikal yetmezlik, transvaginal ultrason, gebelik sonuçları

**ABSTRACT**

**Aim:** The most widely used treatment method in cervical insufficiency is the application of a suture that closes the cervix. The aim of this study is to evaluate the cases which were applied cervical cerclage, and the outcomes of their pregnancies.

**Material and Methods:** The pregnancy outcomes of patients who were diagnosed with cervical insufficiency during 2007–2012 in our hospital and were applied cerclage with McDonald method were evaluated retrospectively. All the patients (n=41) who were applied prophylactic, therapeutic and emergency cerclage were included in the study. For patients (n=33) who had previously at least two or more spontaneous preterm deliveries and second trimester pregnancy losses, for reasons unknown, but thought to be related cervical insufficiency, prophylactic cerclage was performed during the 14-16<sup>th</sup> weeks of pregnancy. If the measurement was ≤ 15 mm in patients monitored for cervical canal length, therapeutic cerclage was performed, and bed rest was suggested (n=6). Emergency cerclage was performed on 2 patients with cervical opening (n=2). Age of the patients, weeks of pregnancy, gravidity, parity, body-mass index, and pregnancy outcome were recorded.

**Results:** The mean age of the patients was 28.5±4.5. Of the 41 patients who were applied cerclage in our study, 39 were singular and 2 were twin pregnancies. 33 patients were applied prophylactic, 6 were therapeutic and 2 were emergency cerclage operations. Of the 33 patients applied prophylactic cerclage; 18 patients gave birth at term (54.54%), 10 were preterm delivery, and 5 resulted in abortion. Both of the 2 patients with emergency cerclage had preterm delivery. Of the 6 therapeutic cerclage patients; 2 reached term, 4 had preterm delivery (2 were twin pregnancies).

**Conclusion:** 54% of the patients who were applied prophylactic cerclage reached term.

**Key Words:** Cervical cerclage, cervical insufficiency, trans-vaginal ultrasonography, pregnancy outcome

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## Introduction

Cervical insufficiency or early cervical dilatation; is a condition resulting in the birth of the fetus during the second trimester following a painless dilatation, due to traumatic injuries of the cervix (deliveries, undergone an unsuccessful cerclage operation, forced dilatations during curettage) or neuromuscular insufficiency (1). Its incidence rate is approximately 0.1-1.8% (2). The structure of the cervix is richer in connective tissue rather than muscle and is insensitive to contractions. Cervical insufficiency can be seen in 15% of the fetal losses between 16th -28th weeks (3).

Transvaginal ultrasonography is an important diagnostic tool for the assessment of the cervix (4). Apart from the pregnancy period, the most widely used diagnostic tool is the passage of number 8 Hegar boogies without any resistance through the cervical canal during the luteal phase (1).

The most commonly used method in treatment of cervical insufficiency is the placement of a suture, transvaginal or transabdominal, to occlude the cervix. The basic principle is to strengthen the cervix. Either Shirodkar or more commonly McDonald suture surgery is performed. The suture applied to patients diagnosed with cervical insufficiency without any changes in the cervix was defined as prophylactic cerclage, the procedure after changes in the length of the cervix was defined as therapeutic cerclage, and the procedures after the effacement and dilatation occurred in the cervix was defined as an emergency (tertiary) cerclage (5).

The aim of this study is to evaluate the cases which were applied cervical cerclage, and the outcomes of their pregnancies.

## Material and Methods

The pregnancy outcomes of patients who were diagnosed with cervical insufficiency during 2007–2012 in our hospital and were applied cerclage with McDonald method were evaluated retrospectively. All the patients (n=41) who were applied prophylactic, therapeutic and emergency cerclage were included in the study.

The suture applied to patients diagnosed with cervical insufficiency without any changes in the cervix was defined as prophylactic cerclage, the procedure after changes in the length of the cervix was defined as therapeutic cerclage, and the procedures after the effacement and dilatation occurred in the cervix was defined as emergency cerclage.

For patients who had previously at least two or more spontaneous preterm deliveries and second trimester pregnancy losses (n=33), for reasons unknown, but thought to be related cervical insufficiency, prophylactic cerclage was performed during the 14-16th weeks of pregnancy. If the measurement was  $\leq 15$  mm in patients monitored for cervical canal length, therapeutic cerclage was performed, and bed rest was suggested (n=6). Emergency cerclage was performed on 2 patients with cervical opening (n=2). Age, gestational week, gravidity, parity, body mass index and pregnancy outcome of the patients were recorded.

## Results

Forty one patients who were applied cerclage were included in the study. 33 of these patients had prophylactic, 6 had therapeutic and 2 had emergency cerclage. Only two were twin pregnancies. 2 patients had funneling signs (Table 1). The age of the patients ranged from 19 to 38. The cerclage was applied between 11th and 26th weeks. Cervical length was less than 25 mm in 6 of the patients. Cervical culture produced Klebsiella for 2 patients, Ureoplasma for 1 patient and Candida for 1

patient (Table 2). 10 of our patients developed vaginal bleeding and 1 had membrane rupture.

**Table 1:** Demographic characteristics of the patients

| Patient Characteristics (km/m <sup>2</sup> ) | Findings   |
|--|------------|
| Age (year)                                   | 28.5±4.5   |
| BMI* of the patients                         | 28.5±4.16  |
| Gestational week                             | 15.46±3.93 |
| Gravida                                      | 3.58±1.58  |
| Parity                                       | 0.97±1.36  |
| Abortion history ( 2 and more)               | 25(60.97%) |
| Cervical length < 25 mm                      | 6 (14.63%) |
| Those with funneling signs                   | 2 (4.80%)  |
| Those with (+) cervical culture              | 4 (9.70%)  |

\*Body mass index

**Table 2:** Cerclage Types, Delivery Weeks, Birth Weights

|                     | Findings (n%) |
|---------------------|---------------|
| Cerclage types      |               |
| Prophylactic        | 33 (80.48%)   |
| Therapeutic         | 6 (14.63%)    |
| Emergency           | 2 (4.87%)     |
| Delivery weeks      |               |
| Before 24 weeks     | 5 (12.90%)    |
| Between 24-34 weeks | 9 (21.95%)    |
| Between 34-37 weeks | 7 (17.07%)    |
| After 37 weeks      | 20 (48.78%)   |
| Birth Weight (g)    | 2121±1221     |

## Discussion

There is no total consensus on the diagnosis, indications and treatment method in the management of cervical insufficiency and cerclage. Nowadays; the most important diagnostic criteria for cervical insufficiency is the patient's obstetric history.

Although it is possible to diagnose a cervical insufficiency by transabdominal, translabial, transvaginal ultrasonographic assessment, assessment of the cervix through transvaginal ultrasonography is the golden standard (4).

Cervical length is very useful to us in predicting preterm delivery. Berghella et al. have determined the cervical length to be less than 25 mm in preterm deliveries (6). Also in our study; in 6 patients who had one previous miscarriage in the second trimester, due to the cervix length being less than 25 mm during the follow-up period, a therapeutic cerclage was applied. Three of these patients had preterm and three had term delivery. Performing cerclage to the short cervix in the second trimester is especially of great importance, for saving the fetus (7). It is a fact that cerclage contributes to a measurable decrease in preterm delivery rates.

It has been demonstrated that planned and prophylactic purposed cerclage prevents loss of pregnancy in women with at least 2 and more preterm labor loss (6). 33 of the patients included in our study

were women with previous 2 or more second trimester losses. These patients were applied prophylactic cerclage between the 11th and 16th weeks. The outcome was 20 term deliveries, 10 preterm deliveries, and 5 abortions. In a study with 6 groups of large number of participants; the comparisons have shown that performing prophylactic cervical cerclage in the group with at least 3 second trimester losses or preterm deliveries has proven to be beneficial (8). Our study also supports this.

Timing of emergency cerclage is debatable (9, 10). It may be performed between 16th and 26th weeks of pregnancy. If there is an ablation of placenta, fetal ex, a fetal anomaly incompatible with life, a doubt of chorioamnionitis, a cervical dilatation of >4 cm or membrane rupture; emergency cerclage is contraindicated. In a study by Önalın et al. (11); 8 patients were applied emergency cerclage and it was successful in all patients except one. Of the 2 patients we performed emergency cerclage on; one had a preterm delivery on the 30th and the other on the 31st week.

The most widely used cerclage types are the Shirodkar and McDonald methods. These two methods have no precedence over each other. Their usage depends on the experience of the surgeon and the case (11). We employed the McDonald method in our study as the surgical technique, due to it being relatively easier to perform. The suture was deeply placed in line with the internal os, and to facilitate easy removal it was tied at the anterior with long ends. The procedures performed were transvaginal. Although an abdominal cerclage can be performed in cases where a transvaginal cerclage is not sufficient, the patient being exposed to laparotomy twice is the disadvantage of this method.

There is not a common consensus on the usage of tocolytic treatment for prevention of postoperative contractions and antibiotics against the infection risk. It should not be forgotten that chorioamnionitis could be missed due to unnecessary antibiotic usage.

Complications may occur due to the cerclage operation. Bleeding, infection, membrane rupture, cervical lacerations has been reported (12, 13). This should be explained to the patients and their consent should be obtained. Vaginal bleeding occurred in 10 of our patients and 1 patient had a membrane rupture.

The study by İkimalo et al. had resulted with %9.4 abortion, 21.8% preterm delivery and 68.8% term delivery rates (1). Similarly, in our study, we experienced 12.9% abortion, 21.9% preterm delivery and 65% of the patient gave delivery after the 34th week.

As a conclusion; prophylactic cerclage has a great success in preventing preterm labor; if obstetric history indicates two or more second trimester miscarriages, or preterm labor loss. Our study also supports this. Transvaginal measurement of the cervical length during the 16th and 24th weeks is of great importance in the other risk group patients (1 first trimester miscarriage and preterm delivery).

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