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Cervical cerclage with history-based indication in cervical insufficiency: five-year experience in Etlik Maternity Hospital

Serdar Yalvaç, Sertaç Esin, Özgür Koçak, Tuğba Ensari Altun, Ömer Kandemir

Department of Perinatology, Etlik Zübeyde Hanım Gynecology Training and Research Hospital of Health Ministry, Ankara, Turkey

Abstract

Objective: Although history-based indication (prophylactic cerclage) is controversial in the literature, it has been still used widely. Our purpose in this study was to review cervical cerclage cases with history-based indication carried out in our Perinatology Department.

Methods: Those with history-based indication among the cases who had cervical cerclage in our department between January 2007 and May 2013 were analyzed retrospectively. Among 196 cases who undergone cervical cerclage, 156 cases were included to our study who had complete records and gave birth at our hospital.

Results: Mean cerclage practice and weeks of delivery were 13.9±1.7 and 34.7±6.8, respectively. The mean period elapsed from cerclage to delivery was found as 20.7±6.7. In the first week after the procedure, preterm premature rupture of membranes (PPROM) was observed in four (2.5%) cases. Preterm premature rupture of membranes occurred in the late period in 8 (5.1%) cases (mean week of gestation was 31.1±0.1). Preterm labor was observed in 46 (35.9%) cases. Mean birth weight was 2919±803 gram. Early neonatal death was observed in 8 (5.1%) cases, and all these babies were born before 24 weeks of gestation.

Conclusion: Prophylactic cervical cerclage based on history may be useful in patients who have spontaneous second trimester loss. However, complications such as PPROM and bleeding should be paid attention after the procedure, and high risk of preterm labor should be taken into consideration. Randomized studies are required to find out how many losses there should be in previous pregnancies in order to practice cerclage.

Key words: Cervical insufficiency, McDonald cerclage, cervical cerclage with history-based indication.

Servikal yetmezlikte öykü endikasyonlu servikal serklaj: Etlik Doğumevi'nde 5 yıllık deneyim

Amaç: Öykü endikasyonlu (profilaktik serklaj) literatürde tartışılır olmakla birlikte halen yaygın şekilde uygulanmaktadır. Bu çalışmadaki amacımız Perinatoloji Ünitemizde gerçekleştirilmiş olan öykü endikasyonlu servikal serklaj olgularını gözden geçirmektir.

Yöntem: Ocak 2007 - Mayıs 2013 yılları arasında ünitemizde yapılmış olan servikal serklaj işlemlerinden öykü endikasyonlu olanlar retrospektif olarak tarandı. Servikal serklaj uygulanan 196 olgudan kayıt bilgileri tam olan ve doğumunu hastanemizde gerçekleştiren 156 olgu çalışmaya dahil edildi.

Bulgular: Ortalama serklaj uygulama ve doğum haftaları sırası ile 13.9±1.7 ve 34.7±6.8 idi. Serklajdan doğuma kadar geçen süre ortalaması 20.7±6.7 hafta bulundu. Dört hastada (%2.5) işlemden sonraki ilk haftada preterm membran rüptürü (PPROM) gözlendi. Sekiz hastada ise (%5.1) daha geç dönemde PPROM meydana geldi (ortalama gebelik haftası 31.1±0.1 hafta). Kırk altı (%35.9) hastada preterm doğum görüldü. Ortalama doğum ağırlığı 2919±803 gramdı. Sekiz olguda (%5.1) erken neonatal ölüm gözlendi ve bu bebeklerin hepsi 24. gebelik haftası öncesi doğmuşlardı.

Sonuç: Öyküye dayalı profilaktik servikal serklaj, spontan ikinci trimester kaybı olan hastalarda faydalı olabilir. Ancak işlem sonrasında PPROM ve kanama gibi komplikasyonlara dikkat edilmeli, yüksek preterm doğum riski göz önünde bulundurulmalıdır. Serklaj uygulanması için önceki gebeliklerde kayıp sayısının kaç olması gerektiğiyle ilgili randomize çalışmalara ihtiyaç vardır.

Anahtar sözcükler: Servikal yetmezlik, McDonald serklajı, öykü endikasyonlu servikal serklaj.

Correspondence: Dr. Sertaç Esin. Sağlık Bakanlığı Etlik Zübeyde Hanım Kadın Hastalıkları Eğitim ve Araştırma Hastanesi Perinatoloji Bölümü, Ankara, Turkey.
e-mail: sertacesin@gmail.com

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Introduction

Under normal conditions, cervix gets open and cervical effacement increases as it is approached to the end of pregnancy. However, sometimes these changes may start at earlier periods. Typical painless second trimester loss which is called cervical insufficiency may be seen at earlier period where significant contractions are not observed. The availability, definition, diagnosis and treatment of cervical insufficiency are quite controversial.[1-3]

There are 3 significant indications for cervical cerclage which are history, ultrasonographic measurement and physical examination. Until today, there has been no study comparing cases at high risk which did and did not undergo cerclage. There are few randomized studies conducted for history-based cerclage.[1-3] According to the one of these studies which has the highest patient population, there should be at least 3 or more second trimester losses in order to perform elective prophylactic cerclage. However, this result was obtained by subgroup analysis and therefore it is criticized in the literature.[1,4]

As it is seen, there is no consensus about the prophylactic cerclage. Therefore, regional and new studies may contribute to the literature. In this study, cervical cerclages with history-based indication carried out in our center were analyzed retrospectively and the results were reported.

Methods

Our study was carried out in the Perinatology Department of Etlik Zübeyde Hanım Gynecology Training and Research Hospital. The patients who had cervical cerclage in our department between January 2007 and May 2013 were analyzed retrospectively. The patients included to our study were the pregnant women aged 18 to 45 years who had McDonald cerclage with history-based indication. These pregnant women had spontaneous painless 2nd trimester pregnancy losses related with cervical insufficiency at least once in their previous pregnancies. Multiple pregnancies, fetal anomalies, cerclages with ultrasound indication and cerclages applied with physical examination indication under emergency conditions were excluded. Demographic data, patient information, previous and current obstetric history, surgery information, post-procedure complications, delivery and postnatal information were recorded to the study form prepared. Statistical analysis was carried out by SPPS Windows version 20.0 (SPSS Inc., Chicago, IL, USA). Variable distribution was carried out by Kolmogorov-Smirnov test and histogram visually. The definitive statistics of parametric variables were expressed by mean±standard deviation, and the definitive statistics of non-parametric variable were expressed as median (interquartile range).

Results

The median week of previous pregnancy loss was 17.5 (16.0-19.0). The demographic data of the cases are given in **Table 1**. In 12 (7.9%) of 156 cases applied cerclage, there was concomitant uterus anomaly. Fifty (32.4%) cases had cerclage in the previous pregnancy. When pregnancies were grouped as below 24 weeks, 24-37 weeks and above 37 weeks according to delivery weeks, there were 18 (11.5%), 38 (24.4%) and 100 (64.1%) cases in the groups, respectively. Preterm premature rupture of membranes (PPROM) and vaginal bleeding were observed in the first week after the procedure in 4 (2.5%) cases. Preterm premature rupture of membranes was observed in the late period in 8 (5.1%) cases (mean weeks of gestation were 31.1±0.1). Mean birth weight was 2919±803 grams. While 80 (51.3%) cases delivered by spontaneous vaginal method, 76 (48.7%) cases delivered by cesarean section. Eighty-six (55.1%) of newborns were male. Early neonatal death was observed in 8 (5.1%) newborns, and all these babies were born before 24 weeks of gestation. Information about deliveries is given in **Table 2**.

Discussion

Cervical cerclage has been used since 1950s when suggested by Shirodkar from India[5] and McDonald from Australia.[6] Cervical cerclage is applied to approximately 3/1000 of pregnants in the USA.[7] This procedure is used to prevent early labor within the indication, and can be applied with history-based, ultrasonographic measurement and physical examination indications. At this point, we need to indicate that all these indications are controversial and that there are many publications reporting that cervical cerclage is not useful in multiple pregnancies. Although there is no randomized study in the literature comparing Shirodkar and McDonald cerclages, McDonald cerclage is preferred much more since

it is easily applied and requires no bladder dissection. Our cerclage rates were found to be lower compared to the literature. Our hospital is one of the biggest maternity hospitals in Ankara and the low rate may be related with the high number of relatively low-risk patients despite the frequent cerclage practices since our hospital is a center where patients at high-risk are referred.

Historically, basic indication of cervical cerclage has been the cervical insufficiency. The diagnosis of cervical insufficiency is difficult, because there are no generally accepted diagnosis criteria. Determining patients that will benefit from the procedure by measuring cervical length ultrasonographically may become easy; however, ultrasonographic cervical length measurement is not applied as a routine and the determination of exact cut-off value is controversial.[8] Also, the debates still continue about the number and week of pregnancy loss, as the one of the most significant problems. According to the results of 3 randomized studies,[1-3] history-based cerclage may be useful only if there are 3 or more losses. This result not being in the primary purpose of the study but considered as the secondary result decreases the evidence level. Also, it is quite problematic if patient waits until 3 losses. Therefore, when physicians meet with patients without carrying out well-planned studies about number and week, the problems will continue. In our department, even though this topic is controversial, we believe that applying cervical cerclage with history-based indication in the presence of history consistent with the classical findings of cervical insufficiency may be useful. With such a protocol, it may be possible to claim that unnecessary cerclage is applied in some patients while it may also mean that some patients may go without a treatment which would be helpful if it is waited for typical loss history to repeat at least three times. There are studies in the literature which recommend applying cerclage with classical medical history without waiting three losses.[9]

Twelve (7.9%) of our patients had concomitant uterus anomaly and the most common anomaly was uterine septum (n=4, 2.6%). Since uterine anomaly types of the patients were given in their files only as short information, no detailed history was obtained. However, patients with uterine septum had no septum surgery history. In 32.4% of the patients, there was cerclage history in their previous pregnancies. The most of these cerclage procedures were applied in their previous pregnancies in different centers, therefore it is not known whether these cerclage procedures were applied for real indications or not. Yet, it was required to apply cerclage when these patients referred in their next pregnancies, because cervical insufficiency diagnosis is established for them no matter which positive or negative outcome they encounter in their previous pregnancies, and therefore they refer with the perception that re-application of cerclage is required. Since there are no diagnostic criteria in these patients, physician facing with the demand of patient is obliged to apply cerclage.

Our mean week for applying cerclage is consistent with the literature. It should be highlighted that evaluating fetus before cerclage in terms of anomalies is vital. Preterm labor was observed in 35.9% of the cases after cerclage. Therefore, it is consistent with the literature[3] the high risk necessitates physician to be careful about preterm labor. In our study, preterm premature rupture of membranes occurred in 5.1% of the cases within the first week after the procedure. All these cases delivered before 24 weeks of gestation. Therefore, rupture of membranes occurring in early period after procedure was determined as an indicator with poor prognosis in our study.

The weak aspects of our study are the retrospective design, absence of control group, non-participation to

Table 1. Demographic data of the cases.

Age*	30.6±6.0
Gravida†	5.0 (4-6)
Parity†	1.0 (0-2)
Abortion†	3.0 (2-4)
Body mass index (BMI)*	27.5±3.9
Week of gestation excluding cerclage*	13.9±1.7
Week of gestation at delivery*	34.7±6.8
Week from cerclage up to delivery*	20.7±6.7

*Mean±standard deviation, †Median (interquartile range)

Table 2. Delivery information of cases.

	n	%
Weeks of gestation		
<24 weeks	18	11.5
24-37 weeks	38	24.4
>37 weeks	100	64.1
Birth weight (gram)*	2919±803	
Normal spontaneous vaginal delivery	80	51.3
Gender		
Male	86	55.1
Female	70	44.9

*Mean±standard deviation

follow-up and high rate of patient loss due to missing information in the files. Since the diagnosis of cervical insufficiency is controversial, it is not known which patient that had cerclage with this indication has real cervical insufficiency. We believe that our study will contribute to the literature since it has experiences despite the imitations, and includes pregnancy outcomes even retrospectively.

Conclusion

In conclusion, history-based cervical cerclage may be useful for patients who are consistent with cervical insufficiency and have spontaneous second trimester loss. Since preterm labor risk is higher in these patients, they should be followed up closely and the indicators should be paid attention. Randomized studies are needed which are prospective and include more patients.

Conflicts of Interest: No conflicts declared.

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