

The Role of Cerclage in the Management of Cervical Incompetence

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Abstract

Objective: To evaluate the prophylactic cerclage efficiency due to cervical incompetence.

Methods: Twenty-five prophylactic cervical cerclage procedures have been performed because of cervical incompetence and a total of 88,814 deliveries were identified during the study period. The mean age of patients included in the study was 29.8±5.7 years, while the mean cervical cerclage procedure week was 13.6±1.80. At least two second-trimester pregnancy losses were registered from the obstetric history of 19 patients. Nine-teen patients had reached to term. Live deliveries were registered in 24 patients and 22 babies survived.

Results: The cases of prophylactic cervical cerclage between January 2007 and December 2010 were evaluated. The number of deliveries at centers where the cervical cerclage procedure was performed was identified. Singleton pregnancies were included in the study. Patients were evaluated in terms of pregnancy-week at the time of the cerclage procedure, and the week of delivery. Information about the delivery-week and fetal viability concerning pregnancies that were subjected to cervical cerclage were obtained by phone.

Conclusion: Prophylactic cervical cerclage is beneficial in patients diagnosed with cervical incompetence.

Keywords: Cervix incompetence, cervical cerclage, pregnancy outcome.

Servikal yetmezlikte serklajın önemi

Amaç: Servikal yetmezlik olgularında profilaktik serklajın etkinliğini değerlendirmek.

Yöntem: Ocak 2007-Aralık 2010 tarihleri arasında profilaktik servikal serklaj yapılan olgular değerlendirildi. Çalışmanın yapıldığı merkezlerde yaptırılan doğum sayısı belirlendi. Hastalar; servikal serklaj işlemi esnasındaki gebelik haftası ve gebelik sonlanma haftası açısından irdelendi. Çalışmaya serklaj işlemi gerçekleştirilen tekil gebelikler alındı. Servikal serklaj uygulanan gebelikte, doğum haftası ve bebeğin yaşayıp yaşamadığı telefon ile hastalara ulaşarak öğrenildi.

Bulgular: Çalışma süresince servikal yetmezlik nedeniyle profilaktik serklaj yapılan 25 olgu olduğu ve 88,814 doğum yaptırıldığı saptandı. Çalışmaya dahil edilen olguların yaş ortalaması 29.8±5.7 ve serklaj uygulama haftası 13.6±1.80 idi. Ondokuz hastanın obstetrik öyküsünde en az 2 ve üzeri ikinci trimester gebelik kaybı mevcuttu. Ondokuz hastada gebelik terme ulaşmıştı. Yirmi dört hastada canlı doğum olduğu ve 22 bebeğin yaşadığı öğrenildi.

Sonuç: Profilaktik servikal serklaj işlemi, servikal yetmezlikte faydalı bir tedavi yöntemidir.

Anahtar Sözcükler: Serviks yetmezliği, serklaj, gebelik sonuçları.

Introduction

Cervical incompetence is a pathological condition caused by functional or structural weakness of the cervix and characterized by pregnancy loss during

the second-trimester (before term) following painless effacement and dilatation of the cervix.^[1]

Preterm delivery is the most common cause of perinatal morbidity and mortality, and cervical

incompetence is reported to be responsible for 15% of all losses within 16-28 weeks of gestation. Cervical surgical treatment is beneficial in patients with a history of three second-trimester pregnancy losses, with no other known etiology. The treatment of cervical incompetence consists of insertion of a suture to constrict the cervical canal using a transvaginal techniques which were described by McDonald or Shirodkar previously.^[2] Procedures performed before the occurrence of cervical changes associated with cervical incompetence are termed primary suturation (prophylactic or elective), procedures performed after occurrence of cervical changes are termed secondary suturation (therapeutic), while those performed after the occurrence of advanced effacement-dilatation and membrane prolapse are termed tertiary suturation (emergency).^[3] The aim of this study is to evaluate the outcome of pregnancy and success of the cerclage procedure performed in patients who undergo primary cerclage due to cervical incompetence

Methods

This study was conducted between January 2007 and December 2010 at Dicle University Medical Faculty Hospital, Department of Obstetrics and Gynecology, Diyarbakir Maternity Hospital and a Genesis hospital (private hospital in the same city), patients who underwent cervical cerclage due to cervical incompetence in three hospitals, were evaluated.

The three provincial health centers where the study was conducted provide health services to the city as well as the region. The data were collected from hospitals records and patients charts. The number of deliveries at centers where the cervical cerclage procedure was performed was identified. Mersilene tape sutures and the McDonald cerclage technique were found to have been used on all patients. Patients were evaluated in terms of age, gravida, parity, abortus, number of children alive, pregnancy-week at the time of the cerclage procedure, and the week of delivery. Ultrasonographic evaluation was performed on all patients to investigate fetal viability and early anatomic anomalies, while single dose prophylactic antibiotics were observed to have been administered before the procedure. Patients with single pregnancies who underwent the cerclage procedure were included in the study, whereas patients with multiple pregnancies and those who underwent therapeutic and

emergency cerclage were excluded. Information about the pregnancy-week and fetal viability concerning pregnancies that were subjected to cervical cerclage were obtained by phone. Approval for the study was obtained from the Dicle University Ethics Committee.

Results

A total of 88814 deliveries were registered throughout the study and 42 cervical cerclage procedures cervical incompetence were found to have been performed. The incidence of cervical cerclage due to cervical incompetence was found to be 1/2,114 deliveries. Therapeutic or emergency cerclage were performed in 13 patients (6 patients with twin-pregnancy underwent emergency cerclage) and data of 4 patients could not be obtained since they could not be reached by telephone. These patients were thus excluded from the study. A total of 25 patients who underwent prophylactic cerclage were included in the study. The diagnosis of cervical incompetence was made in 18 (72%) patients through anamnesis, while Hegar's dilators were found to have been used in addition to anamnesis on 7 (28%) patients. At least two second-trimester pregnancy losses were registered from the obstetric history of 19 (76%) patients. In the remaining six patients, there was a pregnancy loss indicative of cervical incompetence, while cervical incompetence was identified using No. 8 Hegar's dilator during any luteal phase following the pregnancy loss. The mean age of patients included in the study was 29.8 ± 5.7 years, while the mean cervical cerclage procedure week was 13.6 ± 1.80 . Demographic data of the patients are presented in Table 1. The cervical cerclage procedure was performed at least once in 6 (24%) patients during their previous pregnancies. The pregnancies of 19 (76%) patients who underwent prophylactic cervical cerclage were found to reach term. Live deliveries were registered in 24 (96%) patients and 22 (88%) babies survived, while an abortus was occurred in 1 (4%) patient, three weeks after cervical cerclage procedure. Delivery weeks are shown in Table 2.

Discussion

The incidence of cervical incompetence in our study was found to be 1/2,114 deliveries. However, despite lack of knowledge concerning the actual

Table 1. Patients characteristic.

Patients characteristic	Mean±SD	Min-max
Age (year)	29.8±5.76	20-43
PW	13.6±1.80	12-18
Gravida	4.32±1.57	2-8
Parity	1.08±0.95	0-3
Abortus	2.28±1.49	0-6
Number of living children	0.88±0.78	0-2

SD: Standart deviation, Min-max: Minimum- Maximum

PW: Pregnancy week at the time of surgery

Table 2. Week of delivery.

Week of delivery	No	(%)
16 week	1	4
24-34 week	4	16
34-37 week	1	4
37 -40 week	19	76

incidence of cervical incompetence, literature studies report a rate of between 1/200 and 1/2,000. The wide range of the incidence rate mentioned in studies may be attributed to lack of objective diagnostic criteria.^[4] Previous obstetric anamnesis and clinical evaluation are the most important methods used in the diagnosis of cervical incompetence. Histerosalpingography, cervical dilators and catheter balloon are the diagnostic tools used during the pre-pregnancy period. On the other hand, ultrasonography and cervical length assessment are the diagnostic and follow-up methods used during pregnancy; however, cervical length assessment can be made only after the 16th week of gestation.^[2]

Berghella et al. reported in their metaanalysis that cerclage can be useful in cases who had early labor, singleton pregnancy and with short cervical length.^[5] İsaoglu et al.^[6] retrospectively examined 16 patients who had prophylactic cerclage and 13 patients who had therapeutic cerclage. They found that cerclage application week was averagely 17.4±4.2 and pregnancies of 5 patients were 37 weeks and above. Öktem et al.^[7] presented 15 cervical cerclage cases having 17.2±5.0 cerclage application week. They reported that 7 patients were applied prophylactic cerclage, 7 patients were

applied therapeutic cerclage and that pregnancy reached above 37 weeks in 8 patients. Results reported in the studies of İsaoglu and Öktem were presented without differentiating prophylactic and therapeutic/emergency cerclage cases. In this study, only the results of cases who were applied prophylactic cerclage were reported.

Although the etiology of cervical incompetence is not well known, possible causes include surgical operations of the cervix, trauma, dilatation and curettage (D&C), pathologies of the connective tissue and congenital anomalies of the uterus. Surgical treatment of cervical incompetence involves the use of Shirodkar or McDonalds techniques which applied transvaginally. Within these techniques, suturing of the cervical canal leads to constrict. The success of both techniques is reported similar in the literature and it depends on the knowledge and experience of the surgeon. Trans-abdominal cerclage may be performed with congenitally short, over amputated, severely scared or lacerated cervix.^[8]

The risk of chorioamnionitis and/or preterm premature rupture of membranes (PPROM) is reported to be high in patients who undergo therapeutic or emergency cerclage. Obstetric results after prophylactic cerclage is better than the therapeutic or emergency group so prior cervical changes occurs identification of these patients is important, as treatment with prophylactic cerclage is thought to lead to a good prognosis. Nonetheless, patients treated with therapeutic or emergency cerclage are reported to have better perinatal outcomes compared to those who underwent a conservative approach (bed rest and/or tocolysis).^[9-12]

The complication of elective cerclage is reported as 9% for current and/or subsequent pregnancies. Surgical manipulation of the cervix may lead to premature uterine contractions, hemorrhage, infection, PPROM and premature onset of the operation. In this study, pregnancy loss was reported in 1 (%4) patient three weeks after the procedure. Risk associated with cervical laceration, cervical dystocia, vesicovaginal fistula, uterine rupture and anesthesia should not be overlooked.^[2,8] There is no consensus regarding prophylactic tocolytic treatment and the use of antibiotics for infection prophylaxis at the time of surgery.^[2] In our study, pregnancy loss occurred in a patient three weeks after the process.

Prophylactic cervical cerclage success rate is approximately 87% in the previous report.^[13] In this study, the delivery rate at term was found to be 76% and surviving children rate was 88%. Our results are similar with literature.

Prophylactic cerclage procedure is traditionally performed between the 12-15 weeks of gestation. Elective cervical cerclage for cervical incompetence performed during 13-14 weeks of gestation is reported to give better results than for the subsequent weeks.^[11,11] In this study, the procedure was performed at a mean of 13.6±1.80 weeks.

Conclusion

In conclusion, this retrospective study conducted in this region, the incidence of cervical incompetence has been identified as 1/2,114 births. This rate has been found to be consistent with literature results. Prophylactic cervical cerclage is beneficial in patients diagnosed with cervical incompetence following obstetric history.

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