Original Article

The Role of Cervical Cerclage in Pregnancy Outcome in Women with Uterine Anomaly

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Abstract

Background: Congenital uterine malformations are the result of disturbances in mullerian duct development. In patients with recurrent miscarriage, the reported frequency of uterine anomalies varies widely, from 1.8% to 37.6%. There are reports in which cervical cerclage has been shown to prevent preterm labor in uterine anomalies. The aim of this study was to compare the role of cervical cerclage in the pregnancy outcome of women with uterine anomaly.

Methods: In this historical cohort study, 40 pregnant women with uterine anomaly were investigated for outcomes of pregnancy in regards to preterm and term deliveries. The participants were divided into two groups: the case group included 26 women with uterine anomaly for whom cervical cerclage was done and the control group was composed of 14 women with uterine anomaly in whom cervical cerclage was not performed. Comparison between the two groups was done and the data were analyzed by the use of chi square, Fisher's exact test and t-test with SPSS software (version 11) and $p < 0.05$ was considered significant.

Results: In patients with bicornuate uterus and cervical cerclage, term delivery occurred in 76.2% and preterm delivery in 23.8%. In patients with bicornuate uterus and without cervical cerclage, term delivery occurred in 27.3% and preterm delivery in 72.7% ($p < 0.05$). In patients with arcuate uterus and cervical cerclage, term and preterm deliveries were equal (50% *vs.* 50%), but in patients with arcuate uterus and without cervical cerclage, term and preterm deliveries occurred in 66.6% and 33.3% of the participants, respectively.

Conclusion: Cervical cerclage is an effective procedure in bicornuate uterus for the prevention of preterm deliveries but it has no effect on the outcome of pregnancy in arcuate uterus.

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Introduction

Uterine anomaly is a disorder which is identified during the work up for infertility, abortion and preterm delivery. Most uterine anomalies are diagnosed by hysterosalpingography. It occurs in 4% of the general population and it constitutes 40% of the causes of abortions and preterm deliveries.

Bicornuate uterus, uterus didelphys and septate uterus constitute 80% of uterine anomalies. These conditions are associated with spontaneous abortion (24%) in the first trimester, ectopic pregnancy (3%), fetal malpresentation (23%), high cesarean delivery rate (27.5%) and preterm delivery (29%) (1). The latter is the most important sequelae of uterine anomaly as few interventions have improved the outcome despite major progress in perinatology and neonatology. Therefore, some obstetricians/gynecologists decide to perform cervical cerclage to prevent preterm delivery, but it was rejected due to the increasing chanc of infection that might trigger preterm delivery by itself (2).

There are reports in which term deliveries have occurred with unicornuate uterus in the absence of

cervical cerclage (3). The role of cervical cerclage is not certain in the prevention of preterm delivery except when there is documented cervical incompetency by sonography or hysterosalpingo-graphy and history of previous preterm deliveries. Otherwise, unicornuate or bicornuate uterus is seen during cesarean section with term or near term pregnancies without cervical cerclage in rare cases. Therefore, we conducted a historical cohort study to show the role of cervical cerclage in the outcome of pregnancies in the presence of uterine anomalies.

Methods

This historical cohort study was done in Taleghani Hospital, affiliated to Shahid Beheshti University of Medical Sciences in Tehran, Iran. In this study, forty pregnant women with uterine anomalies (unicornuate, arcuate, bicornuate) diagnosed by hysteron-salpingography and histories of 1−2 preterm deliveries and absence of any cervical incompetencies were included. Women with septate uterus were not included because of the usual early abortions in this type of uterine anomaly. They participants were divided into two groups: the case group consisted of 26 women with uterine anomaly for whom cervical cerclage was done and the control group comprised of 14 women with uterine anomaly in whom cervical cerclage was not performed.

Cervical cerclage was done during the 14th-15th week of gestation. The participants were studied for the outcome of pregnancy in respect to abortion, and preterm and term deliveries. Comparison between the two groups was done by data analysis using chi square, Fisher's exact test and t-test by SPSS (version 11) and a $p < 0.05$ was considered significant.

Results

The age of participants in the case group was 27.8±4.7 years and 28.7±4.9 in the controls. In patients with bicornuate uterus and cervical cerclage, term delivery occurred in 16 (76.2%) and preterm delivery in 5 (23.8%), while in patients without cervical cerclage, term delivery occurred in 3 (27.3%) and preterm delivery in 8 (72.7%) participants, ($p < 0.05$).

There were 3 participants with unicornuate uterus and cervical cerclage in 2 (66%) of whom term delivery occurred and the third individual (33%) had preterm delivery.

Among 5 patients with arcuate uterus, cervical cerclage was done in 2 of them, one resulting in term delivery (50%) and the other in preterm delivery (50%).

In 3 patients without cervical cerclage, 2 (66.6%) had term deliveries and 1 (33.3%) preterm delivery (Table 1).

Discussion

This study showed that cervical cerclage was an effective procedure in the prevention of preterm delivery in bicornuate uterus. This finding is in harmony with the results of Golan et al. which reported that in patients with anomalous uterus cervical cerclage resulted in an increase from 64% to 96% in term deliveries and a drop from 35.6 % to 4% in the rate of pregnancies terminating prematurely (4). Leo et al. reported a good pregnancy outcome following cervical cerclage in 6 pregnant women with uterine anomaly and they subsequently recommended routine prophylactic cerclage in all cases of uterine anomalies (5).

In the study by Reichman et al., the outcome of pregnancy in 290 women with unicornuate uterus during 1953–2006 was as follows: ectopic pregnancy 2.7%, first trimester abortion 24.3%, second trimester abortion 9.7%, preterm delivery 20.1%, intrauterine fetal death 10.5%, and term delivery 49.9%. They concluded that although unicornuate uterus was one of the causes of infertility and abortion, but about 50% of the patients had term delivery (3). In the aforesaid

Table 1. The role of cervical cerclage in the outcome of pregnancy in women with uterine anomaly

Type of anomaly	Pregnancy outcome				Total
	With cerclage		Without cerclage		
	Term delivery	Preterm delivery	Term delivery	Preterm delivery	
Bicornuate	16 (76.2%)	5 (23.8%)	3 (27.3%)	8 (72.7%)	32 (80%)
Unicornuate	2 (66.6%)	1 (33.3%)	--	--	3 (7.5%)
Arcuate	1 (50%)	1 (50%)	2 (66.6%)	1 (33.3%)	5 (12.5%)

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research which investigates the medical records of 290 patients with unicornuate uterus during a period of 53 years, no comparisons are made between patients with or without cerclage, but in our study we had 3 women with unicornuate uterus, 2 (66.6%) of whom delivered term pregnancy and 1 (33.3%), preterm delivery. This difference may be due to the low number of patients in our study in comparison with that of Reichman's study. Abramovici et al. showed the effectiveness of cervical cerclage in 15 women with uterine anomaly. They reported a high percentage of (86.7%) term delivery with cervical cerclage which is consistent with our study (6).

There are several observational studies in which the effectiveness of cervical cerclage is claimed to be with success in women with cervical insufficiency (7–9) but other studies have reported that cervical cerclage does not improve pregnancy outcome in single or twin pregnancies (10–12) because of cervical insufficiency which is usually very difficult to confirm (13). Our research was about uterine anomalies without cervical insufficiency, although we had some limitations.

ACOG demonstrated that there were no difference between women undergoing cerclage and those being restricted to bed rest in patients with an appropriate history for cervical insufficiency (13).

It is to be noted that our sample size was small, due to the fact that the rate of uterine anomalies is low in the general population (4%).

Conclusion

It seems that cervical cerclage is an effective procedure in bicornuate uterus for the prevention of preterm delivery, but it has no effect on the outcome of pregnancy in arcuate uterus, although it is helpful in unicornuate uterus.

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