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Association between Miscarriage Outcome and History Factor Depending on Cerclage

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ABSTRACT

Background: Cervical cerclage helps prevent miscarriage or preterm labor caused by cervical incompetence the procedure is successful in 85% to 90% of cases. Cervical cerclage appears to be effective when true cervical insufficiency. **Aim and method:** This is a cross-sectional study conducted in obstetrics and gynaecology ward and outpatient clinic in Salah Al-Din teaching hospital at the period from the first of March 2018 to the end of August 2018. The convenience sample of 120 women of different ages was used in this study. **Results:** There was a significant association between increased marriage duration and recurrent cerclage (p=0.003). A significant association was observed between women with primary infertility and 1st cerclage (p=0.05). There was a significant association between women with a short interval between pregnancies and 1st-time cerclage (p=0.01). Shorter Gestational age (GA) of previous pregnancy was significantly associated with 1st-time cerclage (p=0.01), no significant difference was observed between pregnant women with 1st cerclage and those with the previous cerclage regarding pregnancy outcomes and mode of delivery. There was a significant association between infection complication and 1st cerclage (p=0.01). **Conclusion:** Regarding the relationship between cerclage indications and outcome, a significant association was observed between miscarriage outcome and history depending on cerclage (p=0.02). No significant difference was observed between pregnant women with different indications for cerclage regarding the mode of delivery.

Keywords: Miscarriage outcome, History Factor, Cerclage, Gestational Age

INTRODUCTION

Cerclage is usually offered to a woman with three consecutive second trimester losses that have a typical history of cervical incompetence, namely spontaneous painless fast miscarriage [1]. It is important to rule out other causes of Preterm birth or second trimester loss, through a detailed history and physical examination prior to offering a history indicated cervical cerclag [2]. History indicated cervical cerclage is ideally placed electively at 13-14 weeks of gestation. There are no recent randomised controlled clinical trials that have reported the efficacy of history indicated cerclage. The three main trials that have reported on the effectiveness of this procedure are now regarded as “older” studies. The largest trial on history indicated cervical cerclage was the MRC/RCOG working party on cervical cerclage [3]. Although the cerclage group had multiple hospital admissions and prolonged hospital stay with an increase in tocolytic drug use, puerperal sepsis, caesarean section and

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ultimately preterm deliveries in the cerclage group. Though this was not statistically significant as numbers were small [4].

PATIENTS AND METHODS

Ethical consideration: The study was approved by the ethical committee of the Ministry of Health Scientific Council and Tikrit Medical College.

Study design and setting: A cross sectional study was conducted in the Department of Obstetrics and Gynecology in Salah El-Din teaching hospital at the period from the first of March 2018 to the end of August 2018.

Study subjects: The Study included 120 married women of different ages, with mean age of (31±6) years attending SalahAl-Din teaching hospital obstetrical ward and gynaecological and obstetrical out patients clinic, who are willing to participate in this study and available at the time of data collection selected convenience sampling method.

Inclusion criteria: The study included 120 married women in their reproductive age with mean age of 36 years.

Data collections: The women were asked about their information (socio-demographic, obstetrical history indication for cerclage, pregnancy outcome, maternal complications, neonatal outcome and complications, medical and surgical history, and drug history) and their phone number and asked about timing of cerclage (Gestational age), women lay down in lithotomy position to visually inspect the cervix for previous scarring, deformity and length to ascertain the feasibility of placing a trans vaginal cerclage and sent to informed ultrasound to confirm viability of fetus and gestation and cervical length and to rule out major congenital anomalies and the results recorded.

Statistical analysis: Data presented by simple tables, the analysed to test significance by using manual statistical analytic methods.

RESULTS

There was a significant association between increased marriage duration and recurrent cerclage (p=0.003). A significant association was observed between women with primary infertility and 1st cerclage (p=0.05). There was a significant association between women with short interval between pregnancies and 1st time cerclage (p=0.01). Shorter GA of previous pregnancy was significantly associated with 1st time cerclage (p=0.01). All these findings are shown in Table 1.

Table 1: Distribution of women's marriage and conception history according to cerclage sequence

Variable	1st cerclage		Previous cerclage		P
	No.	%	No.	%	
Marriage duration					0.003**^{S}
≤5 years		40.0	7	12.7	{χ^2=11.9, df=2}
6-10 years		47.7	34	61.8	

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>10 years		12.3	14	25.5	
Age at marriage					0.7** NS {χ^2=0.1, df=1}
<18 years		16.9	8	14.5	
≥18 years		83.1	47	85.5	
Age at 1st pregnancy					0.5** NS {χ^2=2.5, df=2}
<18 years		12.3	9	16.4	
≥18 years		87.7	46	83.6	
Period of infertility					**0.05*** S {χ^2=5.8, df=2}
Primary		13.8	2	3.6	
Secondary		-	2	3.6	
None		86.2	51	92.7	
Interval between pregnancies					**0.01**** S {χ^2=5.7, df=1}
<2 years		26.2	5	9.1	
≥2 years		73.8	50	90.9	
Previous pregnancy duration					**0.01*** S {χ^2=8.6, df=2}
<28 weeks		7.7	0	-	
28-36 weeks		26.2	7	12.7	
≥37 weeks		66.2	48	87.3	

** Fishers exact test, **Chi square test, S= Significant, NS=Not significant.*

No significant difference was observed between pregnant women with 1st cerclage and those with previous cerclage regarding pregnancy outcomes and mode of delivery. There was a significant association between infection complication and 1st cerclage (p=0.01). All these findings are shown in Table 2.

Table 2: Distribution of current pregnancy outcomes according to cerclage sequence

Variable	1st cerclage		Previous cerclage		P
	No.	%	No.	%	
Pregnancy outcome					0.1* NS {χ^2=7.3, df=4}
Miscarriage ≤24 weeks		1.5	1	1.8	
Early preterm (28-33 6 weeks)		-	1	1.8	
Late preterm (34-36 6 weeks)		23.1	5	9.1	
Term >37 weeks		66.2	46	83.6	
Not known		9.2	2	3.6	
Mode of delivery					0.2* NS {χ^2=2.5, df=2}
Normal vaginal delivery		67.7	34	61.8	

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Elective cesarean section		30.8	17	30.9	
Emergency cesarean section		1.5	4	7.3	
Maternal complications					**0.01**^{*S}
None		16.9	10	18.2	{χ^2=24.6, df=11}
Abortion		-	2	3.6	
Infection		66.2	22	40.0	
Slipping or premature rupture of membrane		-	2	3.6	
Laceration of cervix		-	1	1.8	
Bleeding		7.7	9	16.4	
Infection and bleeding		-	4	7.3	
Infection, laceration of cervix and bleeding		-	3	5.5	
Abortion and infection		-	1	1.8	
Abortion, infection and bleeding		3.1	1	1.8	
Infection and trauma of cervix		4.6	0	-	
Infection and slipping or premature rupture of membrane		7.7	9	16.4	

** Fishers exact test, S=Significant, NS=Not significant.*

Regarding relationship between cerclage indications and outcome, a significant association was observed between miscarriage outcome and history depending cerclage (p=0.02). No significant difference was observed between pregnant women with different indications for cerclage regarding mode of delivery. All these findings were shown in Table 3.

Table 3: Distribution of GA and current pregnancy outcomes according to cerclage indications

Variable	History		US cerclage		Rescue		Hist. & US		P
	No.	%	No.	%	No.	%	No.	%	
Pregnancy outcome									**0.02**^{*S}
Miscarriage		11.1	0	-	0	-	0	-	{χ^2=23.1,
Early preterm		-	1	3.3	0	-	0	-	

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Late preterm		11.1	2	6.7	5	35.7	11	19.0	df=12**}**
Term		72.2	23	76.7	9	64.3	44	75.9	
Not known		5.6	4	13.3	0	-	3	5.2	
Mode of delivery									0.4*^{NS}
NVD		55.6	17	56.7	12	85.7	39	67.2	**{**χ^2**=**5.8,
Elective CS		38.9	12	40.0	1	7.1	17	29.3	df=6**}**
Emergency CS		5.6	1	3.3	1	7.1	2	3.4	

** Fishers exact test, S= Significant, NS=Not significant.*

DISCUSSION

The long marriage duration in the present study was significantly related to recurrent cerclage. Consistently, in the study of Lu et al. in the Australia found an increase in incidence of cervical cerclage in the last year's within late reproductive age period of women [5]. First time, cerclage in current study was significantly related to primary infertility of pregnant women. Deanna et al. study in USA revealed a significant improvement of infertility after use of cervical cerclage [6]. The short interval between pregnancies and shorter GA in our study is significantly associated with 1st time cervical cerclage. These findings are consistent with results of Liddiard et al. study in UK [7].

Present study showed a significant association between infection complication and 1st cerclage (p=0.01). The infection and sepsis are the main complications of cervical cerclage specifically in first time use [8]. A significant association was observed between women with preterm labour and 1stcerclage (p=0.01). This finding is in agreement with results of Lu et al. study in Australia which reported higher preterm labour in women with first time cerclage [5].

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AUTHORS' CONTRIBUTIONS

Assistant Prof. Dr. Nabella Kamel Yakoob, Sammar Mounther Jamal, Assistant Prof. Dr. NihadKhalawe Tektook and Dr. Sammar Mounther Jamal, were the principal investigators of the study who designed this study and coordinated all aspects of the research including all steps of the manuscript preparation. Dr. Nabella Kamel Yakoob was responsible for the study concept and design. Dr. NihadKhalawe Tektook was responsible in reviewing, editing and approving the manuscript in its final form.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The study was approved by the ethical committee of the Ministry of Health Scientific Council and Tikrit Medical College.

CONSENT FOR PUBLICATION /CONFLICTS OF INTEREST

The author(s) declared that they have no competing interests.

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