

Study the role of cervical Cerclage for women with twin pregnancies

Ahmad H. Abdellaah^a, Mahmud I. Alrashedy^b, Mustafa M. Khodary^a, Soad I. Hussein Ali^c.

^aObstetrics & Gynecology Department-Faculty of Medicine-South Valley University, Qena, Egypt. ^bObstetrics & Gynecology Department, Faculty of Medicine-Al-Azhar University, Assiut, Egypt. ^cResident of Obstetric and Gynecology -Qena General Hospital, Qena, Egypt.

Abstract:

Background: The role of first-trimester history-indicated cerclage among women with a twin pregnancy and a history of preterm birth have not been evaluated.

Objectives; to evaluate the value of cervical cerclage in twin pregnancies as regard of Pregnancy outcome

Patients and methods:

This is a prospective cohort study was performed in Obstetrics and Gynecology Department Qena University Hospital, during a period from 1 march 2019 to 1 march 2020". Information about demographic data, medical history, reproductive history, current pregnancy and its complications and delivery and its outcomes are obtained. Clinical examinations, laboratory and ultrasonic assessment of studied group.

Result: 98 pregnant women involved in the study and gestational age at delivery of the studied group show that 11(11.2%) their gestational age at delivery was ranged between 12-<28 weeks and 25(25.5%) their gestational Age at delivery was ranged between 28-<37 weeks and 62(63.3%) their gestational age at delivery was ranged between 37-40 weeks.

Neonatal deaths of studied group were 17(9.77%) of total number (174) of newborns of studied group

Conclusion: History-indicated cervical cerclage performed in women with a twin gestation and a history of preterm birth appeared to have an overall positive effect on maternal and neonatal outcomes, as evidenced by significantly reduced rates of PPRM, preterm delivery and neonatal morbidity and mortality. .

Keyword: Cervical cerclage, cervical insufficiency, history-indicated, multiple gestations, preterm delivery, twins.

Introduction:

Since 1980, the twin birth rate has increased 65%, with twins now accounting for 31.1 per 1,000 total live births. Although approximately 12% of singleton infants are born prior to 37 weeks, almost 60% of twin pregnancies deliver preterm (prior to 37 weeks), and nearly 12% deliver very preterm (prior to 32 weeks) (Martin et al., 2012). For infants without congenital malformations prematurity is the most significant cause of perinatal mortality in much of the world and is the major determinant of neonatal and infant morbidity (Hamilton et al., 2015). Twin

pregnancies alone are a risk factor for increasing the incidence of abortion and preterm birth, also history of one previous preterm delivery has been shown to associate with a recurrence risk of 17 to 40%.

True cervical insufficiency is an important cause of mid-trimester abortion and preterm birth, and suspected with history of miscarriage in the second trimester, or previous delivery before 34 weeks of pregnancy, or cervical shortening in the current pregnancy before 24 weeks (Alfirevec et al., 2017). For the purpose of this study cervical cerclage by McDonald technique done to selected

pregnant women preventable at 12 to 14 weeks before the cervix thins out and continues up to 37 weeks of gestational age). There are a number of potential complications that may arise during or after surgery. These include: risks associated with regional or general anesthesia, chorioamnionitis, injury to the cervix or bladder, bleeding, cervical dystocia with failure to dilate requiring cesarean section. The aim of this study is to estimate whether cerclage could extend the prolongation of pregnancy, reduce the risk of preterm birth and improve perinatal outcome in twin pregnancies or not.

Patients and methods: **Type of the study:** Prospective cohort study. **Study Setting:** Obstetrics and Gynecology Department Qena University Hospital.

Inclusion criteria: our study included four groups: 1st group of history of midtrimester abortion or preterm labor, 2nd of twin pregnancies by intra cytoplasmic injection, 3rd of short cervix in current pregnancy, 4th of twin pregnancies without any risk factor.

Exclusion criteria: Present history of medical diseases, uterine anomalies, premature rupture of membranes, intrauterine fetal death, intrauterine growth retardation.

Sample Size Calculation: all recorded cases from 1 march 2019 to 1 march 2020 who

attended to Obstetrics and Gynecology Department Qena University Hospital and were 98 women pregnant. (19 of them had twins without risk factors, 56 had history of preterm Labor or 2nd trimester abortion, 10 had twins by IVF, 13 had cervical incompetence in current pregnancy).

The Study Instrument:
Complete history taking including: Personal history, menstrual history, obstetric history, present history of chronic diseases and medication, past history of diabetes or hypertension, surgical history.

Examination: General examination, abdominal and local clinical examination, bimanual pelvic examination.

Investigations: As transvaginal and transabdominal ultrasonography, complete urine, random blood sugar, kidney and liver function tests.

Do TVS at 8 to 12 weeks of gestational age to detect fetal numbers, viability and anomalies (by the nuchal translucency and nasal bone measurement scan), and uterine anomalies or fibroid, or cervical incompetence. The length of the cervix as measured by ultrasound has in turn been demonstrated to be a useful tool in the prediction of the risk of preterm delivery (**Visintine et al., 2008**). All patients willing to participate and fulfilling the inclusion after signing the informed consent form, underwent cervical cerclage at 12-14

gestational age for all of them under general anesthesia using Macdonald's techniques (Owen et al., 2009). Patient advised to decrease physical activity, especially those with physical employment, prolonged periods of standing, or frequent and repetitive lifting, although there are no data to confirm or deny the efficacy of bed rest in such cases (Sosa et al., 2004).

After discharge they were seen a week later at the antenatal clinic then follow up was conducted for all patients every 2- 4 weeks till 28 weeks then weekly till delivery by reviewing symptoms of preterm labour, PROM, bleeding, fever or bad smell vaginal discharge, follow up should include clinical examination, trans-abdominal ultrasound for fetal biometry, growth problem, amniotic fluid volume and fetal demise, and umbilical Doppler beside biophysical profile. Cerclage stitch was removed if PROM occurred, established preterm labor or when pregnancy reached 37 weeks. At the end of study estimate gestational age at time of delivery, birth weight, perinatal mortality and morbidity in case of twin pregnancies

alone, or in history with midtrimester abortion, or in history of preterm birth, or short cervix in current pregnancy, or ICSI twin to detect if cervical cerclage has a value or not.

Research outcome measures: **Primary:** whether full term, preterm birth, midtrimester abortion. **Secondary:** Neonatal mortality, perinatal morbidity, birth weight, NICU admission.

Data management and Statistical

Analysis: Data collected throughout history, basic clinical examination, laboratory investigations and outcome measures coded, entered and analyzed using Microsoft Excel software. Data were then imported into Statistical Package for the Social Sciences (SPSS version 20.0) (Statistical Package for the Social Sciences) software for analysis. According to the type of data qualitative represent as number and percentage, quantitative continues group represent by mean \pm SD.

Result:**Table (1):**Distribution of studied women(98women) according to patient's demographic data.

Age (years)	Number	Number reached full term	Mean± SD	P value
≤30	44	28	33.2±2.25	0.087
>30	54	34	41.8 ±2.17	
Parity				
≤2	61	38	47.8 ±2.15	0.066
>2	37	24	29.7 ±2.35	
BMI				
≤32.55	41	26	32.4 ±2.33	0.11
>32.55		36	45.9 ± 2.21	

Table (1) shows demographic data of the studied group. That P values of age, parity and BMI were more than 0.05 Soage, parity and BMI had had no significant effect on the pregnancy outcome .

Table (2): Neonatal deaths of studied group.

	Number	Percent
Neonatal deaths	17	9.77 %

Table (2) shows the total number of newborns of studied group was 174 and neonatal deaths was 17 .

Table (3): Comparison between studied groups according to reaching full term.

studied groups	Twins without risk factors	History of preterm Labor or 2nd trimester abortion	Twins by IVF	Cervical Incompetence in current pregnancy
Total number	19	56	10	13
number reached full term	11	36	6	9
%	57.8%	64.2%	60%	69.2%
mean ± SD	14.8±1.87	44.7±2.14	8.3±1.76	11.4±2.71
P value	0.0471	0.0323	0.0368	0.0229

Table (3) shows comparison between risk factors groups according to reaching full term, shows P values of studied groups were less than 0.05 So cervical cerclage had had significant effect on prolongation of period of pregnancy which improve pregnancy outcome. Cervical cerclage was most effective in group (cervical Incompetence in current pregnancy) as 69.2% of them reached full term, then group (history of preterm Labor or 2nd trimester abortion) as 64.2% of them reached full term,

Discussion:

Preterm labour remains a difficult problem to prevent, stop or even delay in higher order pregnancies. Cervical cerclage has reduced the risk of preterm labor (PTL) for selected population of singleton pregnancies as those with history of preterm birth and a shortened cervix (**Liu et al., 2015**)

Moreover, routine prophylactic CC has been approached as a policy for prolonging gestation, and some evidence exists the suggesting that its routine use in twin pregnancies is beneficial (**Obeidat et al., 2017**). This is why this study was selected to be conducted to evaluate the value of cervical cerclage in twin pregnancies as regard of Pregnancy outcome (prolongation of pregnancy, and decrease the risk of preterm labor). The 2nd objective is to improve perinatal outcomes in women with twin pregnancies. Our results are supported by study of **Rottenstreich et al., (2019)** as they reported that the age of their studied group was (27–36) years. **Abdulmalek, (2019)** found that the median gestational age at delivery was (37+3, 35+6, 34+5 weeks) in Group 1, 2, and 3 respectively, Moreover, the majority of Group 1 (93%), (16%) of Group

2, and (10%) of Group 3 were delivered at >37 weeks of gestation ($P \leq 0.001$) (Group 1 (N-86): Women who received prophylactic CC, Group 2 (N-44): Those who refused the CC and choice to receive the vaginal progesterone & Group 3 (N-20): Those who ask for advisement of bed rest and restriction of heavy physical activity. In the study in our hands, women gestational age at delivery was ranged between 28 –40 weeks with a mean value of 34.83 ± 3.89 weeks, gestational age at delivery of the studied group show that 11(11.2%) their gestational age at delivery was ranged between 12-<28 weeks and 25(25.5%) their gestational Age at delivery was ranged between 28-<37 weeks and 62(63.3%) their gestational age at delivery was ranged between 37-40 weeks. Regarding **Rottenstreich et al., (2019)**, the live-birth rate was significantly higher in the cerclage group than in the control group (97.6% vs 80.5%; OR, 9.7 (95% CI, 2.15–43.71); $P = 0.001$). All cases of intrapartum stillbirth occurred in pregnancies delivered before 25 weeks; Our study had lower neonatal deaths (9.77%), so our recommendations are: Further studies on large geographical scale and on larger sample size to emphasize our conclusion, more patients, longer follow-up,

and multicenter experience are all necessary to accurately figure out the value of cervical cerclage in twin pregnancies as regard of pregnancy outcome, future studies are warranted to confirm the findings, identify the optimal characteristics of patients with a twin gestation for whom history-indicated cerclage.

Conclusions:

Cervical cerclage performed in women with a twin gestation with history of preterm birth, 2nd trimester abortion or twin by ICSI or have cervical incompetence or even without any risk factors appeared to have an overall positive effect on maternal and neonatal outcomes, as evidenced by significantly reduced rates of PPRM, preterm delivery and neonatal morbidity and mortality.

Reffrences:

Abdulmalek I Y, (2019). The benefit of prophylactic cervical cerclage in twin pregnancies. *Medical Journal of Babylon*, 16(2),128-13

Alfirevic Z, Navaratnam K, Mujezinovic F (2017). Amniocentesis and chorionic villus sampling for prenatal diagnosis. *The Cochrane Database of Systematic Reviews*. John Wiley & Sons, Ltd. 9: CD003252

Hamilton BE, Martin JA, Osterman MJ, Curtin SC, Matthews TJ. 2015. Births: Final data for 2014. *Natl Vital Stat Rep*;64:1-64.4.

Liu L, Oza S, Hogan D, Perin J, Rudan

I,Lawn JE, et al.(2015). Global, regional, and national causes of child mortality in 2000–13, with projections to inform post-2015 priorities: an updated systematic analysis. *Lancet*; 385:430–440.

Martin JA, Hamilton BE, Osterman MJK. 2012. Three decades of twin births in the United States, 1980–2009. *NCHS Data Brief*, no 80. Hyattsville, MD: National Center for Health Statistics;

Obeidat N, Alchalabi H, Obeidat M, Sallout B, Hamadneh S, Hamadneh J, et al. (2017). Effectiveness of prophylactic cervical Cerclage in prolonging higher-order multiple pregnancies. *Sultan Qaboos Univ Med J*;17:e314-8.

Owen J, Hankins G, Iams JD, Berghella V, Sheffield JS, et al. (2009) Multicenter randomized trial of cerclage for preterm birth prevention in high-risk women with shortened midtrimester cervical length. *Am J ObstetGynecol* 201: 375.

Rottenstreich A, Levin G, Kleinstern G, Zigron R, Rottenstreich M , Elchalal U (2019).History-indicated cervical cerclage in management of twin pregnancy. *Ultrasound in Obstetrics & Gynecology*, 54(4),517-523.

Schieve LA, Wright VC, Reynolds MA, JengG(2002); Division of ReproductiveHealth, National Center forChronic Disease Preventionand Health Promotion, Center for Disease Controlan Prevention(CDC).Assisted reproductive

technology surveillance—UnitedStates,
(2002). MMWR SurveillSumm
2005;54:1–24.

Sosa C, Althabe F, Belizan J, BergelE.
Bed rest in singleton pregnancies for
preventing preterm birth. Cochrane
Database Syst Rev 2004:CD003581. J
Perinatol 2001;21:444–50.

**Visintine J, Berghella V, Henning D,
Baxter J(2008).** Cervical length for
prediction of preterm birth in women