ORIGINAL ARTICLE

Beneficial Effect of Cervical Cerclage in Preventing Pregnancy Loss

Huma Naz, Azra Sultana, Zahida Baqai

ABSTRACT

Objective — *To find out results of cervical cerclage in patients with cervical incompetence (CI) for preventing pregnancy loss.*

Study design — *Observational case series.*

Place & Duration of study — *Fatima Hospital Baqai Medical University Karachi, from January 2010 to December 2011.*

Methodology — *Patients with previous history of mid-trimester pregnancy loss, previous early preterm deliveries and cervical length < 2.5cms were included. McDonald cervical cerclage was placed around the cervix between 13-24weeks of gestation with silk no.2 after excluding intra-uterine infection, gross fetal anomaly and placental abruption. Cerclage was removed at 37 week of gestation. The patients and neonates were followed till one week post delivery.*

Results — *A total of 33 patients were included. Pregnancy prolongation with delivery at term occurred in 87.8% (through vaginal delivery in 87.7% and via cesarean section in four -12% cases). Preterm delivery (9%), miscarriage (3%), live born babies (93.9%), fetal survival rate (87.8%), peri-natal death(6%), per-operative complications (12%), post-operative complications (18%) were other findings. Birth weight more than 2500gms was noted in 54.5%.*

Conclusion — *Cervical cerclage has beneficial role in properly selected patients with sonographically short and incompetent cervix.*

Key words — *Cervical incompetence, Cervical cerclage, Pregnancy loss.*

INTRODUCTION:

The cervix normally remains tightly closed during pregnancy. A closed cervix helps the developing baby to remain inside the uterus until it is ready to be born. Occasionally, the cervix starts to open up early, leading to the miscarriage or delivery of a baby that is too pre-mature to survive. The term cervical insufficiency or cervical incompetence has been used to describe the inability of uterine cervix to retain a pregnancy in the absence of contraction of labor.[1] This results in either mid trimester pregnancy loss or preterm rupture of membranes or preterm labor and pregnancy failure.[2]

Correspondence:
Dr. Huma Naz
Department of Obstetrics & Gynaecology
Baqai Medical University Karachi
E-mail:drhuma75@yahoo.com

The pathophysiology of the condition is not known but incompetent cervices have less elastic component both morphologically and biochemically when compared with normal cervices.[3] Cervical trauma, forceful dilatation of cervix and obstetric lacerations increase the risk of cervical insufficiency.[4] Cervical incompetence accounts for 20% - 25% of all pregnancy losses during 2nd trimester as well as 10% of preterm labors. It affects 1% of all pregnant patients.[5]

Aetiology of CI is multifactorial and include congenital causes, diethylstilbesterol exposure in utero, connective tissues disorders and cervical trauma.[6-8] Cervical incompetence is usually diagnosed after one or more late second trimester or early third trimester pregnancy losses. Per speculum or digital examination may show patulous os or bulging membranes and may confirm diagnosis but have not shown to improve outcome.[9] Ultrasonography is the

principal modality used during pregnancy to measure cervical length and opening.[10]

CI is traditionally treated by transvaginal cervical cerclage, which is usually done under general or regional anesthesia. This involves placing a stitch of strong thread or tape around the cervix .The first procedure was introduced by Shirodkar in 1954 which was later modified by McDonald in 1957.[11] Transabdominal cervicoisthmic cerclage has increase success rate regarding pregnancy prolongation and in those where transvaginal cerclage fails.[12],[13] This conventionally requires laparotomy. The purpose of the study was to evaluate the role of McDonald cervical cerclage to prevent the pregnancy loss in cases of cervical incompetence.

METHODOLOGY:

This observational study was conducted in Obstetrics & Gynaecology Department of Fatima Hospital, Baqai Medical University Karachi, over a period of two years from January 2010 to December 2011. Patients with previous obstetric history complicated by two or more 2nd trimester pregnancy losses at 14-24 weeks without contraction with short cervix (< 2.5cm) on ultrasound were included. A pre-designed performa was used for collecting relevant information. Patients with vaginal bleeding, ruptured membranes, painful uterine contractions, congenitally abnormal fetus, cervix >2.5cms long, dilatation >4cms were excluded.

All the patients who met inclusion criteria were hospitalized. Informed written consent was taken. Transvaginal ultrasound was performed to assess the cervical length, effacement and funneling, correct gestational age and any fetal anomaly. After excluding the bleeding, chorioamnionitis and uterine activity, the patients were given prophylactic antibiotic and tocolytics. Cervical cerclage (MacDonald suture) with non-absorbable silk no.2 was applied under general anesthesia. Patients were restricted to bed for first 24 hours. They were mobilized next day and discharged from hospital on third day. Patients were advised for bed rest till 20 weeks with regular follow up. Cervical cerclage was removed at the end of 37 weeks gestation electively or in emergency; when patients came in preterm labor. Delivery of the patients were managed at hospital and newborn were followed till one week after birth. Data was analyzed using SPSS program. Frequency and percentages were calculated.

RESULTS:

Total number of pregnant women managed in two years was 3899. CI was diagnosed in 33 patients. (0.84%). Six (181%) patients were managed with emergency cordage while 27(81.3%) patients had elective cordage. Twenty-three had gestational Age of 11-14 weeks at the time of cordage. The operation was successful in all patients in terms of intactness of membranes. None of the procedures had more than 10cc of blood loss. There were no anesthesia related complications. Majority of the patients were in age group 26-30 year. Most women (n=28 - 84.8%) were multiparous (P3-4) with previous mid trimester losses. Prolongation of pregnancy till term was gained in 29 (87.8%) patients . Majority (75.7%) of women delivered by spontaneous vaginal delivery. Cesarean section was performed in four (12%) cases due to obstetric reasons (table I).

Thirty-one (93.9%) babies were delivered alive. This included 29 (87.8%) deliveries after 37 weeks and three premature deliveries and one miscarriage. Birth weight was more than 2500gms in 54.5%. There were two neonatal deaths and two aborted fetuses in this series.

Table I: Characteristics of the Study Group (n=33)

Variables		No.	%
Maternal age (year)	20-25	09	272
	26-30	19	57.5
	31-35	07	21.2
Parity (number)	1-2	28	6.0
	3-4	03	84.8
	>4	23	9.0
Gestation at cervical cerclage (weeks)	13-15	07	69.9
	16-20	03	21.2
	>20	04	9.0
Cervical length at insertion of cervical cerclage (cm)	1-1.5	04	12.12
	1.5-2	25	75.7
	2-2.5	04	12.12
Cervical dilatation at insertion of cervical cerclage (cm)	Close	08	24.2
	1-2 cm	15	45.4
	2-4 cm	10	30.3

DISCUSSION:

Cervical incompetence can result in expulsion of an immature fetus.[14] The frequency of cervical incompetence in this series was 8.4/1000 (0.84%) which is comparable to another local study.[15] Multiple risk factors have been proposed for CI. Our study has shown a high percentage of cases (60%) with recurrent mid-trimester pregnancy loss without history of any appreciable trauma to cervix. Same was the observation in a study was Cousin.[16] Cervical trauma during forcible dilatation or cervical laceration during parturition can be the cause for CI. Our study

revealed previous D&C in 21% and difficult labor and instrumental deliveries in 15% cases.

The role of ultrasound has been extensively studied in patients with clinical diagnosis of CI.[17,18] To diagnose cervical incompetence, we used history and ultrasound along with clinical examination. The mainstay of therapy for true cervical incompetence is the placement of elective cerclage in early 2nd trimester, in women considered to be at very high risk of mid-trimester miscarriage due to cervical factor.[19] In our study, elective cervical cerclage was applied in 84.8% patients in comparison with emergency cerclage (15.5%). The success rate of emergency cerclage in terms of take home babies is considerably lower than that of elective cerclage (90%) as reported in a study.[20] In our study it was 81.8% in elective procedure.

The operation is associated with only fewer minor complications like increased incidence of post-operative fever and vaginal discharge. Hence it is considered to be the safest choice in women with CI.[21] This is proven in our study as only few patients had peroperative and post-operative complications, which is comparable to a study by Naheed K.[22] The main outcome measures in our study were pregnancy and fetal outcome. There was 3% miscarriages, 9% premature delivery and 87.8% mature term deliveries. The live born babies were 93.9% with neonatal survival rate of 87.8% which is comparable to a study by Harger showing rate of 87%.[23] It was observed that selective use of cervical cerclage has beneficial effect as it resulted in prolongation of pregnancy with improved fetal survival rate.

CONCLUSIONS:

Previous history of recurrent mid-trimester pregnancy losses, preterm deliveries when combined with ultrasound, form a reliable bases for diagnosis of cervical incompetence. Cervical cordage should be considered for these patients. This can have beneficial effect in property selected patients.

REFERENCES:

1. American College of Obstetrician and Gynecologist. ACOG practice Bulletin 48 cervical insufficiency. Obstet Gynecol. 19991;165:1111-5.
2. Robert F, Mark SF, Jeremy T, Peter W. Transvaginal ultrasound in the management of women with suspected cervical incompetence. Br J Obstet Gynaecol. 1996;103: 921-4.
3. Leppert PC, Yu SK, Keller S. Decreased elastic fibers and desmosine content in the incompetent cervix. Am J Obstet Gynecol. 1987;157:1134-9.
4. Peterson LK, Uldjerag N. Cervical collagen in pregnant women with previous cervical incompetence. Eur J Obstet Gynecol Repro Biol.1996;67:41-5.
5. McDonald 1A. Cervical cerclage. Clin Obstet Gynecol. 1980;7:461-79.
6. Abramovici H, Faktor JH, Pascal B. Congenital uterine malformation as indication for cervical suture (cerclage) in habitual abortions and premature delivery. Int J Fertil. 1983;28:161-4.
7. Singer MS, Hochman M. Incompetent cervix in hormone-exposed offspring. Obstet Gynecol. 1978;51:625-6.
8. Cruickshank ME, Flamelly G, Campbell DM, Kkitchener HC. Fertility and pregnancy outcome following large loop excision of cervical transformation zone. Br J Obstet Gynaecol. 1995;51:625-6.
9. Rudd, NL, Nimrod C, Holbrook KA, Byers PH. Pregnancy complications in type IV Ehlers-Danlos syndrome. Lancet. 1983;1:50-3.
10. Bueken P, Alexander S, Boutsen M, Blondel B, Kaminski M, Reid M. Randomised controlled trial of routine cervical examination in pregnancy. European community collaboration study group on prenatal screening. Lancet. 1994;144:841-4.
11. McDonald IA. Suture of cervix for inevitable miscarriage. J Obstet Gynaecol [Br]. 1957;64:346-53.
12. Lotgering FK, Ganglier Senden IP, Loitering SF, Wallenberg HC. Outcome after trans abdominal cervicoisthmic cerclage. Obstet Gynaecol. 2006;107:779-84.
13. Cammarano CL, Herron MA, Parer JT. Validity of indications for trans abdominal cervicoisthmic cerclage for cervical incompetence. Am J Obstet Gynecol. 1995;172:1871-5.

14. Althuisius SM, Dekker GA. A five century evolution of cervical incompetence as a clinical entity. Curr Pharm Dis. 2005;11:687-97.

15. Shamshad, Mustajab Y, Jehanzaib M. Evaluation of cervical cerclage for sonographically incompetent cervix in at high risk patients. J Ayub Med Coll Abbottabad. 2008;20:31-4.

16. Cousin L. cervical incompetence, 1980: a time for reappraisal. Clin Obstet Gynecol. 1980;23:467-79

17. Berghella V, Odibo AO, To MS, Rust OA, Althuisius SM. Cerclage for short cervix on ultrasonography; Meta-analysis of trials using individual patients -level data. Obstet Gynecol. 2005;106:181-9.

18. Incerti M, Ghidini A, Locatelli A, Poggi SH, Pezzulls JC. Cervical length = 25mm in low-risk women: a case control study of cerclage with rest vs rest alone. Am J Obstet Gynecol. 2007;197:315-4.

19. Althusisvs S, Dekker G. Controversies regarding cervical competence, short cervix, and the need for cerclage. Clin Perinatol. 2004;31:695-720.

20. Enders LK, Wang EY. Interleukin -6 and tumournecrosis factor alpha as predictor of success after emergent cerclage. Am J Perinatol. 2004;21:477-81.

21. Treadwell MC, Bronsten RA, Bottoms SF. Prognostic factors and complication rates for cervical cerclage: A review of 482 cases. Am J Obstet Gynecol. 1991;165:555-8.

22. Naheed K, Ara J, Kanloon LE. Effectiveness of cervical cerclage in women with cervical incompetence. J Rawalpindi Med Coll. 2008;12:29-32.

23. Harger JH. Cerclage and cervical insufficiently. An evidence based analysis. Obstet Gynecol. 2002;100:1313-4.