



Pregnancy Outcomes Following Emergency Cervical Cerclage

Augustine Ojabo^{1*}, A. G. Adesiyun², S. K. Hembah-Hilekaan¹, A. Mohammed-Durosinlorun³, Hajaratu Sulayman-Umar²

¹Department of Obstetrics and Gynaecology, College of Health Sciences, Benue State University, Makurdi, Nigeria

²Department of Obstetrics and Gynaecology, Ahmadu Bello University, Zaria, Nigeria

³Department of Obstetrics and Gynaecology, Faculty of Medicine, Kaduna State University, Kaduna, Nigeria

Email: *austinojabo@yahoo.co.uk

Received 7 August 2014; revised 26 September 2014; accepted 27 October 2014

Copyright © 2014 by authors and OALib.

This work is licensed under the Creative Commons Attribution International License (CC BY).

<http://creativecommons.org/licenses/by/4.0/>



Open Access

Abstract

Background: The pregnancy outcome following cervical cerclage for women with cervical incompetence is generally favourable. However, the outcome for emergency cerclage is less favourable. **Methodology:** A retrospective analysis of the case notes of pregnant women who underwent emergency cervical cerclage from January 2007 until December 2010 at Garkuwa Hospital and Sheehan Hospital was performed. **Results:** There were a total of 56 cases of cervical cerclage comprising 46 elective and 10 emergency cervical cerclage respectively. The procedure prolonged pregnancy in all the patients with the mean duration of 38 days. The outcome for emergency cerclage was 3 stillbirths (IUFD) and 7 live births (6 survived with 1 early neonatal death). Neonatal outcome was good if the initial cervical dilatation was 4 cm or less. **Conclusion:** Favourable outcomes should be expected in carefully selected cases and all patients should be informed of the survival rates before undergoing this procedure.

Keywords

Pregnancy Outcome, Cervical Cerclage, McDonald Cerclage, Emergency Cerclage

Subject Areas: Global Health, Gynecology & Obstetrics

1. Introduction

A major cause of mid-trimester painless dilatation and shortening of the cervix is cervical incompetence and it often results in recurrent late second trimester pregnancy loss (defined as gestational age 22 - 28 weeks). Man-

*Corresponding author.

How to cite this paper: Ojabo, A., Adesiyun, A.G., Hembah-Hilekaan, S.K., Mohammed-Durosinlorun, A. and Sulayman-Umar, H. (2014) Pregnancy Outcomes Following Emergency Cervical Cerclage. *Open Access Library Journal*, 1: e970.

<http://dx.doi.org/10.4236/oalib.1100970>

agement of cervical incompetence in patients using a prophylactic cervical stitch or cerclage usually has favourable outcomes. It has been observed that in developing countries, caution should be exercised in applying cerclage because of high rate of complications [1]. In Nigeria, clear beneficial effects of cerclage with 94.4% fetal salvage up from 23.7% before cerclage have been reported by various authors [2] [3].

However, the decision about placement of a cervical cerclage becomes an obstetric treatment dilemma if done in an emergency situation where the cervix is already dilated and effaced.

Moreover a previous study has shown that emergency cervical cerclage is of limited efficacy particularly when inserted before 23 weeks gestational age [4].

Cervical cerclage using Macdonald's stitch is controversial because of the risk of rupturing the membranes balanced against the benefits of prolonging the pregnancy. Theoretically, the greater the dilatation, the less the chance of success that should be expected. However there is little data on which to base this assumption especially in our environment [2] [3].

The aim of this study is to investigate the pregnancy outcome of women who underwent emergency cervical cerclage for cervical dilatation in the late second trimester of pregnancy at Garkuwa Hospital and Sheehan Hospital both in Kaduna state, north central Nigeria.

2. Materials and Methods

We performed a retrospective study on all women who were treated with cervical cerclage at the Garkuwa and Sheehan Hospitals, both located in Kaduna city, North Central Nigeria from January 2007 to December 2010. The theatre registers and the case notes of all patients who had cervical cerclage were retrieved and analyzed. Cases of emergency cerclage documented were also identified, compiled and separately analyzed. All cases with cervical dilatation of 4 cm or more, those with identified congenital cervical or fetal anomalies, and those in established premature labour or drainage of liquor and infection were excluded from the study.

A standard proforma was completed on all cases and simple proportion was used for statistical analysis.

3. Technique

All the women had the standard preoperative treatment for emergency cervical cerclage according to the hospital protocol which included bed rest in slight Trendelenberg position for approximately 24 hours, a broad spectrum antibiotic (tablets of amoxiclav 625 mg 8 hourly) and salbutamol 2 mg 8 hourly orally for tocolysis for at least 24 hours. No cervical swabs or urine and amniotic fluid specimens were taken for cultures in any of the cases in this study as this is not part of the hospital protocol.

During the operation, general anaesthesia was used with the patients placed in steep head down, lithotomy position. The steep Trendelenberg position assisted in spontaneous reduction of the amniotic membranes into the uterine cavity. Furthermore, the membranes that did not reduce spontaneously into the uterine cavity were replaced using a Foley's catheter with at least a 30 ml bulb. The vagina was cleaned carefully with chlorhexidine to avoid rupture of the amniotic membranes especially in those with open cervix. A cerclage was then inserted using the McDonald's technique with merselene tape size 4.

Post operatively, the patients were discharged home after 24 hours and continued on antibiotics and salbutamol as above for one week and pentazocine 30 mg 6 hourly for a period of 24 hrs. Following discharge, bed rest was advised at home for one (1) week.

All the cerclage sutures were removed electively at the gestation of 37 to 38 weeks of pregnancy or following rupture of fetal amniotic membranes, haemorrhage or whenever labour ensued.

4. Results

The ages of the women ranged from 20 to 42 years with mean age of 30.5 ± 4.1 years (**Table 1**). There was 10 (18.9%) emergency cervical cerclage cases performed between 22 and 26 weeks during the study period compared with 46 (82.1%) elective cerclage. No patient presented at a gestational age 27 and 28 weeks during the study period.

Of the 10 emergency cervical cerclage, 8 (14.3%) were performed for dilation of cervix while the remaining 2 (3.7%) were performed for cervical shortening and U-shaped funneling of the uterine cervix observed on pelvic ultrasonography. The outcome of the women who underwent emergency cervical cerclage was analyzed. No

Table 1. Ages of the women.

Ages of the Women	Number	Percentage
20 - 29	5	50.0
30 - 39	4	40.0
40 and above	1	10.0
Total	10	100

women who presented with cervical dilatation of more than 4 cm at the time of cervical cerclage were included in the study as this was considered to be of poor prognostic value.

The mean gestational age at insertion for those who had emergency cerclage was 22.4 weeks. The time interval between insertion of the cervical stitch and delivery ranged from 1 day to 182 days (mean 38 days) (**Table 2**).

There were 3 (30%) abortions/miscarriages, and 7 (70%) live births, with 6 (60%) of the live births surviving resulting in 1 (16.7%) neonatal mortality (**Table 3**). The gestational age at delivery ranged between 28 weeks + 3 days to 38 weeks + 1 day. Intensive care resuscitation and treatment in the neonatology intensive care unit was required for 3 out of the 4 preterm babies. In the study period, 5 (50%) of the emergency cerclage cases had a prolongation of pregnancy of more than 8 weeks. Better outcomes of pregnancy were gained when the pregnancy was prolonged for more than 8 weeks.

5. Discussion

The precise incidence of cervical incompetence is unknown; however, 0.05% - 1% of all pregnancies has been suggested [1] [3] [5]-[7]. Cervical cerclage has been advocated both as a treatment and prophylaxis for cervical incompetence [8]-[10]. It has been part of obstetric practice for many decades but the decision to insert a cerclage in the presence of significant cervical dilatation has remained controversial. This is mainly because of the low success rate associated with it [11].

Emergency cervical cerclage for cervical dilation is not an uncommon occurrence and accounts for about a quarter of all cases of cervical cerclage [12] [13]. In the index study, 10 (18.9%) emergency and 46 (82.1%) elective McDonald's cerclage were reviewed making a total of 56 (100%) cases done at Garkuwa and Sheehan Hospitals in Kaduna state within the study period. This study has shown a 70% live birth rate which is a lot higher than in previous studies [14] (**Table 2**). But over the past decade, several authors have published studies that show a reasonable level of success following emergency cerclage for painless cervical dilatations of up to 4 cm [15]. This may be attributable to better patient selection, improved pre-operative preparation and exclusion of patients with cervical dilatation exceeding 4 cm.

The rate of early preterm delivery of 20% observed in this study was much higher than the 5% in the cerclage group, but significantly lower than the 52% rate observed in the expectant management group ($p = 0.001$) in one comparative study [16]. The neonatal survival rate recorded in our study among infants born to women with emergency cerclage was 85.7% (6 out of 7) and in the same study the neonatal survival rate in the cerclage group was 100% compared with 95%, $p = 0.49$ in the expectant group [16]. This may be due to the non-availability of neonatal intensive care facilities in our environment.

Several studies have shown that with advanced cervical dilatation, the prolongation of pregnancy was only a few days and there were no neonatal survivors [11].

Studies have also shown that where there is mere cervical shortening or funneling of the cervix as compared to cervical dilatation, the outcome in terms of prolongation of pregnancy and live births and neonatal survival is better [16] [17].

There are several reported cases of success with cervical cerclage in preventing mid-trimester pregnancy losses and preterm labour. However, there still exist doubts as to the real value and place of cerclage in managing recurrent pregnancy loss due to cervical incompetence [18]. In a met analysis of randomized control trials, there was no statistical difference in pregnancy outcome between intervention and non-intervention groups [19].

In a study that compared outcome between cervical dilatation that is less than 5 cm and cervical dilatation that is more than 5 cm, the authors found that cervical cerclage is a better choice if the cervical dilatation at the time of cervical cerclage is less than 5 cm and that it is of limited use if the dilation is greater than 5 cm. The same study observed that both live birth rate and prolongation of pregnancy is lower if the cervical dilatation is more

Table 2. Duration of pregnancy after cerclage insertion.

Duration of Pregnancy	Number	Percentage
0 - 1 day	1	30.0
2 - 6 days	1	30.0
1 - 4 weeks	2	20.0
5 - 8 weeks	1	30.0
9 - 12 weeks	4	40.0
>12 weeks	1	30.0
Total	10	100

Table 3. Pregnancy outcome after cerclage.

Pregnancy Outcome	Number	Percentage
Miscarriages	3	30.0
Preterm Delivery (28 - 33weeks)	2	20.0
Preterm Delivery (34 - 36 weeks)	2	20.0
Term Pregnancies	3	30.0
Total	10	100

than 5 cm [14]. It is thus, not surprising that this study which was restricted to patients with cervical dilatation of 4 cm or less, the neonatal outcome was also good.

Most of the studies presented conclude that cervical cerclage is indeed a therapeutic option in appropriately selected cases. It has also been shown from this study that although emergency cerclage may not prevent pre-term delivery, nonetheless the duration of pregnancy was increased by an average of 38 days (range 1 - 182); which is in agreement with other studies [8] [9] [20]. Randomized controlled trials should be conducted in order to answer the question whether an emergency rescue cerclage has its benefits but in the meantime it should be left to the individual consultant to decide what action to take based on its merit [21].

The limitations of this study include inadequate patient numbers which may be attributable to the strict inclusion criteria, a reluctance of obstetricians to perform emergency cervical cerclage due to perceived high failure rate and bias in the selection of patients.

6. Conclusions

The outcome of emergency cerclage was good in this study and contradicts the findings from other studies. This may be due to the small sample size and careful patient selection.

More prospective studies with larger sample sizes will be needed in order to aid clinicians in making a decision on whether or not to perform an emergency cerclage. Emergency cerclage is however still a therapeutic option especially, in developing countries like Nigeria where neonatal care services are poor, and prolongation of pregnancy remains the only viable alternative for infant survival.

References

- [1] Jorgen, V.H. and Van Roosmalen, J. (1997) Complications of Cervical Cerclage in Rural Areas. *International Journal of Gynecology and Obstetrics*, **57**, 23-26.
- [2] Osemwenkha, P.A. and Osaikhuwuomwan, J.A. (2014) Cervical Cerclage in a Nigerian Tertiary Hospital: A Review. *Nigerian Journal of Surgical Sciences*, **24**, 1-6.
- [3] Feyi-Waboso, P.A. and Umezurike, C.C. (2005) Management of Cervical Incompetence in Aba, South-Eastern Nigeria. *Nigerian Medical Journal*, **14**, 400-404.
- [4] Varghese, S., Myers, J., Juverdeanu, S., Kamran, M. and Gillham, J.C. (2010) Do Emergency Cervical Cerclages Make a Difference? A 10-Year Retrospective Study. *Archives of Disease in Childhood, Fetal and Neonatal Edition*, **95**, Fa95.

- [5] Al-Takroni, A.M.B, Aslam, F, Parvathi, C.K., Shamdeen, M, Hanbali, M, Ahmed, S., Khatun, A., Ali, A.M., Mendis, K.B.L. (1999) Emergency Cervical Cerclage: A Review of 15 Cases. *Annals of Saudi Medicine*, **19**, 23-26.
- [6] Wright, E.A. (1987) Fetal Salvage with Cervical Cerclage. *International Journal of Gynecology and Obstetrics*, **25**, 13-16. [http://dx.doi.org/10.1016/0020-7292\(87\)90178-0](http://dx.doi.org/10.1016/0020-7292(87)90178-0)
- [7] Srinivasan, M., Krishanan, R.N. and Lindow, S.W. (2011) Pregnancy Outcome Following Emergency Cervical Cerclage. *Open Journal of Obstetrics and Gynecology*, **1**, 184-186. <http://dx.doi.org/10.4236/ojog.2011.14035>
- [8] Eskander, M.A., Sobande, A.A., Damole, I.O. and Bahar, A.M. (2004) Emergency Cervical Cerclage: Does the Gestational Age Make a Difference? *Saudi Medical Journal*, **25**, 1028-1031.
- [9] Shirodkar, V.N. (1955) A New Method of Operative Treatment of Habitual Abortion. *Antiseptic*, **52**, 299.
- [10] McDonald, I.A. (1957) Suture of the Cervix for Inevitable Miscarriage. *BJOG: An International Journal of Obstetrics and Gynaecology*, **64**, 346-350. <http://dx.doi.org/10.1111/j.1471-0528.1957.tb02650.x>
- [11] Liddiard, A., Bhattacharya, S. and Crichton, L. (2011) Elective and Emergency Cervical Cerclage and Immediate Pregnancy Outcomes: A Retrospective Observational Study. *Journal of the Royal Society of Medicine Short Report*, **2**, 91. <http://dx.doi.org/10.1258/shorts.2011.011043>
- [12] Jack, L. and John, O. (2007) Cervical Incompetence. In: Steven, G.G., Joe, L.S. and Jennifer, N., Eds., *Obstetrics: Normal and Problem Pregnancies*, 5th Edition, Churchill Livingstone, An Imprint of Elsevier, London, 1-18.
- [13] Stirat, G. (1995) Recurrent Miscarriage. In: Janer, D.K., Steer, P.J., Weiner, C.P. and Gonik, B.J., Eds., *High Risk Pregnancy, Management Options*, 1st Edition, WB Saunders, London, 101-117.
- [14] Srinivasan, M., Krishanan, N.R. and Lindow, S.W. (2011) Pregnancy Outcome Following Emergency Cervical Cerclage. *Open Journal of Obstetrics and Gynecology*, **1**, 184-186. <http://dx.doi.org/10.4236/ojog.2011.14035>
- [15] Heath, V.C.F., Souka, A.P., Erasmus, I., Gibb, D.M.F. and Nicolaides, K.H. (1998) Cervical Length at 23 Weeks of Gestation: The Value of Shirodkar Suture for the Short Cervix. *Ultrasound in Obstetrics & Gynecology*, **12**, 318-322. <http://dx.doi.org/10.1046/j.1469-0705.1998.12050318.x>
- [16] Althuisius, S.M. and Dekker, G.A. (2004) Controversies Regarding Cervical Incompetence, Short Cervix, and the Need for Cerclage. *Clinics in Perinatology*, **31**, 695-720. <http://dx.doi.org/10.1016/j.clp.2004.06.009>
- [17] Groom, K.M., Shennan, A.H. and Bennett, P.R. (2002) Ultrasound-Indicated Cervical Cerclage: Outcome Depends on Preoperative Cervical Length and, Presence of Visible Membranes at Time of Cerclage. *American Journal of Obstetrics & Gynecology*, **187**, 445-449. <http://dx.doi.org/10.1067/mob.2002.123937>
- [18] Ikimalo, J.I., Izuchukwu, K.E. and Inimgba, N. (2012) Pregnancy Outcome after Cerclage for Cervical Incompetence at the University of Port Harcourt Teaching Hospital, Port Harcourt. *African Journal of Reproductive Health*, **16**, 180-184.
- [19] Drakeley, A.J., Roberts, D. and Alfirevic, Z. (2004) Cervical Cerclage for Prevention of Preterm Delivery: Meta-Analysis of Randomized Control Trials. *Obstetrics & Gynecology*, **103**, 584-585. <http://dx.doi.org/10.1097/01.AOG.0000114992.20625.c5>
- [20] Romeo, R., Gonzalez, R., Sepulveda, W., et al. (1992) Infection and Labor. VIII. Microbial Invasion of the Amniotic Cavity in Patients with Suspected Cervical Incompetence: Prevalence and Clinical Significance. *American Journal of Obstetrics & Gynecology*, **167**, 1086-1091.
- [21] Shane, P., Kornman, L.H., Bell, R.J. and Brennecke, S.P. (2004) Cervical Surveillance as an Alternative to Elective Cervical Cerclage for Pregnancy Management of Suspected Cervical Incompetence. *The Australian & New Zealand Journal of Obstetrics & Gynecology*, **44**, 228-232. <http://dx.doi.org/10.1111/j.1479-828X.2004.00220.x>