



## Original Research Article

## Obstetric outcome after emergency cervical cerclage: A prospective observational study performed in CSI Kalyani hospital, Chennai

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## ABSTRACT

**Background:** Cervical insufficiency is a well documented etiological factor in preterm delivery. This study was conducted to evaluate the efficacy and safety of Emergency cervical cerclage in women who presented with advanced cervical changes such as cervical dilatation and bulging fetal membranes.

**Materials and Methods:** The study was prospective observational study performed in the department of obstetrics and gynaecology CSI Kalyani General Hospital, Chennai, Tamil Nadu over a duration of 18 months. This study included all women who presented in late second trimester with advanced cervical dilatation (2 to 4cms) for whom emergency cervical cerclage was done by McDonald technique.

**Results:** Out of the 15 patients for whom emergency cerclage was performed, 3 had spontaneous abortion after cerclage, 6 had PROM and 5 of these patients had term delivery. The time interval between emergency cervical cerclage and delivery was 11 weeks. No surgical complications were reported. The mean gestational age at delivery was 32 weeks. 11 fetuses were live born after the period of viability. 3 of these babies were admitted to NICU.

**Conclusion:** Post emergency cervical cerclage, the outcomes in terms of prolongation of pregnancy, live births and neonatal survival are better.

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### 1. Introduction

Cervical insufficiency is a well-documented etiological factor in preterm delivery. Cervical insufficiency is one of the important causes of recurrent abortion and preterm labor. Preterm labour is the most common cause of neonatal morbidity and mortality.<sup>1</sup> Cervical cerclage is a treatment for women at risk of pregnancy loss due to cervical insufficiency.<sup>2</sup> Cervical cerclage is a common obstetric procedure, but there still exists controversy regarding its efficacy and patient selection. Few studies showed that cervical cerclage did not prolong gestation or improve neonatal survival,<sup>3</sup> others however concluded that the procedure was beneficial.<sup>4</sup> Emergency cervical cerclage is performed as a salvage measure in case of premature cervical dilatation with exposed fetal membranes in

vagina. This may be discovered by ultrasound examination of the cervix or as a result of a speculum/physical examination performed for symptoms such as vaginal discharge, bleeding or 'sensation of pressure'.<sup>5</sup> The SOGC Practice guidelines on cervical insufficiency<sup>6</sup> suggests that emergency cerclage should be considered when there is clinical or sonographic identification of a cervix dilated > 1 to 2 cm with no perceived uterine contractions (with or without membranes bulging through the external os). The benefit of cerclage even with cervical dilatation to 4 cm has been shown and should be considered. Prior to placement of emergency cerclage, it is important to rule out any clinical evidence of chorioamnionitis. However, the clinical efficacy of ECC has not been fully evaluated. Also, emergency cerclage performed in the second trimester of pregnancy for cervical insufficiency, such as cervical shortening or dilation, is associated with many complications.<sup>7</sup> The

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aim of this study was to evaluate the perinatal outcomes after ECC for women who had cervical insufficiency with prolapsed membranes.

## 2. Materials and Methods

This was a prospective observational study performed in the department of Obstetrics and Gynaecology, CSI Kalyani General Hospital, Mylapore, Chennai over a duration of 18 months from December 2016 to May 2018. Ethical committee approval was obtained from the institutional review board and institutional ethical committee. Inclusion criteria were singleton pregnancy and physical examination indicated emergency cervical cerclage was performed at 18 to 27 weeks of gestational age. During this period 15 antenatal women who presented in late second trimester underwent emergency cervical cerclage by McDonald technique. Emergency cervical cerclage was performed for women with advanced cervical dilatation (2 to 4 cms) and exposure of fetal membranes in the vagina, which was either detected by ultrasound examination of the cervix or by speculum/physical examination for symptoms such as vaginal discharge, bleeding, or 'sensation of pressure'. The interval between the diagnosis of cervical insufficiency and the performance of cervical cerclage ranged from 0 to 3 days. All cervical cerclage procedures were performed under general anaesthesia by a senior obstetrician using the McDonald's technique with 1-silk. All McDonald cerclages were successfully placed. Membrane rupture did not occur in any of the cases, and there were no other immediate operative complications. The patients were discharged from the hospital generally within 24–48 h of the procedure. Following the procedure, patients were advised to refrain from demanding physical activities but were not assigned complete bed rest. Patients were then seen regularly until the elective removal of the suture, or earlier if indicated. Most cervical cerclage sutures were removed in office, during the 36th gestational week without sedatives or any form of anaesthesia, unless patients presented with progressing premature labor, in which case the cerclage was removed at the presenting time. Treatment with steroids and tocolytics were given if indicated. Preterm premature rupture of membranes from 24 weeks to 36 weeks of gestation without signs of sepsis or infection, were treated with antibiotics, steroids, and managed individually case-by-case. If rupture of membranes occurred at <24 weeks of gestation, the pregnancy was not conserved.

### 2.1. Statistical analysis

The Statistical Package for the Social Sciences (Windows version 20.0; SPSS Inc, Chicago [IL], US) was used for statistical analysis. The pregnancy outcomes studied included miscarriage, gestational age at delivery, birth weight, and duration of prolongation of pregnancy.

A p value < 0.05 was considered to be statistically significant

## 3. Results

A total of 15 antenatal women underwent emergency cerclage. No surgical complications were reported in any included patients. The mean patient age was 26.33 years and the mean BMI was 25.764 kg/m<sup>2</sup>. The median gravidity was 2 (range, 1 to 4) and the median parity was 0 (0 to 2). 2 (13%) patients had previously undergone cervical cerclage in prior pregnancy. 6 (40%) of the included patients had previous spontaneous abortion. The mean gestational age at cerclage was 22 weeks. None of the patients had membrane damage due to surgery. No surgical complications were reported in the study population. The mean suture to delivery interval was found to be 11 weeks.

**Table 1:** Clinical and demographic data

	Mean±Standard deviation	Range
Maternal age	28.06±4.43	(20-36)
History of live birth	0.2±0.4	(0-1)
Number of previous miscarriages	0.47±0.61	(0-2)
Gestation at cerclage (in weeks)	22	(18-27)
Cervical dilatation (cms)	2.36±0.59	(1.5-3.5)

**Table 2:** Obstetric outcome after emergency cerclage

Outcome	Mean±Standard deviation
Suture to delivery interval(days)	82.8±36.43
Premature Rupture of Membranes	0.26±0.44
Vaginal Delivery(%)	73.3%
Caesarean Delivery(%)	26.7%
Gestational age at delivery(weeks)	32.9±5.03

**Table 3:** Neonatal outcome

Outcome	Mean±Standard Deviation / Percentage
Neonatal Survival(%)	73.3%(11/15)
Mean Birth Weight(kg)	2.01±0.98
Preterm Delivery(%)	
<28 weeks	33.3%(5/15)
<32 weeks	0.00%(0/15)
<36 weeks	33.3%(5/15)
≥36 weeks	33.3%(5/15)
Apgar score at 1 minute	5.9±3.32
Apgar score at 5 minutes	6.46±3.67
NICU Admission(%)	20%(3/15)

#### 4. Discussion

In the present study a total of 15 antenatal women who presented with prolapsed membrane and advanced cervical dilatation underwent emergency cervical cerclage. We found that performing emergency cervical cerclage in such women prolonged the pregnancy interval by 11 weeks and neonatal survival rate was 73%. The rate of preterm delivery at <36 weeks was 66.7% and mean gestation age at delivery was 32 weeks.

Cervical cerclage, despite being a relatively common operative procedure and most common method to treat cervical insufficiency, evidence is still less about its efficacy. In cases with advanced cervical dilatation and bulging membranes, it has been referred to as rescue cerclage due to its poor success rate. Cervical cerclage in advanced cervical dilatation with bulging membranes in the second trimester is controversial. The outcome of these pregnancies is usually poor, but without a cerclage the loss of pregnancy is inevitable.<sup>8</sup>

Most data from previous studies about emergency cervical cerclage have been retrospective. A previous retrospective study<sup>9</sup> evaluated the effectiveness of emergency cervical cerclage, reporting an interval from suture to delivery similar to that found in the present study. Another retrospective study<sup>10</sup> that enrolled 20 cases undergoing emergency cervical cerclage found that pregnancy after emergency cervical cerclage was prolonged by 13 weeks and this period was sufficient to maintain a viable pregnancy. 55% of the patients delivered at 36 weeks and the total live birth rate was 90%.

Another study<sup>11</sup> concluded that placement of an emergency cerclage conferred benefits with a mean pregnancy prolongation of 14+1 weeks, improving neonatal survival. The liveborn rate was 76.1% with a mean gestation of 33.7 weeks at delivery, which was similar to our study.

Similar to the findings of our study is a study done by N Nagendra Prasad et al.<sup>12</sup> Out of the 24 patients for whom emergency cervical cerclage was performed, 3 had spontaneous abortion after cervical cerclage, 2 had PROM and 8(33%) of these patients had term delivery. 21 (87.5%) fetuses were live born after the period of viability and 9 (37.5%) of these babies were admitted to NICU.

The studies presented conclude that emergency cervical cerclage is indeed a viable therapeutic option in appropriately selected cases. However, emergency cervical cerclage should be used only after extensive and comprehensive patient counselling and proper selection of cases for a successful outcome.

#### 5. Conclusion

The results of the present study demonstrated a favourable prolongation of pregnancy and neonatal outcome in emergency second trimester cerclage, even when bulging of membranes exist. Therefore, we recommend that emergency

cervical cerclage should be considered in patients with advanced cervical dilatation and bulging membranes in the second trimester.

#### 6. Limitations

The potential limitation of this study is the small number of cases in a limited time frame which can limit the meaningful conclusion of statistical significance.

#### 7. Acknowledgement

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#### 8. Statement of Ethics

The study was approved by the institutional ethical committee.

#### 9. Source of Funding

Nil.

#### 10. Conflict of Interest

The authors have no conflicts of interest to declare.

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