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**Case Series**

# Effect of elective cerclage versus rescue cerclage in pregnancy and its pregnancy outcome

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## ABSTRACT

Prolongation of the pregnancy in cases of incompetence of cervix or short cervix can be done by prompt diagnosis at the correct time with a decision on encirclage taken at the right time. An observational retrospective study conducted over a period of 6 months in a tertiary care centre enrolling 14 pregnant women who had various risk factors like multiple gestation, short cervix, cervical incompetence, bad obstetric history, anomalous uterus, *in vitro* fertilization technique, history of primary infertility ,recurrent abortions and mid-trimester losses or preterm delivery, and the results were interpreted with various tables and charts showing the benefits of elective versus emergency encirclage. Through the study, it was found that there wasn't any significant difference in the incidence of a patient who underwent cervical encirclage whether the patient had a prior antenatal registration or not. 71% of the patients enrolled for encirclage were primigravida and the most common gestation age was between 12-24 weeks. The most common age group was 21-30 years of age. Cervical incompetence and short cervix were the most important risk factor needed for cervical cerclage. Most of the patients delivered at around 34-37 weeks of gestation. 21.4% patient underwent rescue cerclage and delivered between 34-37 weeks of gestation. 57.14% underwent elective cerclage and delivered near term. Elective cerclage has a better outcome of pregnancy to reach near term than rescue cerclage.

**Keywords:** Elective cerclage, Rescue cerclage, Short cervix, Incompetence of cervix

## INTRODUCTION

Cerclage is a surgical procedure to tie off the cervix and ensure the prolongation of pregnancy till term.

It is utilized to prevent mid-trimester loss in an antenatal patient with an incompetent cervix. The various types of encirclage depending on the time of encirclage are as follows: elective cerclage, rescue cerclage or emergency cerclage.[1] Identifying the incompetence of the cervix and its short length associated with many risk factors leading to the loss of pregnancy in early gestation is one of the most challenging tasks in obstetrics.

A healthy baby and healthy mother was the pledge of every obstetrician. The short cervix can sometimes be retrospectively diagnosed in a patient whit history of multiple mid-trimester losses or preterm labour.[2]

It is sometimes a retrospective finding of a short cervix in women who suffered from multiple mid trimester losses or multiple pre-term delivery.

A precious pregnancy with bad obstetric history, IVF conception and a history of infertility associated with a short cervix need a cerclage for a better outcome of pregnancy. Cercalage can ideally be done between 11 weeks to 14 weeks.

Medical management in the form of orogestronehas also come into effect to rescue the pregnancy from recurrent mid-trimester losses, preterm delivery and poor outcome of the baby in respect of prematurity.

Progesterone is an epitome of medical management to avoid surgical management in women having no history of recurrent losses. The micronized progesterone 300 mcg single dose till 34 weeks or hydroxyl progesterone caproate 250 mcg or 125 mcg weekly till 34 weeks it has been seen as useful in prolongation of pregnancy without any risk factors associated other than short cervix.

There are two types of cerclage procedure:

Shirodhkar's procedure: devised by Dr. V. N. Shirodhkar, knot to be tied posteriorly.

Mc Donald's procedure: closed in a manner of purse string with merselene tape.

Cervical incompetence or insufficiency can be cured till 3 cm of cervical dilatation with surgical procedure, premature rupture of membrane and infections are the most common side effect of cerclage.[3]

## CASE SERIES

An observational retrospective study carried over 6 months January 2022 to September 2022 in a tertiary care centre. The study was carried out on 14 pregnant patients, pregnancy associated with many risk factors. The outcome of these rescued pregnancies was measured and the efficacy of elective versus rescue cerclage was studied.

**Table 1: Patient underwent encerclage, registered/unregistered.**

| Parameters | Cerclage |
|---|---|
| **Registered** | 7 |
| **Unregistered** | 7 |
| **Total** | 14 |

**Table 2: Parity score of the patients.**

| Parity | Cerclage | No cerclage |
|---|---|---|
| **A1** | 2 | |
| **A2** | | |
| **>A3** | 1 | |
| **Total** | 3 | |

**Table 3: Parity score of the patients.**

| Parameters | Cerclage |
|---|---|
| **G1** | 7 |
| **G2** | 2 |
| **G3** | 2 |
| **>G3** | 3 |

**Table 4: Risk factors and gestational age of cerclage.**

| Factors | <12 weeks | 12-24 weeks | 24-30 weeks |
|---|---|---|---|
| **Cervical incompetence** | | 3 | 1 |
| **Multiple gestations** | | 1 | 1 |
| **Bad obstetric history** | | 2 | |
| **Short cervix** | | 3 | 1 |
| **Anomalous uterus** | | 1 | |

**Table 5: Delivery at certain period of gestation.**

| Delivery | <34 weeks | 34-37 weeks | >37 weeks |
|---|---|---|---|
| **Cervical incompetence** | 1 | 2 | 1 |
| **Multiple gestation** | | 2 | |
| **Bad obstetric history** | 1 | | 2 |
| **Short cervix** | 1 | 1 | 2 |
| **Anomalous uterus** | | 1 | |

**Table 6: Type of encerclage.**

| Cerclage | Elective cerclage |
|---|---|
| **Total** | 10 |
| **Cerclage** | Elective cerclage |

**Table 7: Period of gestation of delivery.**

| Gestation (weeks) | Elective | Rescue |
|---|---|---|
| **<34** | 2 | 1 |
| **34-37** | 4 | 2 |
| **>37** | 5 | 1 |

All pregnant women included in the study who visited tertiary care centres were admitted with associated risk factors: short cervix; cervical incompetence; h/o multiple gestation; history of preterm deliveries; history of second-trimester losses; history of IVF conception; bad obstetric history; history of the anomalous uterus.

Those patients who visited a tertiary care centre and was not followed in OPD or for admission further were excluded.

After informed written consent, eligible women were segregated according to their gravid score, registered and unregistered and the age of the patient.

According to the patient presentation and the associated factors, elective or rescue cerclage was done. It had been

observed at what gestational age the patient delivered with good outcome (healthy baby and healthy mother).

All statistical analyses were done by SPSS software with version 25. Quantitative variables results were shown by descriptive statistics. Qualitative variables results were shown by frequency and percentage.

An independent t test was used for a continuous variable that follows normal distributions. Mann-Whitney-U test was used for a continuous variable that follows a non-normal distribution. The Chi square test was used to test the association between categorical variables.

In the above Table 1, patient underwent cerclage, 50% were registered and 50 % were unregistered.

In the above Table 2 and 3, 50% were primigravida, 14.2% were 2nd and 3rd gravidas, 21.4% were multigravidas. Out of the above gravidas, 14.2% had history of previous 1 abortion and 7.1% has history of previous more than 3 abortions.

In the above Table 4, 28.5% had history of cervical incompetence, 21.42% underwent rescue cerclage between 12-24 weeks,7.14% between 24-30 weeks.

14.28% has history of multiple gestation underwent elective cerclage, 7.14% between 12-24 weeks and 7.14% between 24-30 weeks.

14.28% had bad obstetric history underwent cerclage between 12-24 weeks.

28.57%has short cervix, 21.428% underwent cerclage between 12-24 weeks, 7.14% between 24-30 weeks.

7.14% have uterine anomaly underwent cerclage between 12-24 weeks.

28.57% had cervical incompetence underwent cerclage. 7.14% delivered in less than 34 weeks and 21.428% delivered between 34-37 weeks. 14.28% has multiple gestation delivered between 34-37 weeks.

21.48% had bad obstetrichistory, 7.14% delivered in less than 34 weeks and 14.28% delivered near term in more than 37 weeks.

28.57% had history of shport cervix, 7.14% delivered in less than 34 weeks and in between 34-37 weeks. Rest 21.428% delivered in more than 37 weeks. 7.14% have anomalous uterus delivered between 34-37 weeks.

In the above Table 6 and 7, there were 10 elective cerclage was done in tertiary care centre and 4 rescue cerclage was done.

20% of patient underwent elective cerclage delivered before 34 weeks, 40% delivered between 34-37 weeks and 50 % delivered more than 37 weeks.

In case of rescue cerclage, 25% delivered before 34 weeks, 50% delivered between 34-37 weeks and 25% delivered in more than 37 weeks.

## DISCUSSION

In many trials, it had been found that cerclage had been a successful measure taken to prolong the weeks of gestation thus delaying preterm delivery. Lazar et al had a case-control study and 506 women having a moderate risk of preterm delivery, there was found no statistically significance between the women undergoing cerclage or not in the aspect of preterm delivery.[4]

On the other side, Rush et al showed that cerclage decreased the risk of preterm deliveries. In the present study also, it had been seen that the cerclage had prolonged the pregnancy and had reduced the rate of preterm delivery in case of recurrent abortions.[5]

The final report of medical research and council (RCOG) also stated that cerclage should be offered to women at high risk, those who had a history of deliveries before 37 weeks. In present study 4 rescue cerclage was done and 75% were seen delivering between 34-37 weeks or beyond 37 weeks.[6]

Groom et al suggested a good outcome in case of rescue cerclage done at full cervical dilatation.[7] Similarly Takai et al also showed successful cervical encirclage in advanced cervical dilatation in second trimester.[8]

In present study, 14.28% women having multiple gestation underwent cerclage and found to have good outcome by delivering at between 34-37weeks. Strauss et al done retrospective study that disclaimed a positive impact of cervical cerclage on pregnancy management or perinatal outcome in multifetal pregnancies.[9]

In present study 28.57% underwent cerclage for cervical incompetence delivered between 34-37 weeks of gestation with good outcome.[10] Althrisiusetal concluded that emergency cercalage reduced preterm delivery before 34 weeks along with indomethacin, antibiotics and bed rest compared with bed rest and antibiotics alone.

Gupta et al suggested emergency cerclage appeared beneficial with a history of an open external os.[11]

Odibo councluded Shirodhkar versus Mc Donald's cerclage no significant difference in the prevention of preterm birth by using either procedure on the short cervix.[12]

In the present study, the outcome after elective cerclage was far better than rescue cerclage, 50% had a good

outcome of pregnancy by delivering more than 37 weeks and 40% delivered between 34-37 weeks.

Gluck et al compared the outcome of emergency and elective cerclage and found similar results as in our study.[13]

## CONCLUSION

Elective cerclage was found to be more beneficial to prolong the pregnancy and delay preterm deliveries. Though rescue cerclage seems less beneficial than elective still it is raising the bar of extending the delivery time between 34-37 weeks and beyond 37 weeks in case of cervical incompetence.

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