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**ORIGINAL ARTICLE**

# Frequency of Success Rate of Cervical Cerclage in Preventing Preterm Deliveries

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## ABSTRACT

**Objective**: Determination of success rate of cervical cerclage in prevention of preterm deliveries in patients with cervical incompetence.
**Study Design**: Case Series study.
**Place and Duration of Study**: Study was conducted at Khyber Teaching Hospital for a period of six months from 29 March, 2018 to 29 September, 2018.
**Methodology**: 97 pregnant women were recruited who had a history of previous miscarriages or pre-term delivery. Cervical Cerclage was performed on these patients who were then observed till delivery to ascertain the success rate of cervical cerclage in preventing pre-term deliveries in these patients.
**Results**: In this study mean age was 30 years with SD 8.316. 63% patients were nulli para (with previous second trimester losses) and 37% patients were multi para (with previous pre-term deliveries). 78% delivered at term and 22% delivered preterm. 80% of babies delivered with good apgar score and weight greater than 2.5 kg where as 20% of babies delivered with low apgar score and weight less than 2.5kg. Overall success rate of cervical cerclage was 80%.
**Conclusion**: Our study concluded that success rate of cervical cerclage was 80% in preventing pre-term deliveries in patients having cervical incompetence.
**Keywords**: Cervical Cerclage, Pre-term deliveries, Cervical incompetence, Trans-vaginal

## INTRODUCTION

Cervical cerclage is a surgical treatment that involves sewing the cervix with a purse string-like thread to keep it closed during pregnancy. Preventatively, the treatment can be performed from 12 to 14 weeks before the cervix begins to shrink [2].

Pregnancy losses in the second trimester, preterm births with few or no contractions, and incompetent cervix are all indications for cervical cerclage [2–3].

Globally, premature births have a significant economic and social effect. As newborn care are severely lacking in underdeveloped nations, this phenomenon is much more pronounced. Premature births have been linked to long-term impairments in 85 percent of otherwise healthy neonates and 75 percent of fatalities in newborns [4-6].

Preterm delivery may be accurately predicted by trans-vaginal ultrasonography, with short cervical length being one of the most reliable indicators. In the absence of uterine contractions, a cervical length of less than 25mm is deemed incompetent [7-8].

Women who had cervical cerclage with the Mc Donald suture were found to have a 95.4 percent chance of term births. According to the study [9], the risk of miscarriage after cervical cerclage was 7.5%, the rate of preterm births was 18.7%, and the rate of term deliveries was 73.73%. Abortions and pre-term births occurred in 17.3 percent and 69 percent of instances, respectively, according to a different research. It was found that a total of 64 percent of newborns weighed more than 2.5 kilogrammes and 36 percent weighed less than 2.5 kilogrammes when they were born, with a survival percentage of 76%. Cervical cerclage was found to have a success rate of 80% [10].

The purpose of this study is to present an updated position and to examine the success rate of cervical cerclage in the prevention of pre-term births. As a consequence of the study, women who have lost their kids as a result of pre-term births due to cervical incompetence will be given hope and will be added to the increasing body of data indicating cervical cerclage as a remedy. Consequently, this study is aimed at determining the success rate of cervical cerclage in preventing pre-term births in women with cervical incompetence.

## METHODOLOGY

This study was undertaken at the Obstetrics & Gynae department of Khyber Teaching Hospital and lasted for six months from six months from 29 March, 2018 to 29 September, 2018. Fetal age of fewer than 14 weeks, past mid-trimester losses or pre-term births, or a cervical length of less than 25 mm on transvaginal ultrasound were all diagnostic criteria used to select pregnant women for the study.

Assuming an 80 percent chance of success for cervical cerclage and confidence levels of 95% and 8%, the sample size was determined to be 97. Our sample method was sequential non-probability sampling. It was necessary to seek written agreement from patients after obtaining permission from the hospital's ethics committee as well as the CPSP research committee. We noted the patient's age, obstetrical history, and gestational age during sampling. Trans-vaginal ultrasound and abdominal examination were both reviewed. In order to remove any potential bias, the same ultra-sonographer was used to do the ultrasound at the hospital's regular ultrasound facility. Patients who met the diagnostic criteria were given cervical cerclage. There were no confounding variables such as genital tract

infections, abnormal uterine anatomy, fibrous uterus, or a contraceptive device in situ that may have affected the results. During prenatal appointments, any issues that were discovered were dealt with properly. Per abdominal, per vaginal (if necessary), and per speculum exams were performed on all patients who entered the labour room. Gestational age, 5-minute apgar score, and baby weight were recorded upon birth. Proforma questionnaires were used to collect all of the data.

Data was analyzed in SPSS version 10. For quantitive variables like age of patient, gestational age, weight of baby and apgar score, mean and standard deviation were calculated. Frequency and percentages were computed for qualitative data like success rate. Success rate was stratified with age, parity and gestational age at the time of delivery to see effective modification. Post stratification chi square test was applied in which P value ≤0.05 was considered as significant value. All the results were presented in the form of graphs and tables.

## RESULTS

In this study age distribution among 97 patients was analyzed as 25(26%) patients in age range 18-25 years, 54(56%) patients in age range 26-30 years and 18(18%) patients in age range 31-35 years. Mean age was 30 years with SD 8.316. (Table no: 1)

Status of parity among 97 patients was analyzed as 61(63%) patients as nullipara (having previous mid trimester losses but no pregnancy crossing the age of viability) and 36(37%) patients as multipara

(With previous preterm deliveries). (Table no:2)

Status of gestational age at the time of delivery among 97 patients was analyzed as 21(22%) patients as preterm and 76(78%) patients as term. (Table no:3)

Status of APGAR score among 97 patients was analyzed as 19(20%) infants having APGAR score <7 and 78(80%) infants having APGAR score ≥7. Mean APGAR Score was 7with SD ± 2.115. (Table no:4)

Table 1: Age Distribution (n=97)

| AGE | FREQUENCY | PERCENTAGE |
|---|---|---|
| 18-25 years | 25 | 26% |
| 26-30 years | 54 | 56% |
| 31-35 years | 18 | 18% |
| Total | 97 | 100% |

Mean age was 30 years with SD ± 8.316

Table 2: Parity Distribution (n=97)

| Parity | FREQUENCY | PERCENTAGE |
|---|---|---|
| Nulli Para | 61 | 63% |
| Multi Para | 36 | 37% |
| Total | 97 | 100% |

Table 3: Gestational Age at The Time of Delivery (n=97)

| GESTATIONAL AGE | FREQUENCY | PERCENTAGE |
|---|---|---|
| Pre term (<37 weeks) | 21 | 22% |
| Term (>37 weeks) | 76 | 78% |
| Total | 97 | 100% |

Mean POG was 37 weeks with SD ± 3.217

Status of decrease birth weight among 97 patients was analyzed as 19(20%) infants having birth weight <2.5 and 78(80%) infants having birth weight >2.5. Mean birth weight was 3 kg with SD ± 2.871. (Table no: 5)

Overall success rate was observed in 78(80%) patients which was stratified among the age and parity which is given in table no:6,7,8.

Table 4. Low APGAR Score (n=97)

| APGAR Score | FREQUENCY | PERCENTAGE |
|---|---|---|
| < 7 | 19 | 20% |
| ≥7 | 78 | 80% |
| Total | 97 | 100% |

Mean APGAR Score was 7 with SD ± 2.115

Table 5. Decrease Birth Weight (n=97)

| BIRTH WEIGHT | FREQUENCY | PERCENTAGE |
|---|---|---|
| <2.5 Kg | 19 | 20% |
| ≥2.5 Kg | 78 | 80% |
| Total | 97 | 100% |

Mean birth weight was 3 kg with SD ± 2.871

Table 6: Success Rate (n=97)

| SUCCESS RATE | FREQUENCY | PERCENTAGE |
|---|---|---|
| Yes | 78 | 80% |
| No | 19 | 20% |
| Total | 97 | 100% |

Table 7: Stratification of Success Rate W.R.T Age Distribution (n=97)

| SUCCESS RATE | 18-25 years | 26-30 years | 31-35 years | TOTAL |
|---|---|---|---|---|
| Yes | 20 | 43 | 15 | 78 |
| No | 5 | 11 | 3 | 19 |
| Total | 25 | 54 | 18 | 97 |

Chi square test was applied in which P value was 0.9412.

Table 8: Stratification of Success Rate W.R.T Parity Distribution (n=97)

| SUCCESS RATE | Nulli Para | Multi Para | TOTAL |
|---|---|---|---|
| Yes | 49 | 29 | 78 |
| No | 12 | 7 | 19 |
| Total | 61 | 36 | 97 |

Chi square test was applied in which P value was 0.9782.

## DISCUSSION

An incompetent cervix is one that cannot maintain an intrauterine pregnancy to term, which is 37 weeks. Pregnancy and preventing diseases from spreading up the chain of command are critical benefits of folic acid. An infection is a factor in 50% of all preterm births [3]. Even in the most unusual cases of preterm labour, the cervix will dilate. Short-term and long-term neonatal problems may result from preterm labour and delivery. Acute and long-term consequences include necrotizing enterocolitis, bacterial infection, respiratory distress syndrome, hyperbilirubinemia and necrotizing enterocolitis.

In order to avoid these issues, a procedure known as cervical cerclage is used. Because of these facts, I became interested in examining the effectiveness rate of cervical cerclage in preventing such a scenario. Apgar score at 5 minutes after birth, gestational age at time of delivery, and newborn weight are all factors that are used in the study. Cervical cerclage was successful if the gestational age was greater than 37 weeks, the birth weight was greater than or

equal to 2.5 kilogrammes, and the apgar score was greater than or equal to 7.

The results of the study are examined here to see if they are in line with the existing data on the issue, or if there is any discrepancy in comparison. When a woman is in her reproductive years, she is likely to have a condition known as cervical incompetence. More than half of the 75 individuals in our research had low parity (0-2), which is a strong indicator of the disease that causes poor outcomes. According to a 2004 research, this is also the case [13]. After cervical cerclage was applied, 65 percent of patients delivered at a gestational age of >37 weeks; 17 percent delivered preterm, i.e. between 28 and 36+6 weeks gestational age; and 17 percent experienced pregnancy loss, i.e. patients who aborted between 12 and 28 weeks gestational age, during the course of the study. [7] Shamshad and colleagues [7] carried out a 2-year cross-sectional analysis on patients with a history of 2 or more mid-trimester abortions/preterm births, and their findings are in accord with ours. There were 73.7% term deliveries, 18.7% preterm births, and 7.5% miscarriages following the insertion of cervical cerclage, according to the researchers. 76 percent of term births, 12 percent of preterm deliveries, and 10 percent of abortions were found in another study by Afzal Safdar and colleagues [14].

We see a minor difference (65.3 percent) compared to the 73.7 percent and 76 percent seen in the previous research, which used a cut-off value of 35 weeks gestation for term birth. At 35 weeks' gestation, the cerclage was removed in 2.6 percent of instances because of a patient's complaint of reduced foetal activity. When the placenta abrupted or chorioamnionitis occurred between 28 and 37 weeks gestation, the placenta was also removed. There was a minor discrepancy in the term delivery date due to all of these factors, After birth, a high Apgar score indicates that the baby is more likely to survive. More than 80% of the patients in our research had an apgar score of 7 or above at 5 minutes (78 out of 97). Cervical cerclage has been shown to promote foetal survival in prior investigations [7].

Prenatal morbidity and death are higher in infants weighing less than 2.5 kg at delivery. Cervical cerclage has been shown to improve newborn survival and reduce prenatal morbidity in our research, with 78 out of 79 (80%) infants born with a birth weight of more than or equal to 2.5 kg. Ezechi OC [3] found that 71% of infants were born with a birth weight more than 2.5 kg in a 2003 survey. It's possible that the low socioeconomic position of females in our area is to blame for this tiny disparity in our research results. The overall success rate of cervical cerclage was discovered to be 80%, which was stratified by age, indicating that the success rate was highest in the age group of under 30 years old. This is owing to the fact that reproductive functions decline as we age. According to a prior study in our nation, this is also true [7].

## CONCLUSION

Our study concludes that success rate of cervical cerclage was 80% in preventing preterm deliveries in patients having cervical incompetence.

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