

Study to Determine the Proportion of Maternal Outcome in Terms of Term/Preterm/Type of Deliveries in Patients of Cervical Incompetence Treated by Cervical Encirclage

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Abstract:

Preterm birth is defined as delivery before 37 weeks or 259 days of gestation. Three different modes of clinical presentation are preterm labor (PTL), preterm premature rupture of membranes (PPROM) and PPRM are often medically indicated (iatrogenic) preterm birth. Therefore, we aimed to study the proportion of maternal outcome in terms of term/preterm/type of deliveries. Present study includes 100 cases, maximum 76% of cases were found to be in 20-30 year of age group and minimum 8% of cases were found in 30 years and above of age group and average age was about 24 years. Maximum 59.25% of cases had 2nd trimester abortions and 40.70% presented with 1st trimester abortions. In previous pregnancy there were total 131 preterm deliveries and out of 131 only 42 survived. Thus, the pregnancy outcome was very poor. In cases of present study only 4% case had live birth in their previous pregnancies and others were absolute cases of abortion and preterm vaginal delivery. Still birth, MTP 19%, 21%, 1%, 5%, respectively but total 96% had previous pregnancy losses. 22 to 24weeks prolongation was maximum seen in 34% cases.

Keywords: Term, Preterm, Cervical Incompetence, Encirclage.

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Introduction

Preterm birth is defined as delivery before 37 weeks or 259 days of gestation. This was initially implemented by World Health Organization (WHO) in 1976 and the international Federation of Gynecology and categories of preterm birth based on Obstetrics (FIGO). There are stages of preterm: extremely preterm <28 weeks, very preterm 28 to 32 weeks and moderate to late preterm 32 to 37 weeks (WHO, 2013) [1].

Three different modes of clinical presentation are preterm labor (PTL), preterm premature rupture of membranes (PPROM) and PPRM are often medically indicated (iatrogenic) preterm birth. PTL combines is often called as spontaneous preterm birth [2]. The incidence was estimated to be 13.4 million babies born pre-term in 2020, with nearly 1 million dying from preterm complications, this is equivalent to around 1 in 10 babies born early (before 37 weeks of pregnancy) worldwide [3]. Across countries, the rate of preterm birth ranges from 4–16% of babies born in 2020 [4].

A valid cause of habitual abortion in the second trimester is incompetence of cervix which leads to increased perinatal morbidity and mortality [1].

Recurrent miscarriage is a distressful condition and recurrent mid-trimester miscarriage is disturbing to doctor and patient alike because of the loss of abnormal fetus in advancing stages of gestation. Recurrent abortions not only cause physiological and pathological trauma but also cause psychological trauma to mother, where the women lives in constant fear of unpredictable outcome of pregnancy causing unnecessary anxiety [5].

The diagnosis is difficult to make, and usually depends on a careful history and review of the medical records, rather than accurate diagnostic means or laboratory tests.

Premature rupture of the membranes, chorioamnionitis, spontaneous abortion, and preterm delivery are common adverse events associated with cervical insufficiency, accounting for 0.2% to 7% of all complicated pregnancies [1].

Therefore, we aimed to study the proportion of maternal outcome in terms of term/preterm/type of deliveries.

Materials and Methods

Present study is a prospective observational study conducted in the Obstetrics Department at Umaid Hospital, Jodhpur after obtaining the permission of institutional ethical committee at Dr. S.N. Medical College and Superintendent of Umaid Hospital, Jodhpur. This study was planned for a period of nine months and consecutive sampling was done or till the desired sample size was achieved. Demographic and clinical data was obtained from all the patients for further analysis.

Sample size: Sample size was calculated at 95% confidence interval to verify an expected 80% proportion of term deliveries among all cervical cerclage as reported by Karim et al [6] and by considering 20% of relative error.

Inclusion criteria: All pregnant women underwent cervical cerclage application presenting with previous history of mid-trimester / early third-trimester pregnancy loss or preterm delivery characterized by painless cervical effacement and dilatation, drainage of liquor followed by the expulsion of the product of conception.

Exclusion criteria: Those patients were excluded from the study that were not willing for follow-up and didn't appear for follow-up.

Method of Data Collection: Data of all pregnant women who underwent cervical cerclage presenting with recurrent mid-trimester miscarriage were reviewed. Demographic characteristics such as age, prior registration, parity were reviewed. The relevant data was collected according to proforma and analyzed concerning patient's characteristics, obstetric history, gestational age at admission, gestational age at cerclage insertion, the timing of procedure, pregnancy outcome in terms of gestational in 34% cases.

age at the end of pregnancy, mode of deliveries after cerclage insertion, H/o abortions and details of current pregnancy and relevant past medical/personal/drug history. Delivery outcomes were reviewed including gestation at delivery, the duration of prolongation of pregnancy, birth weight, neonatal survival, and the presence of preterm pre-labour rupture of membranes (PPROM) or chorioamnionitis.

Statistical Analysis: Qualitative data was expressed in form of percentages and proportions. Quantitative data was expressed in form of mean \pm SD. Significant differences in proportions were inferred by the chi-square test. Significant differences in mean \pm SD were inferred by unpaired t-test. P-value less than 0.05 were considered as significant.

Results

Present study includes 100 cases, maximum 76% of cases were found to be in 20-30 year of age group and minimum 8% of cases were found in 30 years and above of age group and average age was about 24years. Maximum 59.25% of cases had 2nd trimester abortions and 40.70% presented with 1st trimester abortions.

In previous pregnancy there were total 131 preterm deliveries and out of 131 only 42 survived. Thus, the pregnancy outcome was very poor. In cases of present study only 4% case had live birth in their previous pregnancies and others were absolute cases of abortion and preterm vaginal delivery. Still birth, MTP 19%, 21%, 1%, 5%, respectively but total 96% had previous pregnancy losses. 22 to 24weeks prolongation was maximum seen

Table 1: Distribution of cases according to age

Age Group	Number of Patients	Percentage
18-20 years	16	16%
21-30 years	76	76%
31-40 years	8	8%
Total	100	100%

Table 2: Incidence of previous abortions among the study subjects

Number of abortion	No of cases	Percentage
1st trimester	22	40.7
2nd trimester	32	59.25
Total	54	100

Table 3: Incidence of previous pregnancy losses among the study subjects

Number of Abortion	Number of Patients	Percentage
1	21	21%
2	17	17%
3	15	15%
4	3	3%
Nil	44	44%
Total	100	100%
Pre term Delivery	Number of Patients	Percentage

1	26	26%
2	18	18%
3	7	7%
4	5	5%
Nil	44	44%
Total	100	100%
Number of Still Birth	Number of Patients	Percentage
1	4	4%
2	4	4%
3	1	1%
4	1	1%
Nil	90	90%
Total	100	100%
Number of MTP	Number of Patients	Percentage
1	3	3%
2	5	5%
Nil	92	92%
Total	100	100%

Table 4: Distribution of Duration of Pregnancy Prolonged in weeks with encirclage

Duration of Pregnancy Prolonged (in weeks)	Number of Patients	Percentage
<1weeks	6	6
2-4 weeks	8	4
5-8weeks	6	2
9-12 weeks	4	4
12-16 weeks	20	20
17-20weeks	22	22
20-24 weeks	34	34
Total	100	100%

Discussion

The current study was a prospective study analyzed 100 patients with cervical incompetence treated by encirclage, during the period 2020-2021. Cerclage is the most common method used to treat cervical insufficiency during the second trimester of pregnancy. Most data was obtained from previous studies and were retrospective.

As shown in table 1, among the cases studied in the present study maximum cases 76%, belonged to the age group of 21-30 years and minimum cases that is 8% were of 30 years and above age group. The average age was 24.9 years. Age group ranged between 18-36 years in the present study.

Liu H et al [7] in his study reported the age range was 21–38 years and Guo et al [8] mentioned patients had 21–39 years these two studies were in accordance with our study reports. In some studies the difference may be due to late marriage and late conception and ethnicity variation.

Table 2 depicts the history of abortions in previous pregnancies that were present in 54% of cases. Mid-trimester abortions were seen in 59.25% of cases. Jones R et al [9] found that 45% of patients reported having one or more prior abortions. In 2008, 50% of all abortion patients reported having

one or more prior abortions [10]. Further, Cassing Hammond et al [11] addressed one large US public hospital, where, 58% of patients had second-trimester procedures which were already beyond the first trimester by the time they obtained a pregnancy test.

Table 3 depicts the incidence of previous pregnancy losses in the present study only 4% of cases had a live birth in their previous pregnancies and 96% had miscarriages in their previous pregnancies. Turesheva A et al [12] reported that due to the heterogeneity of definitions and criteria applied by international guidelines for recurrent pregnancy loss, the true incidence of recurrent miscarriage, which is reported to range from 1% to 5%, is difficult to estimate. Our study findings fall in this accordance.

As shown in Table IV, pregnancy prolonged after encirclage maximally upto 24 weeks in 34% of cases (total gestation achieved nearly term) and minimally upto 0- 2 weeks in 10 cases which failed. Average duration was 16.30 weeks after encirclage in the present study, out of 100 cases 82 patients gave birth to infants after an average of 37.5 weeks of gestation. Zhu LQ et al [13] in their study reported that there was 82.28% success rate of emergency cerclage can lead to the delivery of a live infant and

evidence shows a significant increase in live birth rate (72% vs. 25%) in the emergency cervical cerclage group [14].

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