

# Perinatal Outcome in Multiple Pregnancies with or without Prophylactic Cervical Encirclage

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**Abstract:** Background: Preterm birth is leading cause of neonatal death and India being with greatest number of preterm births. The incidence of multifetal pregnancies has registered increase globally. This is partly due to the widespread use of ovulation induction drugs in the treatment of infertility, assisted reproductive technology and also due to delaying childbearing to a later age. With the development of ultrasound techniques. Methods: This is a prospective observational study in the department of obstetrics and gynaecology at Geetanjali Medical College and hospital, Udaipur, Rajasthan (India). The study will be carried out between Jan 2020-dec2020. Inclusion Criteria: All women presenting with viable twin pregnancy between 16 and 22 weeks of gestation. Exclusion Criteria: All women with twin pregnancy presenting with - APH, Already proven upper genital infection or chorioamnionitis, PPROM (Preterm Premature Rupture Of Membranes), IUFD (Intrauterine Fetal Death), Malformed foetus, Uterine anomalies, Low lying placenta. Pre-existing maternal medical illness like cardiovascular, pulmonary, renal, hepatic and endocrine disease. Discussion: My study included 60 cases out of which 30 patient were undergone Mac Donald's (study group) Cervical cerclage and the remaining 30 were not undergone cerclage (control group). In present study, mean gestational age at delivery for study population was 34.2 weeks, for Women undergone cerclage was 35.3 weeks and for women not undergone. Conclusion: In spite of close vigilance, preterm birth in twin gestation is common and unpredictable. One of the factors of preterm birth in twin gestation is uterine over distention. This can be prevented by cervical cerclage.

**Keywords:** Multiple gestation, Mc donalds cerclage, PROM, IUFD

## 1. Introduction

Preterm birth is leading cause of neonatal death and India being with greatest number of preterm births.<sup>1</sup>The incidence of multifetal pregnancies has registered increase globally. This is partly due to the widespread use of ovulation induction drugs in the treatment of infertility, assisted reproductive technology and also due to delaying childbearing to a later age. With the development of ultrasound techniques, it has become apparent that incidences of multiple gestations are more common than previously indicated which can be done as early as 6-7 weeks of gestation

A detailed study of 60 cases were conducted in Geetanjali Medical College and hospital, Udaipur (Rajasthan) India. Babies born from multiple-birth pregnancies are much more likely to result in premature birth than those from single pregnancies. 51% of twins and 91% of triplets are born preterm, compared to 9.4% in singletons. 14% of twins and 41% of triplets are even born very preterm, compared to 1.7% in singletons.

We assigned all patients with multiple pregnancy and divided into 2 groups with or without cervical cerclage with 30 patient in each group, patient under both groups were followed up to delivery for perinatal outcome.

The preterm births in multiples tending to have a lower birth weight which ultimately leads to hypothermia, respiratory difficulties, PDA, intracranial bleeding, hypoglycemia, necrotizing enterocolitis, infection, ROP and death.

The probable reasons for preterm birth are overdistention of uterus and intrauterine infection<sup>7</sup> which may be because of early opening of cervix and exposure of fetal membranes to the bacterial flora of vagina.<sup>8</sup> Also the risk of preterm birth is inversely proportion to the cervical length.<sup>9</sup>

Cervical cerclage (tracheloplasty), also known as a cervical stitch, is used for the treatment of cervical incompetence (or insufficiency), a condition where the cervix has become slightly open or closed with short in length.<sup>10</sup>

Use of cerclage include the management of women considered to be at high risk of mid-trimester loss and spontaneous preterm birth by virtue of factors such as multiple pregnancy, uterine anomalies, a history of cervical trauma and cervical shortening seen on sonographic examination. While cerclage may provide a degree of structural support to a weak cervix, its role in maintaining the cervical length and the endocervical mucus plug as a mechanical barrier to ascending infection may be more important.

The addition of ultrasound in the diagnosis and management of patients with known or suspected incompetent cervix has improved our understanding of the relationship of cervical physiology and preterm delivery.<sup>11-16</sup> Incompetent cervix usually coexists with preterm labor and it has been proposed that the two are part of one entity.

Patients undergoing cervical cerclage after cervical changes diagnosed by ultrasound may do as well as patients undergoing cerclage based on strong history of pregnancy loss because of cervical incompetence.

This study was for knowledge of role of cervical cerclage in preventing preterm birth especially in multifetal gestation to prevent complication related to preterm birth and ultimately of low birth weight babies with their poor perinatal outcome

## 2. Aim & Objectives

### Aim

- Perinatal outcome in multiple pregnancy with or without cervical encirclage

### Objectives

- To determine if prophylactic cerclage improve perinatal outcome in women with multiple pregnancy with or without cervical insufficiency.
- To determine mode of delivery in twin pregnancy with cervical encirclage and perinatal outcome.

## 3. Method & Material

A Prospective clinical hospital based study was done in 60 patients at tertiary care referral hospital in the department of obstetrics and gynaecology at geetanjali medical college and hospital,udaipur.

**Study design-** Prospective observational study

### Inclusion Criteria

All women presenting with viable twin pregnancy between 16 and 22 weeks of gestation

### Exclusion Criteria

All women with twin pregnancy presenting with -

- APH
- Already proven upper genital infection or chorioamnionitis
- PPROM (Preterm Premature Rupture Of Membranes)
- IUFD (Intrauterine Fetal Death)
- Malformed foetus
- Uterine anomalies
- Low lying placenta

Pre-existing maternal medical illness like cardiovascular, pulmonary, renal, hepatic and endocrine disease

### 3.1 Method

This is a prospective observational study in the department of obstetrics and gynaecology at Geetanjali Medical Collage and Hospital, Udaipur.

The study will be carried out between Jan 2020-dec2020

### Work-up of patients

- 60 women selected who fit in the above mentioned criteria.
- Baseline data was recorded by questionnaire and patient interview.
- Once the patient enrolled herself in the study, an ultrasonography was done as routine procedure for fetal wellbeing.

- All the patients with twin pregnancy registered in antenatal OPD between 16-22 weeks of gestation will be explained the necessity of cerclage.
- Depending upon who opt for the procedure patients will be divided into two groups

### Study group

- Twin pregnancy with cervical cerclage.

### Control group

- Twin pregnancy without cervical cerclage.
- All the patients will be subjected to standardized form of management.
- Any incident such as IUGR (Intra Uterine Growth Retardation), IUFD (Intra uterine Fetal demise), LBW (Low birth weight), PROM (Premature rupture of membranes), bleeding, bladder or cervical injury, maternal pyrexia, etc will be recorded.
- Potential confounding factors will be identified and adjustment will be made in statistical models. These factors include maternal age, gravidity, gestational diabetes, gestational hypertension, sepsis.

The following adverse pregnancy outcomes among the two groups will then be compared: Second trimester loss, IUGR, preterm labor (labor <37 weeks of gestation), PPROM (membrane rupture <37 weeks of gestation), Stillbirth, death following live birth, discordant growth (difference between weight of twins >20%), congenital anomaly, twin-twin transfusion.

## 4. Results

**Table 1:** Association of weeks of gestation at delivery among study group and control group

Weeks at Delivery	Cerclage	No Cerclage	Total
Before 34 wks	6	12	18
34-37 wks	18	16	34
After 37 wks	6	2	8
total	30	30	60

Table 1 shows association of weeks of gestation at delivery between 2 groups no. of women underwent cerclage and delivering after 37 wks were significantly high.

**Table 2:** Association of mode of delivery among study group and control group

Mode of delivery	Cerclage	No Cerclage	Total
Elective LSCS	8	2	10
Emergency LSCS	16	24	40
Full term VD	1	1	2
Preterm VD	5	3	8
Total	30	30	60

Table 2 shows association of mode of delivery between 2 groups no. of women who undergone cerclage and had elective LSCS were 8 and preterm vaginal delivery 5 compare to 2 and 3 that of not undergoing cerclage respectively.

**Table 3:** Association of birth weight among study group and control group

Birth weight	Cerclage	No Cerclage	Total
Upto 1 kg	3	10	13
1-1.5 kg	3	11	14
1.5-2.0 kg	5	6	11
2.0-2.5 kg	4	2	6
>2.5 kg	15	1	16
toatal	30	30	60

Table 3 shows birth weight of neonates between 2 groups in the women who were undergone cerclage there were 15 neonates whose birth wt.>2.5 kg and 3.

Whose birth wt.< 1 kg compare to 1 and 10 neonate respectively of those who were not underwent cerclage.

**Table 4:** Association of APGAR of neonate among study group and control group

APGAR	cerclage	No cerclage	total
< 7	6	24	30
>7	24	6	30
toatal	30	30	60

Table 4 shows association of APGAR score of neonates at 5 minutes of 2 groups there were 24 neonates whose APGAR score was <7 and there mother were not undergone cerclage compare to 6 neonates that of undergoing cerclage.

## 5. Discussion

My study included 60 cases out of which 30 patient were undergone Mac Donald's(study group) Cervical cerclage and the remaining 30 were not undergone cerclage( control group).

### Gestation age at delivery

Liddiard A et al, Mean gestational age at delivery in group of women undergone cervical cerclage was 35 weeks.

Dor J, Preterm vaginal delivery were 45.4% in women undergone cerclage compare to 47.8% in women not undergone cerclage.

Kunsch U et al, Out of women undergone cervical cerclage 100% delivered after 34 weeks whereas 17% delivered after 34 weeks in women not undergone cerclage.

Aguilera M et al, Out of women undergone cervical cerclage 61.5% delivered after 30 weeks, 30.8% after 32 weeks and 23% before 24 weeks of gestation.

Collins A et al, Out of women undergoing cervical cerclage 6% delivered before 30 weeks, 13% delivered before 34 weeks.

Rebarber et al, Women undergone cervical cerclage had mean gestational age at delivery of 33.5 weeks.

In present study, mean gestational age at delivery for study population was 34.2 weeks, for Women undergone cerclage was 35.3 weeks and for women not undergone.

## 6. Conclusion

In spite of close vigilance, preterm birth in twin gestation is common and unpredictable. One of the factors of preterm birth in twin gestation is uterine overdistention. This can be prevented by cervical cerclage.

My study supports this hypothesis. Elective cervical cerclage appear to have low complication rates and high live-birth rates. MacDonald's cervical cerclage can prolong the gestational period. Hence, it is helpful in decreasing the incidences of premature neonate, low birth weight neonate and ultimately its further consequences. Neonates with very premature birth should be managed in the NICU where they can be closely monitored and treated.

MacDonald's cervical cerclage is completely safe if done by skilled person. So offering prophylactic MacDonald's cervical cerclage in twin gestation between 16 and 20 weeks will not harm the women.

It is difficult to predict those who may require cervical cerclage although all multiple pregnancies are at high risk. Cerclage should be considered an option for patients with twin pregnancies in the second trimester.

Pathogenesis of preterm birth is multifactorial in twin gestation. Hence prophylactic cervical cerclage is not only solution for preventing preterm birth in twin gestation. But according to my study results, it's one of the tools to prevent preterm birth in twin gestation.

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