ORIGINAL RESEARCH PAPER

Volume-7 | Issue-11 | November-2018 | PRINT ISSN No 2277 - 8179

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

ANALYSIS OF THE EMERGENCY CERCLAGE DONE FOR CERVICAL INSUFFICIENCY WITH DILATED CERVIX AND ITS OUTCOME

Gynecology

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ABSTRACT

The aim of this study was to evaluate the effectiveness of emergency cerclage in patients with advanced cervical insufficiency. The study included 35 pregnant women who underwent emergency cervical cerclage in 2nd trimester, due to advanced cervical dilation at obstetrics and gynecology department of Jubilee Mission Medical College & Research Institute, Thrissur. McDonald's technique was used for all 35 women. Out of the 35 patients for whom emergency cervical cerclage was performed, 22 patients delivered successfully. The present study demonstrates that emergency cerclage during 2nd trimester may be beneficial for prolongation of pregnancy and better neonatal outcome.

KEYWORDS

Emergency cerclage, preterm delivery, Cervical dilatation, McDonald technique

INTRODUCTION

Preterm delivery remains one of the most important issues in obstetrics and accounts for the majority of neonatal deaths and nearly one half of all cases of neurological disability.[1,2] Although all births before 37 weeks of gestation are defined as preterm, most damage and death occurs in infants delivered before 34 weeks.[3]

Improvements in neonatal care have led to higher rates of survival among very premature infants, but a major effect on the associated morbidity and mortality will be achieved only by better identification of women at high risk of preterm delivery and by development of effective intervention to prevent this complication.

Cervical insufficiency is a known risk factor for preterm labour and contributes to 10-25% of second trimester losses. Cervical insufficiency is defined as the inability of the uterine cervix to retain a pregnancy in 2nd trimester in the absence of uterine contraction. Cervix >1cm dilated, will only occur in around 1% of pregnant population, but risk of preterm delivery before 32 weeks was found to be 48% when cervical dilatation was >1cm.[4,5]

A myriad of strategies to prevent preterm delivery have been considered along the years. Bed rest, maintenance tocolytics, or antibiotic treatment have proved to be of no benefit.[6] Ultrasound studies show that, transvaginal sonography measurement was clear in diagnosing cervical insufficiency and prediction of preterm delivery.

The treatment of cervical insufficiency with dilated cervix is by cervical cerclage after assessment of cervical dilatation during pregnancy by per vaginal examination and confirming by transvaginal sonography. Cervical cerclage and progesterone supplementation have emerged as preventive therapies, though their absolute efficacy continues to be debated.[7] Based on recent data the benefit derived from cervical cerclage in emergency cases is limited to a small proportion of preterm births.

The aim of this study is to show that cervical insufficiency if treated with emergency cerclage, is useful in prolonging pregnancy and improves perinatal morbidity and mortality.

MATERIAL AND METHODS

This was a prospective study, carried out in the Obstetrics and Gynaecology department of Jubilee Mission Medical College & Research Institute, Thrissur from September 2011 to September 2013. Thirty five singleton pregnant women with cervical insufficiency were recruited for the study. Cases of cervical insufficiency with dilated cervix in 2nd trimester, diagnosed by clinical examination and ultrasound examination were studied regarding cervical dilatation, funnelling of internal os and membrane bulging into cervical canal.

Patients with multiple pregnancy, C/0 pain in abdomen, bleeding per vaginum or leaking per vaginum, active uterine contractions, ruptured membranes, placenta previa, chorio-amnionitis, anomalous baby, intrauterine death, cervical dilatation >7cm, 1st and 3rd trimester were excluded from the study.

Clinical examination such as per-speculum and per-vaginal examination were done to know cervical length and cervical dilatation and to know whether membranes are bulging or not. Patients clinically detected as cervical insufficiency with cervical dilatation, were subjected to all routine investigations, abdominal and vaginal sonography to confirm the diagnosis.

Surgical treatment: After investigating and preparing the patients, McDonald's cerclage was placed using Mersilene tape for all 35 women. During the procedure, patients were placed in lithotomy position with a steep trendelenberg unit. Regional anaesthesia was used for all the cases. After vaginal preparation, a sterile speculum was placed in the vagina and Sims retractor was used for visualization. Procedure to reduce bulging membranes from cervical canal inside uterus[8,9]: Steep Trendelenberg's position was given. Multiple sponge holding forceps were used to hold the cervix. The tip of size-18 Foley catheter was slowly introduced through the side of the dilated cervices. The bulb was inflated slowly. Upon reducing the membranes within the uterine cavity, the bulb was inflated of the catheter further with saline to a total volume of 25 cc. This procedure maintained the catheter within the uterine cavity and facilitated the insertion of a MacDonald cerclage in the region of the internal cervical os. As we made the suture tight, bulb was deflated slowly and catheter was taken out.

The suture was tightened on the anterior cervical surface in the midline with a surgical knot to reduce the diameter of the canal to 5mm. After the suture was made tight, bulb was deflated slowly and catheter was taken out.

Post-operatively, all patients were given bed rest with foot end elevation, antibiotics and tocolytics.

RESULT

This study included 35 cases with age ranging from 18 to 45 years. Maximum patients belonged to age group 22-25 years (57%). The mean age in the study was 23 years. Most of the cases in the study group were multi-gravida (89%) while primi-gravida were 11%. Out of 35 cases, 11 had one or more previous spontaneous 2nd trimester abortion. Similarly 16 out of 35 cases had a history of one or more preterm deliveries. Hence, 27 out of 35 cases had a significant bad obstetric history.

In the present study 4 cases were treated with cerclage in previous pregnancy. 31 cases however had not undergone any previous surgery.

Patients were grouped into two groups according to gestational age. One was from 16 to 21 weeks of gestation (till 147 days) and other was from 21 to 26 weeks of gestation (>147 days) (table 1). The success rates in both the groups were compared.

TABLE 1 : Gestational age at the time of treatment'

Gestational Age (in weeks)	Total	Number of cases (N=35)	
16-21	17 (48.6%)	Successful	07
		Failure	10
21-26	18 (51.4%)	Successful	15
		Failure	03

The success rate of treatment was assessed by the continuation of pregnancy beyond 28 weeks of gestation. Therefore 28 weeks was taken as cut off. Thirteen cases out of 35 failed to continue beyond 28 weeks (37%). In the remaining 22 cases (62.8%), pregnancy continued beyond 28 weeks. In those 22 cases, 09 pregnancies continued beyond 34 weeks of gestation (26%). Thirty seven percentage of cases of emergency cerclage delivered between 28 to 34 weeks (table 2).

TABLE 2: Gestational age at the time of delivery

Gestational Age (in weeks)	Number of cases (N=35)	% of total
<28 weeks	13	37.2
28-34 weeks	13	37.2
>34 weeks	09	25.6

Out of 35 cases of emergency cerclage, 5 patients developed signs of preterm labour for which cerclage were removed anticipating delivery, but the patients responded well to tocolytic therapy and antibiotics. Repeat emergency cerclage were tried in those 5 cases. Out of that 2 cases had abortion.

In this study, 23 cases had dilatation of cervix upto 3cm. Out of that, 18 patients went on to continue the pregnancy while 5 cases failed to continue. When dilatation was >3cm, 8 out of 12 patients had abortion. Only 4 out of 12 patients could continue the pregnancy when cervical dilatation was >3cm (table 3).

TABLE 3: Failure according to cervical dilatation

	Cx dilatation Upto 3cm	Cx dilatation >3cm	Total
Successful	18	04	22
Failure	05	08	13
Total	23	12	35

Out of the 35 patients, 13 cases resulted into abortion (37%). Twenty two patients had live birth (63%). Out of that 22 cases, 13 cases had preterm vaginal delivery (37%) and 2 cases had term vaginal delivery (6%). Seven cases underwent caesarean section for obstetric indication (fetal distress, breech, failed induction). Out of that, 6 were preterm Lower segment Cesarian section (LSCS) (17%) and 1 was term LSCS (3%). Only 9% of cases of emergency cerclage continued till term (beyond 37 completed weeks). 54% cases had preterm delivery.

Out of 22 live fetus, average birth weight was 1.97 kg. As a large number of the cases delivered preterm, majority of the neonates had birth weight on lower side (table 4). Fourteen cases had baby weight between 1 to 2 kg (40%) while 8 cases had baby weight between 2 to 3 kg (23%).

TABLE 4: Distribution of cases according to neonatal birth weight

Weight (in kg)	Number of patients	% of total
< 1	13	37.2
1 to 1.5	02	5.7
1.6 to 2	12	34.3
2.1 to 2.5	07	20
2.6 to 3	01	2.8

DISCUSSION

Cervical insufficiency is an independent risk factor for preterm birth. It is responsible for majority of cases of 2nd trimester deliveries. It is of utmost importance to gain as much insight as possible into the etiologies of cervical insufficiency and attempt to find treatments which can help to decrease the incidence of preterm birth and spontaneous preterm loss. Emergency cerclage can be of benefit in a group of well selected patients. Many studies have reported a significant improvement in neonatal outcome after treatment with emergency cerclage.

In the present study, 35 cases of dilated cervix underwent treatment with Mc Donald's cervical cerclage. The mean age of the study group was 23 years with a range between 18 to 45 years. There were 4 primigravidas and 31 multigravidas. Success rate for primigravida and multigravida were compared. There was no significant difference in success rate. Parity of the patient did not affect the outcome of the study.

The patients were divided into two groups according to gestational age. Out of 35 cases, 17 were in 16-21 weeks of gestation (49%) and 18 were in 21-26 weeks of gestation (51%). The success rates in both the groups were compared. 10 out of 17 cases in 16 to 21 weeks of gestation who underwent emergency cerclage failed to continue and resulted in abortion. At the same time out of 18 cases of emergency cerclage from 21 to 26 weeks of gestation, only 3 resulted into abortion and rest 15 patients continued the pregnancy successfully. There was a significant difference in success rate for emergency cerclage in both the groups. It was found that failure rate is high for lower gestational age (<21 weeks in case of our study). As gestational age increases, the success rate of emergency cerclage also increases (>21 weeks in our study). This was concordant to the study by Terkildsen *et al*., 2003, in which success rate for emergency cerclage was less for < 22 weeks of gestation than for > 22 weeks of gestation.[10]

In the present study, the success rate of treatment was assessed by the continuation of pregnancy beyond 28 weeks of gestation. The cut off value was taken as 28 weeks because in all cases of dilated cervix our aim was to continue pregnancy at least beyond salvageable gestation and in our institution survival rate is very good beyond 28 weeks. Thirteen cases out of 35 failed to continue beyond 28 weeks (37%). In the remaining 22 cases (63%), pregnancy continued beyond 28 weeks. In those 22 cases, 09 pregnancies continued beyond 34 weeks of gestation (26%) and we got lung maturity in those babies. 37% of cases of emergency cerclage delivered between 28 to 34 weeks. These babies required NICU admission. Althusius *et al*., 2003 found success rate of 54% (7 out of 13) for emergency cerclage (cut off taken as 34 weeks in their study).[11]

When comparison of failure rate in cases of emergency cerclage was done against repeat emergency cerclage and there was no significant difference in outcome. Repeat emergency cerclage did not improve the success rate.

Cervical dilatation is one of the most important factors to determine success rate for emergency cerclage. In the present study 23 cases had dilatation of cervix upto 3cm. Out of that, 18 patients went on to continue the pregnancy while 5 cases failed to continue. When dilatation was >3cm, 8 out of 12 patients had abortion. Only 4 out of 12 patients could continue the pregnancy when cervical dilatation was >3cm. It was found that success rate dropped significantly when cervical dilatation was >3cm. Debby *et al*., 2007 in their study stated that cervical dilatation > 4cm is associated with poor outcome in emergency cerclage cases even in experienced hands.[12] Terkildsen *et al.*, 2003 found that success rate of emergency cerclage is very low beyond 5 cm cervical dilatation.[10]

CONCLUSION:

The present study demonstrates that emergency cerclage during 2nd trimester may be beneficial for prolongation of pregnancy and better neonatal outcome. Thus it can be safely concluded that cases of cervical insufficiency with dilated cervix can be treated with emergency cerclage. Success rate and neonatal outcome is good in experienced hands.

ACKNOWLEDGMENT:

We extend our sincere gratitude to faculty members of Jubilee Center for Medical Research for editing this article.

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