Original Article

Study of Pregnancy Outcome after Emergency/Rescue Cerclage

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ABSTRACT

Background and Aim : Cervical incompetence is defined as the inability to support a pregnancy to term due to a functional or structural defect of the cervix. The aim of study was to evaluate the effectiveness and safety of emergency cervical cerclage in women with advanced cervical dilatation and bulging of fetal membranes.

Materials and Methods: This is a retrospective study of case files of 35 patients who underwent emergency second trimester cerclage with advanced cervical dilatation (2 to 4 cm), some with bulging of fetal membranes during the period January 2019 - January 2020. The McDonald technique was employed in all the cases.

Results: Out of the 35 patients for whom emergency cervical cerclage was performed, four patients had spontaneous abortion after cervical cerclage and twelve of these patients had term delivery. Thirty one fetuses were live born after the period of viability. Twelve of these babies (35 percent) were admitted to NICU and 19 neonates (55 percent) required only regular perinatal care.

Conclusion: Post emergency cervical cerclage, the outcome in terms of prolongation of pregnancy, live births and neonatal survival is better.

Keywords: Cervical dilatation, emergency cerclage, McDonald

INTRODUCTION

Cervical incompetence is defined as the inability to support a pregnancy to term due to a functional or structural defect of the cervix.[1] It is reported that the rate of cervical incompetence is between 0.1% and 2%, and is estimated to account for 15% of the recurrent pregnancy losses between 16 and 28 weeks.[2]

In cases with cervical incompetence, mechanical support of a weak cervix is thought to be the main factor required to prolong the pregnancy. It is a clinical diagnosis characterized by acute, painless dilatation of the cervix usually in the mid trimester. There may also be bulging of the fetal amniotic membranes through the uterine cervix and vagina.[3]

Cervical cerclage has become the mainstay for the management of cervical incompetence. The use of cervical cerclage in the prevention of preterm delivery was

described by Shirodkar in 1955 and then by McDonald two years later.[4]

MATERIALS AND METHODS

Study Design

This retrospective study was conducted in Department of Obstetrics and Gynaecology in Chalmeda Anand Rao Institute of Medical Sciences, Karimnagar. The study period was 1 year from January 2019 to January 2020.

Inclusion Criteria

All the women with singleton pregnancies who presented between 15 to 22 weeks of gestational age diagnosed with cervical dilatation ranging between 2 to 4 cms and intact membranes were proposed for cervical encerclage

Exclusion Criteria

Pregnant women with fetal anomalies,with uterine contractions,with leaking per vaginum,with bleeding per vaginum, multiple gestation,clinical or subclinical chorioamnionitis.

Study Procedure

All the women had the standard preoperative treatment for emergency cervical encerclage according to hospital protocol which included bed rest in trendlenberg position, a broad spectrum antibiotic and parental tocolytics are started for at least 8 hours.

During the operation, general anaesthesia was used, with the patient in head low, lithotomy position. The steep trendelenburg position assisted in spontaneous reduction of the amniotic membranes into the uterine cavity.

Furthermore, a Foley's catheter with tip cut up to the balloon is gently inserted into the canal and inflated until the membranes ascend into the uterine cavity. Emergency cervical cerclage was then inserted using the McDonald technique with loop polypropylene suture No.1 hitched to atraumatic round body needle.[5, 6]

Postoperatively parenteral tocolytics and antibiotics were continued for 24 hours, the patients were discharged home after 48 hours and continued on antibiotics and oral tocolytics for one week.

Following discharge complete bed rest and avoidance of coitus was advised. All the cerclage sutures were removed electively at the gestation of 37 to 38 weeks of pregnancy or following rupture of fetal membranes, haemorrhage or whenever labour ensued.

Ethics Approval

The study was approved by the Institute Ethics Committee, CAIMS, Karimnagar. These findings were recorded on a standardized proforma. Statistical analysis was done using Microsoft Excel and Statistical analysis with SPSS software was done.

RESULTS

Table 1: Maternal Characteristics

Parameter	Range	Mean
Age in years	19-28	21.5
Gestational age in weeks	15-22	19.3
Dilatation of cervix in centimetres	2-4cm	3cm

Altogether 35 patients were analysed during the study. The mean age at the time of presentation was 21.5 years with a range of 19 to 28 years. The gestational age at which the patients presented with cervical incompetence ranged from 15-22 weeks with a mean of 19.3 weeks. The cervical dilatation at the time of emergency cerclage ranged from 2-4 cms with a mean of 3 cms.

Table 2: Gestational age at the time of delivery

Gestational age (in weeks)	N	%
<24	4	10
28-32	12	35
33-36	7	20
>36	12	35

Four patients had spontaneous abortion after cervical cerclage. In around 35 percent of the patients pregnancy was prolonged beyond 28 weeks upto 32 weeks and around 55 percent crossed 32 weeks. Thirty five percent of these patients had term delivery.

Table 3: Number of weekspregnancy was prolonged after cerclage

Weeks	N	%
<5	4	10
5w 1d-10	5	15
10w 1d-15	8	25
15w 1d-20	11	30
>20	7	20

In our study group majority of the cases, pregnancy was prolonged up to 15weeks 1 day to 20 weeks (30%) followed by 10 to 15 weeks (25%). In seven patients who presented at early gestation with incompetence pregnancy was prolonged beyond 20 weeks.

Table 4: Birth weight at delivery after cerclage

Birth weight	N	%
<2	18	50
2 - 2.5	5	15
2.51 – 3	8	25
>3	4	10

The mean birth weight of the neonate was 2.01 kg with equal number of them weighing more and less than 2 kg. The birth weight ranged between 1.1-3.5 kg.

Table 5: Perinatal outcome after cerclage

Outcome	N	%
NICU admission	12	35
No intervention	19	55

After emergency cerclage 55 percent of the neonates required only regular perinatal care and had minimal morbidity. Twelve babies were admitted to NICU and interventions ranged from ventilation, surfactant administration to just incubator support with nasal oxygen. The stay in NICU ranged between 3 days to 45 days average being 11.2 days. All the babies were discharged home without any significant sequelae.

DISCUSSION

Cervical incompetence is characterized by premature, painless cervical dilatation during gestation in the absence of uterine contractions, followed by expulsion of the preterm foetus. Cervical cerclage is an intervention that is widely used to prevent miscarriage or delivery in the second trimester.[8]

In our study group, 35 patients underwent emergency cervical cerclage due to cervical dilatation. The mean age of the study group was 21.5 years with a range between 19 to 28 years. The demographic characteristics match with the study of Prasad NN et al in 2017, which reported out of the 24 cases their average age was 21.5 years (range 19 to 28 years), while there gestational age at the time of cerclage ranged between 15-26 weeks (with a mean of 22.1)[9]

In a study, done with the same objectives by Taher AJ et al in Riyadh, KSA pregnant women underwent emergency cervical cerclage.[9] The average GA at the time of cerclage placement was 23 weeks plus 2 days and the average latency to delivery was 7 weeks and 4 days. In our study the gestational age at the time of presentation ranged from 15 to 22 weeks with a mean gestational age of 19.3 weeks. The latency to delivery was almost double at 13.4 weeks probably due to earlier gestational age at which the cerclage was performed.

In another study done by Zhu LQ et al, emergency cerclage led to live-births, with a success rate of 82.28% which is comparable to our study.[10] The mean gestation at delivery was 30.3±4.7 weeks (range: 25-39.6 weeks) and a mean birth weight of 1934.69±570.37 g (range: 880-3350 g). In our study mean gestational age at delivery was 32.7 weeks (19-40 weeks) and mean birth weight was 2.01kg (0.45-3.8kg).

This imply that a properly performed emergency cerclage is beneficial in prolonging the gestational age and resulting in live births in more than 80% of cases. Similar to the findings of our study is a study done by Purnima D et al, Out of the 20 patients in the study group, 12 proceeded to term gestation, 5 went for preterm delivery and 3 resulted in spontaneous miscarriages.[11]

In a study published by L Pereira et al 225 women were included in the trial, after clinical examination showed cervical incompetence. 152 underwent cerclage and 73 were managed expectantly without cerclage. Compared with expectant management, cerclage group was associated with longer latency of gestational age at delivery, improved neonatal survival, birth weight greater than 1.5 kg.[12] Hence rescue cerclage has a definite role when cervical dilatation and bulging membranes complicate the pregnancy.[13]

Use of antibiotics, tocolytics and progesterone has definite role in success of emergency cerclage. Though the surgical technique hasn't changed much over the period of time, improved neonatal outcome can be definitely attributed to better neonatal ICU care and interventions available.

In our study the least gestational age at which neonate was salvaged was 28 weeks and birth weight was 870 gms.

CONCLUSION

When pregnancies are complicated by late mid-trimester cervical dilation, placement of emergency cerclage in appropriately selected patients has the potential to be a beneficial therapeutic option. Studies have also shown that where there is mere cervical shortening or funnelling of the cervix as compared to cervical dilatation, the outcome in terms of prolongation of pregnancy and live births and neonatal survival is better. In our study, around 90 percent of the patients pregnancy was prolonged beyond 28 weeks and around 55 percent crossed 32 weeks.

Over the past decade, several authors have published

studies that show a reasonable level of success following emergency cerclage for painless cervical dilatations of up to four cm. There are several reported cases of success with cervical cerclage in preventing mid-trimester pregnancy losses and preterm labour. We recommend that salvage cervical cerclage should be considered in patients with advanced cervical dilatation and bulging membranes in the second trimester. With good neonatal ICU back up most of the pregnancies can be salvaged with minimal morbidity to the neonates.

CONFLICT OF INTEREST:

The authors declared no conflict of interest.

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REFERENCES

1. Berghella V, Ludmir J, Simonazzi G, Owen J. Transvaginal cervical cerclage: Evidence for perioperative management strategies. *Am J Obstet Gynecol.* 2013; 209(3):181-192.

2. Norwitz ER, Greene MF, Repke JT. Cervical cerclage - Elective and Emergent. *ACOG update.* 1999; 24:1-11.

3. Shirodkar VN. A new method of operative treatment for habitual abortion in the second trimester of pregnancy. *Antiseptic.* 1955; 52 : 299-300.

4. McDonald IA. Cervical cerclage. *Clinical Obstetrics and Gynecol.* 1980; 7461–479.

5. Cousins L. Cervical cerclage: Patient selection, morbidity, and success rates. *Clin Perinatol.* 1983:10:321-41.

6. Mc Donald IA. Incompetence and cerclage in Denmark 1980-1990. A register based epidemiological survey. *Acta Obstet Gynecol.* 1978; 18:34-7.

7. Prasad NN. Emergency cervical cerclage and pregnany outcomes. *Int J Reprod Contracept Obstet Gynecol.* 2017; 6(5):1993-1998.

8. Lotgering FK, Gaulger IP. Outcome after trans abdominal cervic oisthamic cerclage. *Obstet Gynecol.* 2006; 107:779-84.

9. Heath VCF, Souka AP, Erasmur I. Cervical length at 23 weeks of gestation: The value of Shirodhkar suture for the short cervix. *Ultrasound Obstet Gynecol.* 1998; (12):318-22.

10. Taheral J. The Perinatal Outcome in Saudi Women with Emergency Cerclage- a Prospective Study. *University of Toronto Med J* 2012; 90(2):28-32.

11. Zhu LQ. Pregnancy outcomes of emergency cerclage. *Med Scimonit.* 2015; (21):1395-401.

12. Purnima D, Aftab N. Prediction of outcome for Emergency Cervical cerclage in the presence of protruding membranes. *ISRN Obstet and Gynaecol.* 2012:1-4.

13. Pereira L, CotterA, GomezR, etal. Expectant management compared with physical examination-indicated cerclage (EM-PEC) in selected women with a dilated cervix at 14(0/7)-25(6/7) weeks: results from the EM-PEC international cohort study. Am *J Obstet Gynecol.* 2007; 197(5): e1-8.