



EMERGENCY CERVICAL CERCLAGE AND ITS OUTCOMES

Obstetrics & Gynaecology

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ABSTRACT

Background: To evaluate the safety and efficacy of emergency cervical cerclage in women presenting with advanced cervical changes such as >2cm cervical dilatation and bulging fetal membranes. **Materials And Methods:** This study is a retrospective analysis of all women who came with advanced cervical dilatation (2-4cm) in late 2nd trimester and underwent emergency cervical cerclage using McDonald technique. **Result:** Out of the 15 patients for who underwent emergency cervical cerclage, 2 (12.5%) had spontaneous abortion following cerclage, 4(25%) had PROM and 6(37.5%) had term delivery. 14 out of 16 fetus were born after the period of viability. Of these newborns, Six(37.5%) were admitted in NICU and 50 % just needed routine perinatal care. **Conclusion:** Prolongation of pregnancy, live births , neonatal survival is better after emergency cervical cerclage.

KEYWORDS

Emergency Cerclage, McDonald Stitch

INTRODUCTION:

Cervical incompetence is defined as the inability of the uterine cervix to retain pregnancy till term, in the absence of uterine contractions due to a functional or structural defect of the cervix.¹

It is a clinical identified by acute, painless cervical dilatation most common in second trimester resulting in premature rupture of the membranes (PROM) resulting in preterm delivery. The mainstay of management of cervical incompetence is cervical encirclage.

ANATOMY

By the 5th month of pregnancy, body and cervix of the uterus are formed from fusion and recanalization of the paramesonephric duct.

Cervix consists of fibrous connective tissue, muscle, and blood vessels. 15% of the cervical stroma is constituted by muscular connective tissue, thoughnot distributed uniformly throughout the cervix, constituting 30 % of the upper third cervix, 18%of the mid third level and 7% of the lower third cervix.² Defects in the tensile strength of this fibrous connective tissue may cause premature cervical dilatation and pregnancy loss.

Cervical insufficiency is an integral part of preterm birth. Preterm birth is the leading cause of perinatal morbidity with survival rates approximately 54% at 25 weeks of gestation, 38% at 24 weeks of gestation and 23% at 23 weeks of gestation. Cervical iincompetence may be seen in up to 1 percent of the reproductive populations.^{3,4}

ETIOLOGY

Exact cause of cervical insufficiency is not understood well, the following are considered to be responsible.^{5,7}

- History of cervical trauma (dilatation and curettage, conization, cauterisation, or amputation)
- Abnormal cervical development
- Connective tissue abnormalities (Ehlers- Danlos syndrome).
- Associated mullerian anomalies like unicornuate, bicornuate or septate uterus.

Past obstetric history usually says a lot about the chances of cervical incompetence. On TVS, cervical shortening, cervical length - less than 25 mm, with or without funneling of membranes into the cervical canal diagnoses cervical insufficiency.⁵

MANAGEMENT

Cervical incompetence is managed surgically with cerclage which

reinforces strength in a weak cervix by a purse string suture.

Indications for cervical cerclage

- History of cervical shortening.⁸
- Ultrasound indicated cerclage
- Dilatation of cervix in the absence of uterine contractions

Surgical encercage may be prophylactic cerclage or therapeutic cerclage.

There are 2 techniques in vaginal cervical encercage.

McDonald cerclage

Here, the cerclage is initiated by inserting No. 2 monofilament suture very close to internal os in the body of the cervix. Suture placement inside body of the cervix should be in a continuous fashion inorder to encircle the os. After the cervical canal has been completely encircled, suture is secured and appropriately tightened to reduce the cervical canal's diameter to 5 to 10mm. The effect of the suture placement on the cervical canal is apparent. If the initial suture is not in close proximity to the internal os, a second suture positioned a little higher could be useful.

Modified shirodhkar cerclage

A transverse incision is made over the mucosa on the anterior cervix, and the bladder is pushed cephalad. A 5mm Mersilene tape on a Mayo needle is passed anteriorly to posteriorly. Tape is then directed posteriorly to anteriorly on the other side of the cervix. The tape is tied anteriorly, after ensuring that all slack has been taken up. Cervical mucosa is then closed with chromic catgut in continuous manner to bury the anterior knot.

Prophylactic transabdominal cerclage

In this procedure suture is placed at uterine isthmus, if there are severe cervical anatomical defects or if there are prior failed transvaginal cerclage. The placement of an abdominal suture can either be done laparoscopically or open surgical techniques.⁹⁻¹³

Emergency cervical cerclage

Emergency (salvage) cervical cerclage refers to placement of a cerclage when there is significant cervical dilatation and/or effacement prior to 28 weeks gestation and in the absence of labor . Emergency encercage is more difficult to perform.

Replacement of the prolapsed amniotic sac back into the uterus is usually done before suture placement. This is done by tilting the

operating table in the head down position along with filling the bladder with 600 ml of saline through an indwelling Foley's catheter. Cerclage is usually done by Mc Donald technique and the balloon is deflated gradually as the cerclage suture is tightened around the catheter.

Complications

The risk and nature of complications is influenced by whether the cerclage is inserted electively or as an emergency with the membranes bulging through the cervix. The risks include sepsis, premature rupture of membranes, premature labour, cervical dystocia (due to cervical scarring), cervical laceration at delivery (up to 11%) and haemorrhage.

Membrane rupture during suture placement or within the first 48 hours following surgery is considered by some to be an indication for cerclage removal because of the likelihood of serious foetal or maternal infection.

MATERIALS AND METHODS

This is a retrospective observational study on women presenting with cervical insufficiency and managed with emergency cervical cerclage. All the women that are presented between 15 to 26 weeks of gestational age and identified with cervical dilatation ranging from 2 cm to 4 cms were proposed for cervical encerclage after ruling out the contraindications of cerclage like labour, PROM, placental abruption and infection.

All the women had standard preoperative treatment for emergency cervical encerclage as per our hospital protocol which includes bed rest in trendelenberg position, broad spectrum antibiotic and parental tocolytics.

During surgery, general anaesthesia was used, with the patient in head low, lithotomy position. Emergency cervical cerclage was then done using McDonald technique with No1 loop polypropylene hitched to a round bone needle.

Postoperative parenteral tocolytics and antibiotics were continued for 24hrs. Patients were discharged home after 48 hours and were continued on antibiotics and oral tocolytics for one week. After discharge they are advised of complete bed rest and to avoid sexual intercourse.

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.

RESULT

Table 1: Demographic characteristics

Age(years) : Mean - 22.5 Range - 19-28	Gestational age : mean: 19.5 weeks Range: 15-26 weeks
Gravidity: Primigravida - 7 (43.75%) Multigravida- 9 (56.25%)	Cervical dilataion : mean - 3.2 cm Range - 2-4 cm

A total of 16 patients were analysed during the study. The mean age at the time of presentation was 22.5 years ranging from 19 to 28 years. 56.25 percent of the patients were multi gravida and 43.75 percent were primi gravida. The gestational age of the patients presenting with cervical insufficiency has a mean of 19.5 weeks with a range of 15-26 weeks. Dilatation of cervix at the time of cerclage has a mean of 3.2cm ranging from 2-4 cms.

Table 2 : Gestational age at the time of delivery

Gestational age (weeks)	N	%
<28	2	12.5
28-32	5	31.25
33-36	3	18.75
>36	6	37.5

Two out of sixteen had spontaneous abortion after cervical cerclage and four had PROM. In around 87.5 percent of the patients pregnancy has crossed period of viability of 28 weeks and in around 56.24 percent it crossed 32 weeks. Six out of these sixteen patients had term delivery.

Table 3 : Number of weeks of pregnancy prolonged after cerclage

Weeks	N	%
<5	1	6.25

5w1d-10	2	12.5
10w1d-15	5	31.25
15w1d-20	6	37.5
>20	2	12.5

In our study, in majority of the cases, pregnancy was extended up to 15weeks 1 day to 20 weeks (37.5%) followed by 10 to 15 weeks (31.25%). In two patients who presented at early gestation with cervical insufficiency, pregnancy was extended for more than 20 weeks.

Table 4 : Birth weight at delivery after cerclage

Birth weight (kg)	N	%
<2	8	50
2-2.5	2	12.5
2.5-3	4	25
>3	2	12.5

Out of the 16 patients who underwent emergency cervical encerclage, 14 fetus were live born after the period of viability. The birth weight of the neonate ranged between 1.1 to 3.8kg with a mean weight of 2.12 kg.

Table 5 : Perinatal outcome after cerclage

Outcome	N	%
Abortion	2	12.5
NICU admission	6	37.5
No intervention	8	50

After emergency cerclage 50 percent of the neonates required only regular perinatal care and had minimal morbidity. Six babies were admitted to NICU. All the 14 babies were discharged home without any significant sequelae.

Also in our study, 25 percent of patients had uterine anomalies showing that it might be a significant cause for cervical incompetence.

DISCUSSION

Premature, painless cervical dilatation during pregnancy, without uterine contractions, followed by expulsion of preterm fetus, are symptoms of cervical insufficiency. One common practice to avoid miscarriage or delivery in second trimester is cervical cerclage. Because of its poor success rate, emergency cerclage in the presence of cervical dilatation is still debatable. Without a cerclage, pregnancy will inevitably end in miscarriage even though outcomes of these pregnancies are typically poor.

In our study group, 16 patients underwent emergency cervical cerclage for cervical dilatation. The mean age of the study group was 22.5 years ranging from 19 to 28 years. Out of them 7 are primigravida and 9 are multigravida.

In a study done by Thaher AJ et al in Riyadh, KSA 14 pregnant women underwent emergency cervical cerclage.¹⁴ The average gestational age at the time of cerclage was 23 weeks plus 2 days and the average latency to delivery was 7 weeks and 4 days. In our study the mean gestational age at the time of presentation is 19.5 weeks, ranging from 15 to 26 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 a study done by Zhu L Q et al, emergency cerclage resulting in live-births, has a success rate of 82.28%.¹⁵ which is similar to our study. 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 33.4 weeks (19-40 weeks) and mean birth weight was 2.12 kg (1.1kg - 3.8kg). Both the parameters are comparable and similar. This implies that a properly performed emergency cerclage will help in extending the gestational age, resulting in live births in more than 80% of cases.

In a study done by A. Ojabo et al in Nigeria, cases were studied and 3 patients underwent spontaneous abortions.¹⁶ In this study they compared outcome between cervical dilatation of less than 5 cm and cervical dilatation of more than 5 cm, the authors concluded that cerclage is a better choice if the dilatation is less than 5 cm at the time of cervical cerclage and that it is of limited use if the dilatation is more than 5 cm. This study also reported that both live birth rate and

prolongation of pregnancy is lower when the cervical dilatation is more. However in our study mean cervical dilatation is 3.2 cms with a range of 2-4 cm. All the three patients who had abortion had a cervical dilatation of more than 3 cm.

A study done by Purnima D. et al, is also similar to our study in its findings, Out of the 20 patients in the study, 12 prolonged to term gestation, 5 resulted in preterm delivery and 3 under went spontaneous miscarriages.¹⁷

Other significant finding in our study is 55 percent of cerclage patients delivering preterm had uterine anomaly. There is not much information reported in the literature about the success of emergency cervical cerclage in presence of uterine anomalies. It might help us to rule out uterine anomalies in cervical insufficiency as it might guide us in counselling regarding the prognosis even after cervical cerclage.

Usage of antibiotics, tocolytics and progesterone has definitive role in success of emergency cerclage. Though there is not much change in the surgical techniques over the period of time, improvement in neonatal outcome can definitely be attributed to better neonatal intensive care unit care and interventions available. In our study the least gestational age at which neonate was salvaged was 28 weeks with a birth weight of 950 gms.

CONCLUSION

Cervical incompetence's exact incidence is unknown. Research also demonstrated that, the outcome in terms of extending the period of pregnancy, live births, and neonatal survival is better when there is a simple cervical shortening or funneling compared to cervical dilatation.

Numerous studies have demonstrated a good degree of success after emergency cerclage for painless cervical dilatation of upto 4 cm .Cervical cerclage has been successful in avoiding mid trimester pregnancy losses and preterm labor in a number of cases. Most pregnancies can be saved with little morbidity to newborns if there is adequate neonatal intensive care unit backup.

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