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Case Report

Outcome of different cerclage methods in two cases of congenital cervical insufficiency: a case report

Pushpawati Thakur, Sagarika Majumdar*, Veena Chandrawanshi, Vinita Singh, Sarita Rajbhar, Pragati Trigunait

Department of Obstetrics and Gynaecology, AIIMS Raipur, Chhattisgarh, India

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***Correspondence:**
Dr. Sagarika Majumdar,
E-mail: sagarikamajumdar84@gmail.com

ABSTRACT

Cervical insufficiency (CI) or progressive shortening and thinning of cervix is a contributor to perinatal mortality through spontaneous mid-trimester miscarriages or early preterm birth. Congenital factors for cervical insufficiency are rarer than acquired factors. The lack of definitive criteria or methods is a challenge for diagnosis of such cases. Different cerclage methods and timely cerclage have shown to improve the outcome of pregnancy in patients with congenital cervical insufficiency (CCI). Here, we report two cases of CCI managed with different methods of cerclage culminating in successful pregnancy outcomes.

Keywords: Cervical insufficiency, Cervical cerclage, Congenital cervical insufficiency

INTRODUCTION

Cervical insufficiency or progressive shortening and thinning of cervix is seen among 1% of all the pregnant women in second or third trimester, may be a reason for perinatal mortality or spontaneous mid-trimester miscarriages or early preterm birth.[1-5] The condition involves inability of uterine cervix to retain a pregnancy due to defect in tensile strength of fibrous tissue in cervico isthmic junction, which worsens with progression of pregnancy.[6,7] CI may be because of congenital or acquired causes.[3,8,9] The diagnosis is usually done retrospectively through careful history taking with special emphasis on previous family history and review of medical records along with transvaginal ultrasound for measurement of cervical length.[3,9]

Cervical cerclage of various types at various stages of gestation has shown to improve viability of fetus and is the preferred surgical management for cervical insufficiency.[3,8,10,11]

We herein present two case reports of congenital cervical insufficiency managed with elective and emergency cervical cerclage culminating in successful pregnancy outcomes.

CASE REPORT

Case 1

A 30-year-old, gravida 2 para 0 living 0 abortion 1 with a history of mid-trimester miscarriage, associated with painless dilatation of cervix and bulging of fetal membranes, 2 years back reported to our department for routine antenatal checkup at 14 weeks of gestation. There was a similar family history in her sister. A decision of prophylactic cerclage was taken. Routine general physical examination, per abdominal and per speculum examination revealed no abnormality. Laboratory reports such as complete blood count, C-reactive protein (CRP) and urinalysis were all within normal limits. In vaginal swab report, no organism was found during culture. Written informed consent was taken for the same.

Preprocedural ultrasound scan was done to confirm fetal viability. Patient was put on injection ceftriaxone 1 gm 12 hourly intravenous and a stat dose of injection Hydroxyprogesterone caproate 500 mg intramuscular was given prior to cerclage procedure. She was kept on tocolysis with isoxsuprine infusion. Under general anesthesia with the patient in lithotomy position, McDonald cerclage using mersilene tape was performed transvaginal.

Urinary bladder was emptied with Foley's catheter and Sim's speculum was placed in the posterior vaginal wall first and with the help of anterior vaginal wall retractor, the anterior lip of cervix was held by sponge holder. We used 5 mm mersilene tape with a curved needle for cerclage. Series of 4-5 bites with needle, beginning at 6 o'clock position were made in a purse string manner around the exo-cervix as high as possible to approximate to the level of internal OS. A surgeon's knot was placed at 6 o'clock position after tightening the tape. In postoperative period broad spectrum intravenous antibiotic and tocolysis with tablet isoxsuprine (10 mg PO twice daily) was continued. Tablet micronized progesterone (300 mg twice daily orally) and weekly injections of hydroxyprogesterone caproate were also added before the patient got discharged on day 6. She was followed up on OPD basis and at 37 weeks she went into labour. After removing the stitch, she delivered a healthy term female baby weighing 2.9 kg by emergency lower segment caesarean section (LSCS). Baby did not require neonatal intensive care.

Case 2

A 22-year-old primigravida at 22 weeks of gestation, presented to our outpatient clinic, with feeling of heaviness in lower abdomen and as her radiologist told her that she had a short cervix (cervical length 0.8 cm) and herniated fetal membrane in her ultrasound while doing anomaly scan. There was no history of abnormal vaginal discharge or fever. No activity was found in 20-week gravid uterus on abdominal examination. Per speculum followed by bimanual examination revealed, intact herniated fetal membrane at external OS with dilated and 80% effaced cervix (Figure 1). Routine blood examination and urine analysis didn't reveal any abnormality. Written consent was taken after thorough counseling. Preoperatively patient was put on injection ceftriaxone, injection isoxsuprine infusion for tocolysis and a stat dose of injection hydroxyprogesterone caproate 500 mg intramuscular. Patient was also started on steroid with dexamethasone (6 mg 12 hourly) intramuscular injection. Under saddle block and patient in lithotomy position with a steep Trendelenburg tilt (head low position), Wurms rescue cerclage was performed with silk suture. Before taking stitches we reposited the membrane using a moistened swab on a sponge forceps. Stitches were taken in "U'" fashion from 12 to 6 o'clock position, anterior to posterior and again from 6 to 12 o'clock position, posterior to anterior. A surgeon's knot was tied anteriorly. Another stitch was taken from 3 to 9'o clock position and taken back from 9 to 3 o'clock and knot was tied in left fornix. Postoperative period was managed in the same way as the previous patient. After 8 weeks of uneventful gestation, the patient presented with sudden preterm premature rupture of membrane (PPROM) along with pain abdomen. On admission, the cerclage knot was cut and she delivered a preterm baby weighing 995 gm vaginally. Baby was nursed in neonatal intensive care unit (NICU) for 4 weeks before discharging home.

Figure 1: Bulging fetal membrane with advanced dilatation of cervix.

DISCUSSION

Patients with CI may present to the physician as a multigravida with bad obstetric history or past history of second trimester miscarriage following painless dilatation of cervix. Primigravida patients commonly present in mid-trimester with minimal mild complaints like feeling of heaviness or discomfort in lower abdomen or with an ultrasound report suggestive of short cervix.[3,8,9] Similar presentations were seen among our patients as well.

In absence of any definitive diagnostic criteria, the diagnosis of CI heavily relies on appropriate history taking with emphasis on similar family history to predict congenital or acquired causative factors. The acquired variety of cervical insufficiency is more common than congenital variety.[4,9] Our first patient had a previous history of abortion and also had a family history of similar condition among one of her first degree relative. The second patient was a primigravida. Hence, both of our patients had congenital variety of cervical insufficiency.

Apart from the patient's history, the finding of transvaginal ultrasound such as short cervical length (<25 mm) or shortening of length of cervix, effacement, and dilatation with the presence of funneling and prolapse of the membranes on physical examination is considered definitive in deciding the course of management.[1,3,12] We performed cerclage in case of patient 2 because of significant affirmative findings in both physical

examination at the time of admission and transvaginal ultrasonography done before.[13]

Surgical management among the patients of cervical insufficiency is done by cervical cerclage. Surgical procedure may differ according to the indication of surgery. Contemporary classifications include the history-indicated or ultrasound-indicated in early pregnancy, and physical exam-indicated cervical cerclage in late pregnancy.[11,12,14] The available evidences doesn't reveal superiority of any one method of cerclage over other but meta-analysis by Bieber et al and study by Daskalakis et al concluded improved pregnancy outcome with prolongation of mean duration of pregnancy, reduced chances of preterm delivery and improved birth weight of the child.[11,12,15,16] Studies by Sonawane and Wong et al. summarized importance of reposition/reduction of the membranes through filling of bladder with normal saline or using Foley's catheter during the procedure.[5,15] In a study by Katherine et al, it was concluded that the there were no differences in outcomes between using Mersilene and non-Mersilene suture, rather the indication of cerclage and gestational age of patient influences the type of suture used but still evidence is insufficient to make a conclusion.[17] The use of broad spectrum antibiotics and tocolysis is a common practice during the procedures.[1]

We performed cerclage on both of our patients, using different methods and did reposition of fetal membrane gently with the help of a wet swab on sponge holding forceps.

Both the pregnancies had successful neonatal outcome after completion of 37 weeks and 30 weeks of gestation respectively.

CONCLUSION

Both Elective and emergency cerclage can be done for congenital cervical incompetence, though the type of procedure to be performed should be individualized on case-to-case basis and depends on clinical presentation and transvaginal ultrasound findings. To diagnose cases of true cervical incompetence, one needs high level of clinical prediction and suspicion to screen possible risk factors in all antenatal women. Appropriate patient selection for timely cervical cerclage subsequently leads to successful pregnancy outcome.

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