The Epidemiology of Cervical Incompetence in Ramathibodi Hospital Between 1982-1997

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Abstract

Cervical incompetence is an important cause of midtrimester abortion. However, the etiology and diagnostic method have still not been established. This retrospective study was aimed to review epidemiology, management and outcome of cervical incompetence in Ramathibodi Hospital, Mahidol University, Thailand, from 1982 to 1997. Fifty seven patients were diagnosed as having cervical incompetence during this period. Fifty patients had elective cerclage. Seven patients had emergency cerclage. Success rate in this study was 94.6 per cent. Only 7 per cent of patients had complications such as chorioamnionitis and suture displacement. There was no other serious complication after treatment. Nowadays, there is still no established method to diagnose cervical incompetence in pregnancy. Treatment is usually based on past obstetric history. Cervical cerclage is an established treatment for this problem. Emergency cerclage is still controversial. The prevention is to avoid any procedure which can cause cervical trauma leading to cervical incompetence.

Key word : Epidemiology, Cervical Incompetence

Cervical incompetence is the inability of the cervix to maintain pregnancy. It may be caused by structural or functional defects. Incidence of this abnormality is 0.05-1 per cent of all pregnancies (1-3). It is an important cause of midtrimester abortion, accounting for 16-20 per cent of the cases(1,3,4). However, there is no definite diagnostic method. Diagnosis is mainly based on history and clinical findings. Typical history and clinical signs of cervical incompetence are habitual abortion especially in midtrimester characterized by painless dilatation of the cervix, bulging of fetal membranes followed by premature rupture of membranes and abortion or premature delivery(5).

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Treatment of this abnormality was developed as early as 1902. Herman used Emmet's trachelorrhaphy in patients with a history of habitual abortion to overcome this problem[6]. Child[7], Palmer and Lacomme[8] and Lash and Lash[9] also developed transabdominal suture to treat cervical incompetence. Subsequently, Shirodkar[10] and McDonald[11] proposed the surgical techniques which are effective and widely used today. Success rates of these techniques are high approaching 85 to 90 per cent[3,12,13].

However, some pregnant women present with cervical dilation. Emergency cervical cerclage can be performed in these cases. Success rate for this procedure is only 43-60 per cent with higher complications[1,14,15].

The aim of this study was to review our experience in management and the outcome of patients with cervical incompetence treated in this hospital.

MATERIAL AND METHOD

We reviewed records of all patients with cervical incompetence in Ramathibodi Hospital, Mahidol University, Thailand from 1982 to 1997. Elective cervical cerclage was performed based on past obstetric history of previous abortion and premature delivery. Emergency cerclage was defined as cerclage performed in pregnant women with two or more centimeters of cervical dilatation. Maternal demographic data, past obstetric history, operative procedure, management, outcome and complications were analysed.

RESULTS

During this study period, there were 38,297 deliveries. Cervical cerclage was performed in 57 patients. Fifty patients had elective cerclage while 7 patients had emergency cerclage. Maternal demographic data and past obstetric history are shown in Table 1. Eighty nine per cent of patients had a history of spontaneous abortion, 65 per cent of them were midtrimester abortion and 21 per cent of them had a history of induced abortion, based on hospital records. One quarter of them had a history of abortion on more than two occasions. Fifty six per cent of patients had never delivered a live baby. Twenty two per cent of patients had repeated cervical cerclage.

McDonald operation was performed in 52 (91%) patients and Shirodkar was performed in 5 (9%) patients. Tocolytics and prophylactic antibiotics were given to 74 per cent and 71 per cent of patients respectively. Only 4 (7%) patients had complications. Two of them had chorioamnionitis which caused abortion. The others had suture displacement. Mean hospital stay was 6 days. The length of stay was much shorter in patients with elective than emergency cerclage. Cervical cerclage can prolong pregnancy for 129.5 days (Table 2) compared to 51.1 days in emergency cerclage. Thirty two patients (57%) had the suture removed at term. The other indications for removing cerclage were labor pain (28%), leaking liquor (11%) and chorioamnionitis (4%). However, thirty five (62%) patients continued

Table 1. Characteristics of patients with cervical incompetence.

Variable	Median (range)
Gravida	4 (0-8)
Parity	1 (0-2)
Number of previous term pregnancy	0 (0-3)
Number of previous preterm delivery	0 (0-4)
Number of previous spontaneous abortion	2 (0-4)
Number of previous induced abortion	0 (0-2)

Table 2. Results of cervical cerclage.

Data	Mean ± SD (range)
Maternal age (years)	31.2 ± 4.7 (21-42)
Gestational age at cerclage (weeks)	16.2 ± 3.4 (12-26)
Hospital stay after cerclage (days)	6.0 ± 13.2 (2-98)
Interval from cerclage to delivery (days)	129.5 ± 45.5 (1-182)
Gestational age at delivery (weeks)	34.9 ± 4.9 (15-41)
Birthweight (grams)	2612.6 ± 728.4 (500-3810)

Table 3. Mode of delivery.

Mode of delivery	Numbers	%
Normal delivery	37	66.1
Operative obstetric	3	5.4
Elective cesarean section	4	7.1
Emergency cesarean section	9	16.1
Abortion	3	5.4

pregnancy to term. Eighteen (32%) patients were complicated with premature delivery and 3 (6%) with abortion. For those pregnancies that went to term, 80.6 per cent had vaginal delivery and 19.4 per cent had cesarean section.

Most of the babies were delivered by the vaginal route (66%). Mean birthweight of the babies was 2612.6 grams. Most of them were healthy. Nine per cent of newborns had an Apgar score less than 5 at 1 minute and 3.8 per cent of them had an Apgar score less than 7 at 5 minutes. Only one patient was lost to follow-up in this study.

DISCUSSION

The incidence of cervical cerclage in our study was 0.15 per cent which was the same as previous studies[1-3]. Diagnosis was based on past obstetric history in most cases. Eighty nine per cent of the patients had a history of previous abortion. Although histories of abortion were not typical, the pregnancy outcome was much better after cerclage. Physical examination and tests should be used before the next pregnancy to rule out collagen diseases, congenital anomalies of the reproductive tracts or abnormal uterus which can cause cervical incompetence[16]. However, there is no definite test for this problem. Hegar test, traction test, hysterosalpingography and ultrasound are still controversial[16]. Cervical trauma from cervical dilatation is assumed to be one of the important causes of cervical incompetence. We found that 21 per cent of patients had a history of termination of pregnancy which was the same as a previous report[16]. It's better to promote the use of contraception and avoid an unnecessary induced abortion which can cause cervical problems.

There are different kinds of treatment for cervical incompetence both surgical and nonsurgical. Nonsurgical treatment, such as bed rest[15], progesterone[17], vaginal pessary[18], seem to be less effective than surgical treatment. However, a randomized controlled trial is needed. Surgical technique has been developed for many years. Transabdominal cerclages are more difficult with higher complications[8,9]. Shirodkar[10] and especially McDonald [11] operations are easier with a high success rate. They can be used in elective and in emergency cerclage. In our series, fifty two (92%) patients had McDonald operation because of its simplicity. The other 5 (9%) had Shirodkar operation. McDonald operation was also used in 6 out of 7 cases of emergency cerclage. Mean gestational age at cerclage was 16.2 weeks. The operation should be performed during 14-16 weeks of gestation to avoid the possibility of abortion from chromosomal anomalies in the first trimester. Ultrasound scan is recommended to confirm fetal viability and to exclude fetal anomalies during this period. Success rate of cervical cerclage in this series was 94.6 per cent. Mean interval from cerclage to delivery was 129.5 days and 32 (62.5%) patients continued pregnancy to term. Premature deliveries were complicated in 18 (32%) patients, which may be due to the rising level of prostaglandin after completion of cerclage[19].

Six out of 7 patients treated with emergency cerclage had successful outcome. Half of them were complicated with preterm deliveries but all survived. Only one patient aborted. Mean interval from cerclage to delivery was lower than the elective cases (51.1 days *vs* 129.5 days). Careful history taking and risk assessment followed by prophylactic cerclage is better than emergency cerclage performed when the cervix is dilated.

Complication from cervical cerclage is low especially in elective cases. Only 4 patients in this study had complications, two from elective cerclage, the others from emergency cerclage. Complications from the elective procedure were one chorioamnionitis, 15 days after cerclage, which caused abortion and one suture cut through which needed to be resutured. Emergency procedure had the same complications. One case aborted from chorioamnionitis one day after suture. The other was found to have the suture cut through at 33 weeks with premature rupture of membrane and labor was allowed to go on. In general, the incidence of chorioamnionitis is 1-7.7 per cent[14,17]. Charles et al showed that cerclage performed during the 14th-16th weeks of pregnancy developed chorioamnionitis in 14.9

per cent and the incidence increased to 2.6 fold if the operation was done at 19th-26th weeks of pregnancy[20]. In this study, the incidence of chorioamnionitis was 3.5 per cent. However, bacterial evaluation before surgery did not show any benefit[21]. Suture displacement was found to be 3-13 per cent[14,22] and in this study it was 3.5 per cent. Most of the patients were given tocolytics and prophylactic antibiotics. However, the benefit of these has not been established[16,21]. There was no bleeding or other serious complications in this series.

There is no accurate method to diagnose cervical incompetence. Previous history is the most important clue to detect this problem. To-day, surgery is the established treatment. Success rate in elective cerclage is high. However, randomized control trials are still needed to prove its efficacy. Emergency cerclage is not widely used and the outcome is better when compared to conservative treatment in patients with advanced cervical dilation[17]. It is the best to avoid unnecessary procedures which may cause cervical trauma leading to cervical incompetence.

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ภาวะปากมดลูกหลวมในโรงพยาบาลรามาธิบดี ระหว่างปี 2525–2540

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ภาวะปากมดลูกหลวมเป็นสาเหตุสำคัญของการแท้ง ในช่วงไตรมาสที่ 2 ของการตั้งครรภ์ ปัจจุบันยังไม่ทราบสาเหตุที่แน่ชัด การศึกษานี้เป็นการศึกษาย้อนหลังถึงอุบัติการณ์, การรักษา, และผลการรักษาของภาวะปากมดลูกหลวมในโรงพยาบาลรามาธิบดี ระหว่างปี 2525–2540 โดยพบหญิงตั้งครรภ์ที่มีภาวะปากมดลูกหลวม 57 ราย ได้รับการรักษาโดยการเย็บซ่อมหูรูดปากมดลูกแบบ elective 50 ราย อีก 7 ราย เป็นการเย็บซ่อมหูรูดปากมดลูกแบบ emergency ร้อยละ 94.6 ของผู้ป่วยสามารถตั้งครรภ์ต่อได้จนครบกำหนด ร้อยละ 7 ของผู้ป่วยมีภาวะแทรกซ้อน ได้แก่ ภาวะติดเชื้อและไหมที่เย็บซ่อมหูรูดปากมดลูกหลุด ไม่พบภาวะแทรกซ้อนรุนแรงจากการรักษา ในปัจจุบันการเย็บซ่อมหูรูดปากมดลูกในผู้ป่วยส่วนใหญ่ดูจากประวัติการแท้งบุตรในอดีตโดยยังไม่มีวิธีวินิจฉัยที่แน่นอน การป้องกันภาวะปากมดลูกหลวมที่ดีที่สุดคือหลีกเลี่ยงหัตถการที่อาจก่อให้เกิดอันตรายต่อปากมดลูก

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