Emergency Cervical Cerclage: Ramathibodi Hospital Experience

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Abstract

This retrospective study is to evaluate the outcome of pregnancy after emergency cervical cerclage. Records of patients, who were treated with emergency cervical cerclage in Ramathibodi Hospital, Mahidol University, Bangkok, Thailand, from 1982 to 1997, were reviewed. Maternal age, gravida, parity, past obstetric history, gestational age at cerclage, latency period, complication and outcome were noted. Only one of 7 patients who had this operation performed, aborted. The others continued pregnancy and all the babies were born alive. There was no serious maternal complication. This operation has a favorable outcome in selected cases.

Cervical incompetence was first mentioned by Gream in 1865[1]. Incompetence of the cervix is basically due to a weakness in the sphincter mechanism of the internal os. Mechanical dilatation of the cervix may trigger the onset of uterine contractions and the contents are eventually expelled. Most of the causes of sphincter weakness are acquired and almost all have a previous history of one or more midtrimester abortions[2,3]. The incidence of incompetence of the cervix varies from 16 to 20 per cent of all second trimester abortion[2,3]. This variation arises partly because there is as yet no definite diagnostic method and diagnosis is often made by exclusion[4,5]. Shirodkar developed a surgical procedure which hold the cervical os tightly closed and this procedure was subsequently modified by McDonald[6,7]. The McDonald's method proved to be effective, and is commonly used now. Although elective cervical cerclage in early second trimester is the standard treatment for cervical incompetence[2,4], occasionally the diagnosis is only made when the cervical dilatation is in the advance stage. Emergency cervical cerclage is used in these cases but the effectiveness is not well established. This review is the first report of emergency cervical cerclage in Thailand.

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The aim of this study was to review our experience in management and outcome of pregnancy after emergency cervical cerclage.

MATERIAL AND METHOD

This retrospective study reviewed emergency cervical cerclage performed in Ramathibodi Hospital, Mahidol University, Bangkok, Thailand, from 1982 to 1997. Emergency cervical cerclage was defined as cerclage placed in pregnant women whose cervices were found to be dilated. Incompetence of the cervix was diagnosed if the amniotic sac was seen protruding through the os using a sterile speculum. The degree of cervical dilatation and effacement were also estimated from vaginal examination. The following parameters were reviewed; age, gravida, parity, past obstetric history, gestational age at cerclage, interval from cerclage to delivery, complication and outcome.

RESULTS

During the study period, emergency cervical cerclage was performed in 7 patients. Mean age of the patients was 30.9±5.6 years. Two patients, whose cervical dilatations were found to be 3 and 4 centimeters respectively were nulliparous. Over 70 per cent of patients had a history of pregnancy loss, preterm or termination of pregnancy. Mean gestational age at operation was 22.3±2.1 weeks. Mean interval from cerclage until delivery was 51.1±30.4 days. Mean gestational age at delivery was 30.9±5.6 weeks. Details of all patients are presented in Table 1. Mean cervical dilatation was 3±1 centimeters. Fifty seven per cent of patients had protrusion of the amniotic sac at the time of operation. They were reduced by the use of a wet sponge on ovum forceps. All patients were given tocolytics and prophylactic antibiotics. None of them had amniotic fluid leakage at the time of operation. However, one patient had amniotic fluid leakage on the first day of post operation and developed chorioamnionitis which caused it to abort. Six patients had McDonald's operation, and only one patient had Shirodkar's operation. Six of the seven babies were born alive. Only one pregnancy continued until term. Mean birth weight of the babies was 2113±712.3 grams. Only one baby had an Apgar score below 7 at 1 minute but all babies had an Apgar score of more than 7 at 5 minutes. There was no serious maternal complication.

DISCUSSION

Incompetence of the cervix has now become established as one cause of midtrimester abortion and its management by cervical cerclage in one form or another is universally accepted with successful outcome[2,4]. However, emergency cervical cerclage performed in pregnancy with advanced cervical dilation is still controversial. The success rate is often quoted as 40-60 per cent[6,8,9].

The majority of patients in this review had a history of pregnancy loss or preterm labor. The duration of pregnancy was between 20 to 26 weeks of gestation when the emergency cereclage was inserted, and if the pregnancy can continue to 30 weeks the survival rate of the fetus is more than 80 per cent[10]. It seems, therefore, that cerclage performed after 30 weeks of gestation may not be beneficial. Studies showed that cerclage at any gestational age can prolong pregnancy and the survival depends on each gestational age at which the cerclage is done[11]. In this study, the insertion of emergency cerclage prolonged pregnancy in 6 out of 7 patients, and all 6 babies survived.

Studies also showed that cervical dilatation at the time of cerclage was correlated to the pregnancy outcome[12-14]. In this study, the outcome is generally in agreement with previous reports. However, this study was able to demonstrate a favorable outcome in 2 out of 3 patients, who had emergency cerclage inserted when the cervices were 4 centimetres dilated. Thus, it appears that cerclage can be performed with some degree of success even if the cervical dilatation is at 4 centimetres, but Schorr et al reported that cerclage was not effective at this stage[15]. In these three cases with cervices dilated to 4 centimetres, the bulging membranes presented the difficult problem of how to effectively reduce them. Various methods have been suggested such as Trenderlenburg position with amniocentesis, intracervical Foley catheter, wet sponge on ovum forceps and filling the bladder[14]. In our series, we used a wet sponge on ovum forceps to reduce the membranes. In this situation, membranes rupture and intrauterine infection are the two most important complications with serious consequences[11]. Twenty five per cent of patients were complicated by infection and abortion. There is no different outcome between McDonald's and Shirodkar's operation, but McDonald is the easier of the two to perform[1,13].

Table 1. Clinical data and outcome of pregnancy treated with emergency cervical cerclage.

No	Age (yrs)	G:P	Past obstetric history	GA at cerclage	Dilatation of cervix	Sac protrusion	Cerclage technique	Postop complication	Latency to delivery	GA at delivery	Outcome
1	33	6:1	1st, 2nd = preterm 3rd = ectopic 4th, 5th = induced abortion	26 wks	2 cms	no	McDonald	no	63 days	37 wks	2490 g alive A.S 9/10
2	26	3:1	1st = term 2nd = spontaneous abortion	20 wks	2 cms	yes	McDonald	PROM 1st day postop	1 day	20 wks	abortion
3	34	6:3	1st, 2nd = term 3rd = DFIU 4th = PPROM (6mns) death 5th = PPROM (6mns) alive	24 wks	4 cms	yes	McDonald	Premature labor at 28 wks	28 days	28 wks	1000 g alive A.S 6/8
4	21	2:0	1st = Premature birth 27 wks death	21 wks	2 cms	no	Shirodkar	PPROM at 32 wks	56 days	32 wks	1640 g alive A.S 9/10
5	35	3:1	1st = term 2nd = midtrimester abortion (18 wks)	21 wks	4 cms	yes	McDonald	Premature labor at 35 wks	98 days	35 wks	2970 g alive A.S 9/10
6	37	1:0	-	22 wks	4 cms	yes	McDonald	Premature labor at 31 wks	63 days	31 wks	2030 g alive A.S 8/10
7	30	1:0	-	22 wks	3 cms	no	McDonald	Premature labor at 33 wks	49 days	33 wks	2550 g alive A.S 9/10

yrs = yesrs; G = gravida; P = parity; DFIU = death fetus *in utero*; PPROM = preterm premature rupture of membranes; PROM = premature rupture of membranes; mns = months; wks = weeks; cms = centimeters; GA = gestational age; postop = post operation; g = grams; A.S._/_ = Apgar score 1 minute/5 minutes

The use of tocolytic agents and prophylactic antibiotics are controversial[11,16,17]. In this study, all patients received both tocolysis and antibiotic. Half of the patients were complicated by preterm labor and one with intrauterine infection. Ludmir et al recommended removing the cerclage after premature rupture of membranes[18], but there is no general agreement on this unless there is evidence of uterine contraction[11].

Preterm labor is a common occurrence after emergency cerclage. It complicated 78 per cent of patients[11]. Premature rupture of membranes, infection and prostagandins activation after cerclage may be the factors that cause preterm labor[11,19]. Only one patient in this review continued pregnancy to term. Fetal outcome after emergency cerclage varies depending upon the duration of pregnancy, cervical dilation, sac protrusion and infection[11,20].

Conclusion: emergency cervical cerclage is another effective way to treat patients. Case selection is the important factor to achieve good outcome. More studies and experience are needed to evaluate the effectiveness of this operation.

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REFERENCES

1. Harger JH. Cervical cerclage: patient selection, morbidity, and success rates. Clin Perinatol 1983; 10: 321-5.
2. Ansari AH, Reynolds RA. Cervical incompetence: a review. J Reprod Med 1987; 32: 161-71.
3. Golan A, Barnan R, Wexler S, Langer R, Bukovsky I, David MP. Incompetence of the cervix. Obstet Gynecol Surv 1989; 44: 96-107.
4. Cousins L. Cervical incompetence. 1980 a time of reappraisal. Clin Obstet Gynecol 1980; 23: 467-77.
5. Parisi VM. Cervical incompetence and preterm labor. Clin Obstet Gynecol 1988; 31: 585-98.
6. Shirodkar VN. A new method of operative treatment of habitual abortion. Antiseptic 1955; 52: 299.
7. McDonald IA. Suture of the cervix for inevitable miscarriage. J Obstet Gynaecol Brit Emp 1957; 64: 346-50.
8. Kuhn RJP, Pepperell RJ. Cervical ligation: a review of 242 pregnancies. Aus NZ J Obstet Gynecol 1977; 17: 79-83.
9. Harger JH. Comparison of success and morbidity in cervical cerclage procedures. Obstet Gynecol 1980; 56: 543-8.
10. Mclean M, Watters WAW, Smith R. Prediction and early diagnosis of preterm labor: a critical review. Obstet Gynecol Surv 1993; 48: 209-25.
11. Janske MA, Jozien TJB, Hein WB. Emergency cerclage: a review. Obstet Gynecol Surv 1995; 50: 459-69.
12. Magrina JF, Kempers RD, Williams TJ. Cervical cerclage: 20 years experience at Mayo clinics. Minn Med 1983; 66: 599-63.
13. Treadwell MC, Bronsteen RA, Bottoms SF. Prognostic factors and complication rates for cervical cerclage: a review of 482 cases. Am J Obstet Gynecol 1991; 165: 555-8.
14. Wu MY, Yang YS, Huang SC, Lee TY, Ho HN. Emergent and elective cervical cerclage for cervical incompetence. Int J Gynecol Obstet 1996; 54: 23-9.
15. Schorr SJ, Morales WJ. Obstetric management of incompetent cervix and bulging fetal membranes. J Reprod Med 1996; 41: 235-8.
16. Charles D, Edwards WR. Infectious complication of cervical cerclage. Am J Obstet Gynecol 1981; 141: 1065-71.
17. Mitra AG, Katz VL, Bowes WA. Emergency cerclage: a review of 40 consecutive procedures. Am J Perinatol 1992; 9: 142-5.
18. Ludmir J, Bader T, Chen L, et al. Poor perinatal outcome associated with retained cerclage in patients with premature rupture of membranes. Obstet Gynecol 1994; 84: 823-6.
19. Romero R, Moshe M. Infection and preterm labor. Clin Obstet Gynecol 1988; 31: 553-79.
20. Latta RA, McKenna B. Emergent cervical cerclage: predictors of success of failure. J Maternal Fetal Med 1996; 5: 22-7.

การเย็บปิดปากมดลูกแบบฉุกเฉินในโรงพยาบาลรามาธิบดี

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รายงานการศึกษาย้อนหลัง ผลของการเย็บปิดปากมดลูกแบบฉุกเฉินในหญิงตั้งครรภ์ของโรงพยาบาลรามาธิบดี ระหว่าง พ.ศ. 2525-2540 โดยศึกษาถึงอายุของมารดา จำนวนการตั้งครรภ์และการคลอด ประวัติการตั้งครรภ์ในอดีต อายุครรภ์ขณะทำการเย็บปิดปากมดลูก ระยะเวลาหลังจากการเย็บปิดปากมดลูกจนถึงการคลอด ภาวะแทรกซ้อน และผลการรักษา

ผู้ป่วยจำนวน 7 รายที่ได้รับการรักษาด้วยการเย็บปิดปากมดลูกแบบฉุกเฉินในช่วงเวลาที่ศึกษา มีผู้ป่วยเพียง 1 ราย เกิดภาวะแทรกซ้อนและแท้งบุตร ในขณะที่ผู้ป่วยอีก 6 รายสามารถตั้งครรภ์ต่อไปได้จนคลอด และไม่พบภาวะแทรกซ้อนรุนแรงในมารดา

การเย็บปิดปากมดลูกแบบฉุกเฉินเป็นการรักษาที่ได้ผลดีโดยเฉพาะในผู้ป่วยที่เหมาะสม

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