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Original Article

Pregnancy Outcome after Cerclage for Cervical Incompetence at a Private Hospital of Dhaka

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Abstract:

Miscarriage, particularly recurrent mid-trimester miscarriage is a distressful condition. This form of miscarriage and preterm birth appear to have some etiologies. An important etiology is cervical incompetence that describes a disorder in which painless cervical dilatation leads to recurrent second trimester pregnancy losses. Every year more than 10 million preterm birth occurs and more than 1 million baby die from this common complication of pregnancy. The incidence of true cervical insufficiency is estimated at less than 1% of the obstetric population. In the index pregnancy, findings indicative of possible cervical insufficiency include cervical funneling, cervical shortening, and overt cervical dilatation. The main objective of the study was to explore the benefit from cervical cerclage in pregnant women with cervical incompetence. This is a retrospective observational study conducted over a period of twelve months. All cases delivered in Central Hospital were assisted by consultant obstetricians, in which 16(61.5%) out of 26 cases were delivered by caesarean section. Miscarriage rate was 11.53%. Out of the caesarean deliveries 2(12.5%) were at term and 14(87.5%) were at preterm. In this study 3(21.42%) babies born at 32nd and 33rd weeks, 6(42.85%) at 34th week and 2(14.28%) were at 35th week. There was no fetal loss. Extreme low birth weight was only one, 7(43.75%) of the babies had normal body weight for the area of study, 8 babies (50%) had low birth weight. The cervical cerclage procedure therefore should be available more widely to benefit those patients with proven or strongly suspected cervical incompetence.

Key words: Pregnancy Outcome, Cerclage, Miscarriage.

Introduction:

Recurrent miscarriage is a distressful condition and recurrent mid-trimester miscarriage is disturbing to physician and patient alike, because the loss is that of a normal fetus in advancing stages of gestation. This form of miscarriage and preterm births appear to have similar etiologies. Classically, the term 'cervical insufficiency' was used to describe a disorder in which painless cervical dilatation led to recurrent second trimester pregnancy losses. Structural weakness of cervical tissue was thought to cause or contribute to these adverse outcomes. The diagnosis also includes women with or at risk for one or more such losses/deliveries. Although structural cervical weakness is the source of some preterm losses/births, most are caused by other disorders, such as decidual inflammation/infection or uterine over distension. Despite major research efforts, more than 10 million births before 37 weeks' gestation occur worldwide annually and more than 1 million babies die from this common complication of pregnancy[1-5].

Cervical weakness is often over-diagnosed as a cause of mid-trimester miscarriage. There is also no satisfactory objective test that can identify women with cervical weakness in the non-pregnant state. Even though transvaginal ultrasound assessment of the cervix during pregnancy has been found to be useful in predicting preterm birth in some cases of suspected cervical weakness, treatment of cervical incompetence with cervical cerclage may not actually result in improved perinatal survival[6-8].

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Cervical insufficiency has no consistent definition, but is usually characterized by dilatation and shortening of the cervix before the 37th week of gestation in the absence of preterm labour, and is most classically associated with painless, progressive dilatation of the uterine cervix in the second or early third trimester resulting in membrane prolapse, premature rupture of the membranes, mid-trimester pregnancy loss, or preterm birth[3-4]. Cervical insufficiency arises from the woman's inability to support a full-term pregnancy due to a functional or structural defect of the cervix[1]. The incidence of true cervical insufficiency is estimated at less than 1% of the obstetric population. In Denmark from 1980 to 1990, cervical insufficiency was diagnosed in 4.6 per 1000 women, and it is estimated to occur in 8% of women with recurrent mid-trimester losses[2,5]. A variety of risk factors have been identified and are divided here into those that may be identified from prior maternal history and those that may arise in the index pregnancy itself. The classic history that raises the suspicion of cervical insufficiency is that of recurrent mid-trimester preterm pre-labour rupture of membranes at less than 32 weeks should be noted, as should a prior pregnancy with a cervical length measurement of less than 25 mm prior to 27 weeks of gestation[6]. Any history of prior cervical trauma (e.g. repeated therapeutic abortion, repetitive cervical dilatation, cone biopsy, cervical tears and lacerations, trachelectomy) should also be noted. A risk factor reducing in incidence is that of the mother herself having been exposed to diethylstilbestrol in utero[6]. A variety of other maternal risk factors include the presence of a congenital uterine anomaly or a maternal connective tissue disease or abnormalities, e.g. Ehlers-Danlos syndrome, that impacts upon the integrity of normal collagen development and function[7]. Recently, polycystic ovarian syndrome has been suggested as a risk factor for cervical insufficiency, especially in women of South Asian or Black origin[8]. In many cases, especially when clinical features and findings lead to suspicion of the diagnosis in the first pregnancy, these risk factors may not be present and the cause may remain idiopathic[9-12]. In the index pregnancy, findings indicative of possible cervical insufficiency include cervical funneling, cervical shortening, and overt cervical dilatation[12.13]. Even in the absence of funneling, a cervical length determined by ultrasound to be < 25 mm prior to 27 weeks increases the risk of pregnancy loss or preterm birth[10,11]. Up to 85% of the cervix's dry weight is collagen. Petersen and Uldbjerg examined cervical collagen in non-pregnant women with previous cervical insufficiency and found that they had markedly lower median cervical hydroxyproline concentrations than parous women without cervical insufficiency[14]. The causes of this have yet to be ascertained, but this seems to be a key factor in understanding the mechanism of cervical failure in such cases. In addition to its mechanical strength, the cervix may also play a role in protecting the uterine contents from ascending infection, with one key factor in this being the role of the cervical mucus as a barrier between the uterus and ascending infection[4,15]. Data suggest that 80% of cases of acute cervical insufficiency may be associated with intra-amniotic infection[16].

Material and Methods:

This is a retrospective observational study conducted over a period of twelve months on all patients presenting with recurrent mid-trimester miscarriage or delivery before 36 weeks to a private obstetric facility that serves as a referral center for obstetric and gynecologic cases in Central Hospital, Dhaka between 1st June 2015 and 30th May 2016. Patients with a history of two consecutive mid-trimester miscarriages or delivery before 36 weeks, and patients who have previously had a McDonald's or Shirodkar's Cerclage with suboptimal results were included in this study. Patients with vaginal discharge, ruptured or bulging membranes, bleeding in early pregnancy and fetal anomalies were excluded.

Eligible patients underwent a transvaginal ultrasound scan to confirm cervical length of less than 2.5 cm or internal OS diameter of 0.8 cm or more in the current pregnancy. A McDonald cerclage was performed under general anesthesia at the level of the internal cervical OS (as described by McDonalds), Postoperative care using drugs and prophylactic antibiotics were given.

Results:

Table I: Outcome of Variables (n=26)

Variable	Number	%
LUCS	16	61.53
Abortion	3	11.53
Term pregnancy	2	12.5
Pre-term pregnancy	14	87.5
Normal Birth Weight	7	43.75
Low Birth Weight	8	50

Two of the 26 cases didn't come for delivery at Central Hospital in Dhaka. Five women haven't delivered at the time of data analysis. So, pregnancy outcomes were analyzed among 19 cases while rests of the variables were analyzed among 26 cases. Of them 2 cases (7.6%) were between 20-25 years old, 5 (11.5 percent) were more than 30 years, remaining were between 26-30 years. All cases were booked cases (they had antenatal care in the hospital). Among the patients 4th and 5th gravida was 4 (15.3%), 2nd gravida was 6(23.09%), 3rd

gravida was also 6 (23.09%), 6th and 7th gravida was 1(3.09%). Most cases had 2 to 4 antenatal visits prior to suturing. Fourteen cases (73.68%) had a previous history of at least one dilatation and evacuation. Six cases (31.57%) were diagnosed with cervical incompetence clinically and confirmed by ultrasound. The remaining 68.42% were assessed, based on a history of mid-trimester abortion, of having a high suspicion of cervical incompetence after mid-trimester scan with measurement of cervical length. In 10(52.63%), cervical cerclage was done at 12-16 weeks of gestation, in 7(36.84%) between 17-20 weeks and 2 (10.52%) between 21-24 weeks. The postoperative period was uneventful in all 26 cases. All cases delivered in DH were assisted by consultant obstetricians. Sixteen (61.5%) out of 26 cases were delivered by caesarean section. Miscarriage rate was 11.53%. Among the caesarean deliveries, 2(12.5%) were at term and 14(87.5%) at preterm. In this study 3(21.42%) babies were born at 32nd and 33rd weeks, 6(42.85%) at 34th week and 2(14.28%) at 35th week. There were no fetal losses. Extreme low birth weight was only one, 7(43.75%) of the babies had normal birth weight for the area of study, and 8 babies (50%) had low birth weight.

Discussion:

The benefit of mid-trimester cerclage placement in pregnancies has been the subject of research. In this study, we evaluated the efficacy and the outcomes of cerclage placement, outcomes for cerclage when cervical effacement is clinically apparent even in worse conditions, when dilation and bulging of membranes occur. We found that patients can benefit from cerclage placement as the complication rate is low and the prognosis is good even with many premature babies. We had 26 patients of cerclage. Of them 2 cases (7.6%) were between 20-25 years old, 5 (11.5 percent) were more than 30 years, remaining were between 26-30 years. All cases were booked cases (they had antenatal care in the hospital). Among the patients 4th and 5th gravida was 4 (15.3%), 2nd gravida was 6(23.09%), 3rd gravida was also 6(23.09%), 6th and 7th gravida was 1(3.09%). Similar type of study shows 14(37%) patients were 3rd gravida. Most cases had 2 to 4 antenatal visits prior to suturing. 14 cases (73.68%) had a previous history of at least one dilatation and evacuation. Six cases (31.57%) were diagnosed with cervical incompetence clinically and confirmed by ultrasound. The remaining 68.42% were assessed, based on a history of mid-trimester abortion, of having a high suspicion of cervical incompetence after mid-trimester scan with measurement of cervical length. In a different study 21(50%) cases had a history of at least one D, C&E. Thirty three (87%) were diagnosed with cervical incompetence clinically and confirmed by ultrasound. The remaining 13% were assessed in absence of the history of mid-trimester abortion, of having a high suspicion of cervical incompetence after measurement of cervical length. In 10 cases (52.63%), cervical cerclage were done at 12-16 weeks of gestation, in 7 cases (36.84%) between 17-20 weeks and in 2 cases (10.52%) between 21-24 weeks. The postoperative period was uneventful in all 26 cases, which is like the study. All cases delivered in Central Hospital were assisted by consultant obstetricians. Sixteen (61.5%) out of 26 cases were delivered by caesarean section. Whereas another study showed 19(59%) out of 32 cases were delivered at term vaginally. Miscarriage rate was 3(11.53%) in my area of study. Study of Port H Arcourt Teaching Hospital found miscarriage rate of 9.4%. In his study term pregnancy occurred in 68.8% of the women and 21.8% at preterm. This study has found 2(12.5%) at term deliveries and 14(87.5%) preterm deliveries. Berghella et al[9] shows in his study preterm birth at less than 35 weeks of gestation occurred in 29.2% (89/305) of the cerclage group. Overall, 24(92.3%) delivered at term and two patients delivered at 33 and 35 weeks respectively. Mourali et al found term delivery in 68 cases. In this study 3(21.42%) baby born at 32nd and 33rd weeks, 6(42.85%) at 34th week and 2(14.28%) was at 35th weeks. Marliyya et al showed in his study 24(92.3%) delivered at term and two patients delivered at 33 and 35 weeks respectively. With regards to fetal outcome 25 (96.2%) took their babies at home. There was no fetal loss in our study also. Liptz et al found total mortality of 48.4% in a group of 32 patients carrying singleton pregnancies. Debby et al demonstrated an overall neonatal survival of 82%. Our study observed 7 babies (43.75%) had normal body weight for the area of study, 8 babies (50%) had low birth weight and only one had extreme low birth weight. Time interval between cerclage and delivery was 138.8 days. Ishai et al got average time interval 71.1 days overall. Liptz et al found the cerclage delivery interval about 42 days.

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