105 FACTORS ASSOCIATED WITH SUCCESS OF EMERGENT CERCLAGE

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OBJECTIVE: To assess the factors associated with delivery after 28 weeks following placement of an emergent cerclage.

STUDY DESIGN: All women who underwent emergent cerclage at a single university hospital after 1985 were identified. Emergent cerclage was defined as any cerclage placed after 16 weeks gestation in response to documented cervical change. Women who underwent revision of a prophylactic cerclage or placement of cerclage following delivery of one fetus of a multiple gestation were excluded from analysis. Patient charts were reviewed for maternal demographic information, physical exam findings, operative management, and outcome measures. Univariable and multivariable analysis were used to determine which factors were most associated with delivery after 28 weeks of gestation.

RESULTS: During the period of study, 118 women were eligible for inclusion. Univariable analysis revealed that maternal age, race, and operative variables such as suture type and use of antibiotics, were not associated with differences in the frequency of delivery after 28 weeks. Cerclage placement after 22 weeks' gestation increased the likelihood of delivery after 28 weeks, while several cervical exam findings (dilatation greater than 3 cm, effacement less than 0.5 cm, and membranes prolapsing through the external cervical os) or need for placement during a woman's first pregnancy significantly reduced the likelihood of reaching that gestational age. In multivariable analysis, the three factors that remained independently associated with delivery after 28 weeks are noted in Table.

CONCLUSION: Several identifiable factors predict the possibility of achieving a gestation of 28 weeks after emergent cerclage placement and can be used to help counsel women considering the procedure.

Table

Multivariable analysis

	OR	95% CI
Nulliparity	0.28	0.11-0.74
Prolapsing membranes	0.1	0.04-0.25
>22 weeks placement	2.9	1.1-7.6

106 CERCLAGE IN MULTIPLE GESTATION WITH MIDTRIMESTER DILATION OF THE INTERNAL OS

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OBJECTIVE: To determine the effect of cerclage on perinatal outcome in patients with midtrimester sonographic cervical change.

STUDY DESIGN: All patients with multiple gestation between 16-24 weeks and the sonographic findings of 1) internal os dilation, 2) endocervical membrane prolapse, 3) shortened distal cervix and 4) dynamic change with transfundal pressure were treated by the Lehigh Valley Protocol and randomly assigned to receive cerclage or no cerclage. Perinatal outcome was compared between multiple and singleton pregnancies and between the cerclage and no cerclage groups.

RESULTS: Of 150 patients, 24 multiple gestations were identified (21 twin and 3 triplet). Multiple gestations were readmitted more often for preterm labor compared to singletons (79.2 v 49.2%, $P = .007$). They also delivered earlier (31.7 ± 5.2 v 35.3 ± 5.1 wk, $P = .003$) and had a higher rate of severe neonatal morbidity (33.3 v 14.3%, $P = .004$). Ten patients with 21 infants received a cerclage and 14 with 30 infants had no cerclage. The results of the cerclage comparison are summarized in the Figure.

CONCLUSION: Multiple gestation is a significant risk factor for adverse perinatal outcome in patients with midtrimester ultrasound changes. Cerclage does not appear to improve outcome.

Figure

Cerclage comparison

	Cerclage Group n = 10 (21 Infants)	No Cerclage Group n = 14 (30 Infants)	P value
Prior Preterm Birth	10.0%	7.1%	0.7
Cervical Surgery	10.0%	7.1%	0.7
Twins	90.0%	85.7%	0.6
Triplets	10.0%	14.3%	0.6
Dilation of Internal Os	2.3 ± 1.1 cm	2.0 ± 1.1 cm	0.6
Depth of Prolapse	1.8 ± 1.1 cm	1.5 ± 0.5 cm	0.4
Distal Cervical Length	1.4 ± 0.7 cm	1.8 ± 0.8 cm	0.1
Gest Age - Diagnosis	22.1 ± 1.8 wk	22.5 ± 1.2 wk	0.6
Gest Age - Delivery	30.1 ± 5.5 wk	32.7 ± 4.8 wk	0.2
Readmit preterm labor	80.0%	78.6%	0.7
Abruption	20.0%	14.3%	0.6
Chorioamnionitis	50.0%	14.3%	0.09
Rescue Procedures	10.0%	21.4%	0.6
Perinatal Death	14.3%	13.3%	0.6

107 MIDTRIMESTER DILATION OF THE INTERNAL OS IN PATIENTS WITHOUT RISK FACTORS

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OBJECTIVE: To compare outcome of patients without risk factors for preterm birth (PTB) and midtrimester cervical ultrasound changes to patients with known risk factors and the same ultrasound changes.

STUDY DESIGN: Between 5/98-6/01 all patients with midtrimester cervical ultrasound changes were treated by the Lehigh Valley Protocol with random assignment to cerclage or no cerclage and evaluated for risk factors of PTB. Patients with ≥1 of the following factors were assigned to the risk group: Mullerian anomaly, DES exposure, previous cervical surgery and prior mechanical cervical dilation. The perinatal outcome of these patients was compared to patients in the no risk group (absence of any risk factor for PTB). The risk factors of prior PTB and multiple gestation were excluded from this analysis.

RESULTS: Of 56 patients, 14 had no risk factors identified and 42 had ≥1 risk factor. Cerclage did not improve outcome in either group. The results of the risk group comparison are summarized in the Figure.

CONCLUSION: Midtrimester ultrasound findings of internal os dilation, endocervical membrane prolapse and short distal cervical length are associated with significant adverse perinatal outcome regardless of risk factors. Cerclage does not improve outcome in these patients.

Figure

Comparison of perinatal outcome

	No Risk Group (n=14)	Risk Group (n=42)	P value
Gestation Age at Diagnosis	20.1 ± 2.4 wk	21.4 ± 2.1 wk	0.1
Internal Os Dilation	1.5 ± 0.5 cm	1.5 ± 0.6 cm	0.9
Depth of Membranes	2.2 ± 1.6 cm	1.5 ± 0.9 cm	0.1
Distal Cervical Length	1.5 ± 0.9 cm	1.8 ± 0.8 cm	0.3
Gestational Age at Birth	32.7 ± 5.3 wk	37.2 ± 3.2 wk	0.01
Cerclage	42.8%	33.3%	0.7
Cervical Laceration	7.1%	0%	0.3
Abruption	35.7%	2.4%	0.003
Chorioamnionitis	14.3%	7.1%	0.6
Preterm Labor	71.4%	40.5%	0.09
Severe Neonatal Morbidity	21.4%	2.4%	0.04

108 DOES CERCLAGE LOCATION INFLUENCE PERINATAL OUTCOME?

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OBJECTIVE: To measure cerclage location within the cervix and determine if placement closer to the internal os improves perinatal outcome.

STUDY DESIGN: All patients between 16-24 weeks who were randomly assigned to receive a McDonald cerclage by the Lehigh Valley Protocol during the period of 5/98-6/01 were analyzed with respect to the distance from the cerclage to the external os (A) and the cervical length after cerclage placement (B). A cerclage to cervical length ratio (A/B) was calculated. Patients were stratified into 2 groups according to cerclage location in the cervix: either lower ½ or upper ½. Perinatal outcome between groups was compared and a regression model was constructed to assess the relationship between cerclage location and gestational age at birth.

RESULTS: Of the 150 patients enrolled in the protocol, 74 received cerclage with 29 located in the lower ½ of the cervix and 45 in the upper ½. For all patients, the mean cerclage to external os measurement was 1.8 ± 0.6 cm (A). The mean cervical length prior to cerclage was 1.9 ± 1.0 cm and after cerclage 3.6 ± 0.9 cm (B). The mean cervical length ratio (A/B) is 0.51 ± 0.02. There was no difference in perinatal outcome noted when the upper ½ group was compared to the lower ½ group. The regression analysis is demonstrated in the following graph.

CONCLUSION: Cerclage placement improves cervical length but does not alter perinatal outcome regardless of its location.

Figure

Correlation of cerclage—cervical length ratio and gestational age at delivery