



Cervical Effacement is More Prognostic than Cervical Dilation in Outcome of Pregnancy in Pregnant Women with Incompetent Cervix

Fatemeh Golshahi, Behrokh Sahebdel, Nafiseh Saedi and Nooshin Faraji*

Maternal, Fetal and Neonatal Research Center, Department of Obstetrics and Gynecology, Yas Hospital Complex, Tehran University of Medical Sciences, Tehran, Iran

Dear Editor,

Cervical dilation and effacement are critical components of the cervical ripening process during pregnancy. According to Williams Obstetrics textbook, cervical effacement refers to the thinning and shortening of the cervix as it prepares for labor, usually expressed as a percentage ranging from 0% (no effacement) to 100% (complete effacement). Cervical dilation, on the other hand, describes the opening of the cervical canal and is measured in centimeters from 0 *cm* (closed) to 10 *cm* (fully dilated). Effacement typically begins earlier, around 37-38 weeks of gestation, whereas dilation usually occurs closer to delivery, often within 24 *hr* before labor onset (1,2).

Cervical effacement is most commonly assessed through clinical examination rather than sonography. Although transvaginal ultrasound can measure cervical length and may provide some indirect information about cervical changes, it does not directly quantify effacement in the same manner as a manual examination. Specifically, cervical effacement refers to the thinning and shortening of the cervix described as a percentage, while cervical length is measured in centimeters *via* ultrasound.

In clinical practice, a combination of manual assessment and ultrasound may be utilized in certain high-risk pregnancies to monitor cervical changes. However, in this study, all assessments of cervical dilation and effacement were performed exclusively by clinical examination at the bedside by a single experienced senior resident clinician, who is also the author of this manuscript. This examiner personally evaluated and followed all the patients throughout the study, ensuring consistency and minimizing inter-observer variability. The choice to rely on manual examination was deliberate to maintain accuracy and standardization in the assessment.

Prophylactic cervical cerclage is performed to reduce the risk of miscarriage in women with cervical insufficiency, typically between 14 and 18 weeks of gestation, although it may be performed later if clinically indicated (3,4).

* Corresponding author

Nooshin Faraji, MD

Yas Hospital Complex, Tehran
University of Medical Sciences, Tehran,
Iran

Tel: +98 21 4201 6852, 9120347588

Email:

nooshin.f71@gmail.com

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Previous studies have indicated that cervical dilation at the time of cerclage placement correlates with adverse outcomes such as Preterm Birth (PB) and Premature Rupture of Membranes (PROM). However, the prognostic value of cervical effacement remains less clear. Some evidence suggests that women with cervical dilation less than 2.5 cm may have outcomes similar to those with closed cervices, whereas predictions based on effacement remain controversial (5,6).

In this study, 11 pregnant women undergoing cerclage were evaluated. The mean cervical dilation was 2.81 ± 1.16 cm, and the mean cervical effacement was $48.18 \pm 21.36\%$. Demographic and clinical characteristics of the participants are summarized in table 1. The average gestational age at the time of cerclage placement was 22.36 ± 3.04 weeks, with no significant differences observed between the groups. The cutoff point of 50% cervical effacement was selected based on clinical experience and prior

literature to differentiate early from advanced cervical changes. It was acknowledged that this threshold is not universally standardized, which constitutes a limitation of the study. Further research with larger sample sizes and standardized assessment methods is required to validate the optimal cutoff value.

The patients were stratified into groups based on cervical dilation (<4 cm vs. ≥ 4 cm) and cervical effacement ($<50\%$ vs. $\geq 50\%$). Pregnancy outcomes including labor pain, PB, and PROM were compared between these groups (Table 2).

Pregnancy outcomes were categorized based on clinical diagnosis distinguishing true labor (regular uterine contractions with cervical changes), false labor (Braxton-Hicks contractions without cervical changes), preterm labor (labor before 37 weeks gestation), and Preterm Premature Rupture of Membranes (PPROM). These distinctions were carefully made during clinical follow-up and are reflected in the outcome analysis, although the small

Table 1. Demographic and clinical characteristics of 11 pregnant women who underwent cerclage

Age (yr)	G	GA	CC	CD	CE	Progesterone	GA at delivery	CC at delivery
34	G2L1	23	Feeling of pressure in pelvic space	2	70%	+	25	ROM
26	PG	20	Spotting	3	60%	+	30	ROM+LP
34	G2Ab1	22	Feeling of pressure in pelvic space	4	30%	+	37	LP
29	PG	17	Short CL in anomaly sonography	4	20%	ROM at cerclage procedure	18	ROM
29	G2Ab1	25	Feeling of pressure in pelvic space	3	70%	+	34	ROM
35	PG	20	Short CL in anomaly sonography	2	60%	+	24	ROM+LP
33	PG	25	Feeling of pressure in pelvic space	5	20%	+	39	Open the cerclage according the GA
36	G4L2D1	23	ROM	3	70%	+	24	ROM+LP
29	G3D2	23	Short CL in anomaly sonography	1	10-20%	+	38	Open the cerclage according the GA
42	G2L1	24	Short CL in anomaly sonography	2	40-50%	+	36	ROM
33	PG (IVF)	23	Spotting	2	60%	+	23	RPM in operating room through cerclage procedure

Preterm Birth (PB), Premature Rupture of Membranes (PROM), Preterm Premature Rupture of Membranes (PPROM), Rupture of Membranes (ROM), Gestational Age (GA), Chief Complaint (CC), Cervical Dilation (CD), Cervical Effacement (CE).

Table 2. Relationship between cervical dilatation and effacement with pregnancy outcome

Variable	Cervical dilation		Cervical effacement	
	<4 cm (n=8) Mean±SD or Number (%)	≥4 cm (n=3) Mean±SD or number (%)	<50% (n=4) Mean±SD or number (%)	≥50% (n=7) Mean±SD or number (%)
Age (yr)	33.00±5.01	32.00±2.64	31.25±2.62	33.57±5.12
	p=0.679		p=0.338	
Gestational age at cerclage	22.25±2.54	21.33±4.04	21.75±3.40	22.14±2.73
	p=0.675		p=0.771	
Gestational age at delivery	29.25±6.06	31.33±11.59	33.00±10.03	28.00±5.32
	p=0.539		p=0.185	
The number of adverse pregnancy outcomes include: labor pain, premature labor and prom	7(87.5)	1(33.3)	1(25)	7(100)
	p=0.152		p=0.024	

sample size limits detailed subgroup analyses.

No significant differences were found between the cervical dilation groups regarding adverse pregnancy outcomes ($p=0.152$). However, women with cervical effacement $\geq 50\%$ experienced significantly more adverse outcomes (100%) compared to those with effacement $<50\%$ (25%) ($p=0.024$).

Clinical histories were obtained for all the participants, including maternal conditions such as diabetes or hyperglycemia, aspirin use, previous obstetric history including prior preterm births, and any cervical trauma or abnormalities. Although these variables appeared balanced across groups in this small cohort, their potential impact on cervical status and pregnancy outcomes is acknowledged and warrants further study with larger sample sizes.

Gestational age at delivery was recorded and summarized in table 1. There were no significant differences in gestational age at delivery between groups stratified by cervical dilation or effacement, which supports the observed relationship between cervical status at cerclage placement and pregnancy outcomes.

Overall, cervical effacement appears to be a more reliable predictor of pregnancy outcome than cervical

dilation in women undergoing cerclage, especially when assessed consistently by a single experienced examiner.

The assessment of cervical effacement remains subjective and dependent on examiner experience. Although this study minimized variability by relying on a single examiner, the absence of a precise and standardized measurement method limits the generalizability of the findings. Future studies incorporating objective imaging techniques and standardized criteria for cervical assessment are necessary.

Larger, well-designed studies with standardized assessment protocols are required to confirm the mentioned findings and establish clinical guidelines

Ethics approval

This study was approved by the Ethics Committee of Tehran University of Medical Science, and was conducted in accordance with the principles of the Declaration of Helsinki. The ethical approval code is IR. TUMS.MEDICINE.REC.1400.1022.

Conflict of Interest

The authors declared no conflict of interest.

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