

ABSTRACT

Objective: To evaluate pregnancy outcomes of women with prior history of ultrasound-indicated cerclage (UIC) for short cervix who in subsequent pregnancy either were followed by transvaginal ultrasound cervical length(TVU CL)screening or received a history-indicated cerclage (HIC).

Materials and Methods: Retrospective cohort study was performed from 1993-2012, involving women with an index singleton pregnancy and history of UIC. Prior UIC was defined as cerclage placed for CL<25mm prior to 24wks in women at high risk for preterm birth. At our institution, women with prior history of UIC were managed in their subsequent pregnancy either by TVU CL screening or by HIC, at the physician's discretion(Figure). In the TVU CL group, if CL became <25mm before 24wks, an UIC was performed. In the HIC group, HIC was placed around 12-15wks. Primary outcome was spontaneous PTB (sPTB) at <35wks.

Results: 28 women met the inclusion criteria. Of these 28 women, 13 were in TVU CL group and 15 in HIC group. Demographics were similar in both the groups, except earliest GA of prior sPTB (Table). The odds of sPTB <35wks for two groups was similar (OR 0.54, 95% CI 0.04-6.77). Secondary outcomes were also similar in two groups except birth weight (Table).

Conclusion: Women with prior UIC have similar outcomes if they are managed in the next pregnancy by either TVU CL screening and UIC placement if CL is <25mm prior to 24wks, or by HIC. Our study results are limited by small sample size. There are currently no other studies evaluating this clinical dilemma.

BACKGROUND

- Preterm birth (PTB) is a major cause of perinatal morbidity and mortality. Prior PTB and short cervix [cervical length (CL) <25mm on transvaginal ultrasound (TVU) prior to 24 weeks] are two major risk factors for preterm birth.
- Two common indications of cerclage in clinical practice are : History-indicated cerclage (HIC) and Ultrasound-indicated cerclage (UIC). HIC is placed for 3 or more prior PTB or second trimester losses, while UIC is placed for CL<25mm prior to 24 weeks in women with history of prior spontaneous PTB (sPTB).
- “Once cerclage, always cerclage” is a common myth. Women with prior sPTB are commonly followed with CL screening between 16-24 weeks GA and offered UIC if indicated. Women with prior UIC are commonly followed with CL screening, however some physicians might consider HIC in these women due to prior history of cervical shortening and need for UIC. Currently we do not have any evidence to help guide the management of women with prior UIC in their subsequent pregnancies.

OBJECTIVE

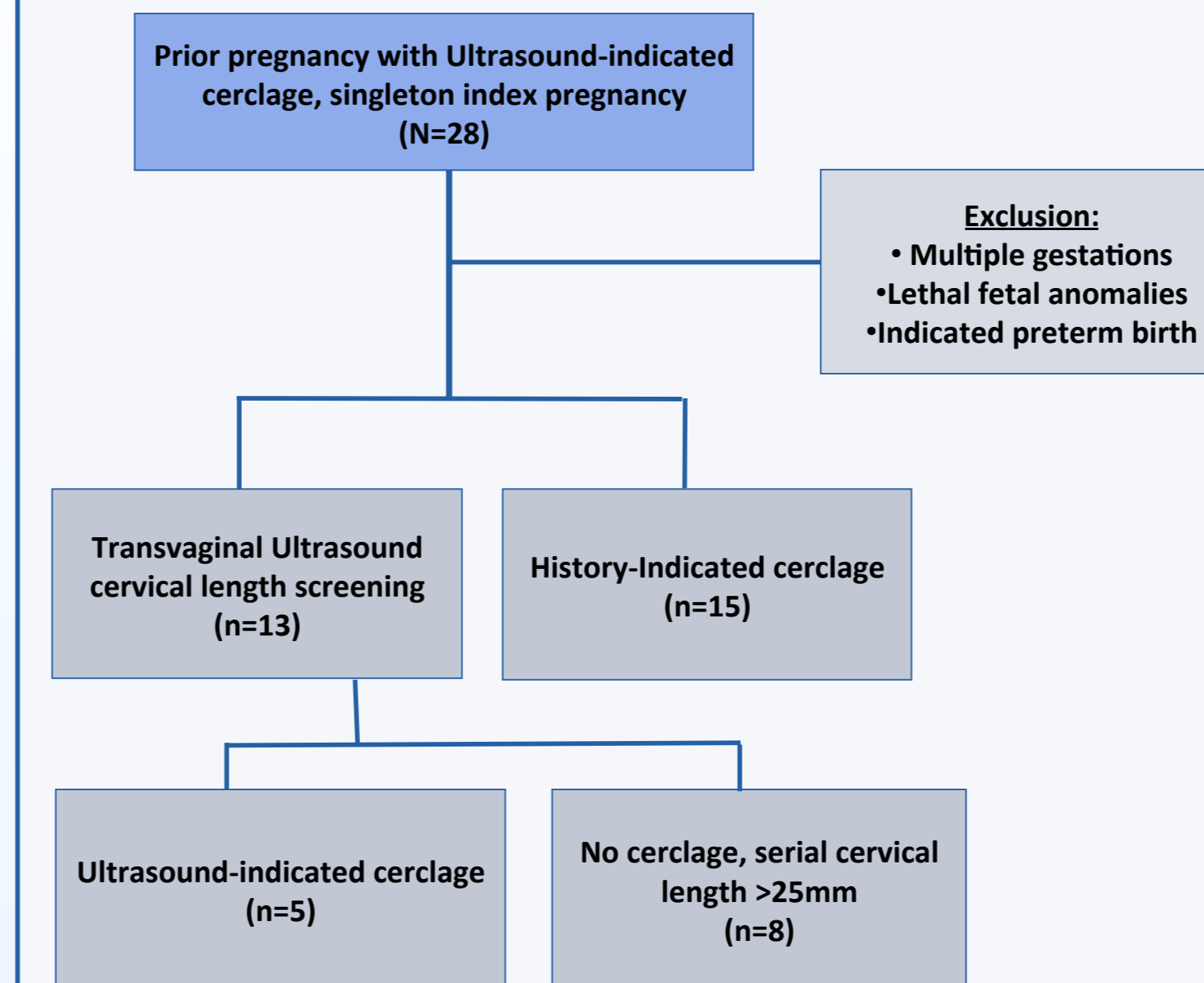
To evaluate pregnancy outcomes of women with prior history of UIC for short cervix who in subsequent pregnancy either were followed by TVU CL screening or received a HIC.

MATERIALS & METHODS

- Retrospective cohort study from 1993 - 2012 at Thomas Jefferson University Hospital (TJUH)
- Inclusion criteria: Women who underwent UIC placement between 1993 - 2012 with a subsequent singleton pregnancy.
- Management of the subsequent pregnancy with either HIC (control group) or follow up with TVU CL was identified. In the later group, if CL became <25mm before 24weeks, a UIC was performed (case group).
- Exclusion criteria: multiple gestations, lethal fetal anomalies and indicated PTB in subsequent pregnancies.
- Primary outcome was sPTB at <35weeks.
- Secondary outcomes included mean gestational age (GA) at delivery, sPTB<37, 32, 28, and 24 weeks; birth weight; incidence and GA at repeat cerclage
- Sample size calculation was performed based on the results from previous studies which showed an overall incidence of PTB of 13% in women who underwent HIC¹, and 31% among women who underwent UIC². 93 cases and 93 controls are required for 80% power and a two-sided alpha of 0.05.
- Statistical analysis will be performed using SAS software, version 9.3 (SAS Institute Inc, Cary, NC). Continuous variables will be compared using Student t-test. Categorical variables will be compared using chi-square and Fisher exact tests as appropriate. Odds ratio and 95% confidence interval were calculated using simple logistic regression. A p-value of < 0.05 will be considered significant.

MATERIALS & METHODS

Figure: Study algorithm



RESULTS

- 28 women met the inclusion criteria
- Of these 28 women, 13 women were in TVU CL screening group and 15 women in HIC group.
- The odds of sPTB <35weeks was similar in both groups (OR 0.54, 95% CI 0.04-6.77).
- Birth weight was significantly higher in HIC group
- Mean GA at delivery and other secondary outcomes were similar in the two groups (Table).
- Of the 13 women in TVU CL screening group, 5 (38.5%) received UIC.

RESULTS

Table: Demographics and outcomes

Variable#	TVU CL (n=13)	HIC (n=15)	P-value	Odds Ratio (95% CI)
Age* (years)	29.7±4.8	28.9±5.4	0.7	--
AA Race; n(%)	11 (84.6)	14 (93.3)	0.6	--
Earliest GA of prior sPTB* (weeks)	25.3±6.6	20.4±2.6	0.04	--
Progesterone in index pregnancy; n(%)	5 (41.7)	3 (20.0)	0.4	--
Prior UIC placement				--
-GA (weeks)*	19.0±2.5	18.8±2.7	0.9	
-TVU CL (mm)*	18.0±5.0	15.9±7.5	0.4	
Prior UIC delivery				--
-GA (weeks)*	35.6± 6.6	31.6±7.5	0.1	
-Delivery within 48 hours of cerclage removal**; n(%)	8 (66.7)	10 (66.7)	1	
Mean GA at delivery (weeks)*§	36.5±5.7	35.3±8.0	0.7	--
sPTB<37 weeks§; n(%)	2 (15.4)	4 (26.6)	0.7	0.50 (0.08- 3.32)
sPTB<35 weeks¶; n(%)	1 (7.7)	2 (13.3)	1	0.54 (0.04- 6.77)
sPTB<32 weeks§; n(%)	1 (7.7)	2 (13.3)	1	0.54 (0.04- 6.77)
sPTB<28 weeks§; n(%)	1 (7.7)	2 (13.3)	1	0.54 (0.04- 6.77)
sPTB<24 weeks§; n(%)	1 (7.7)	2 (13.3)	1	0.54 (0.04- 6.77)
Birth weight (grams)*§	2870.8±878.0	3453.3±282.6	0.04	--
Incidence of repeat cerclage§; n(%)	5 (38.5)	15(100.0)	--	--
GA at repeat cerclage (weeks)*§	17.3±2.2	13.3±1.9	0.01	--

AA, AfricanAmerican; GA, Gestational Age; sPTB, spontaneous preterm birth; UIC, Ultrasound-indicated cerclage. *mean±standard deviation. **data missing for 1 subject in TVU CL group. ¶Primary outcome. §Secondary outcomes.

CONCLUSIONS

- Women with prior UIC have similar outcomes if they are managed in the next pregnancy by either TVUS CL screening and UIC placement if CL is <25mm prior to 24weeks, or by HIC.
- Study results are limited by small sample size.

REFERENCES

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