

Ultrasound predictors of cerclage failure in ultrasound-indicated cervical cerclage

An exploratory retrospective case–control study

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BACKGROUND & OBJECTIVE

Why this matters

- Outcomes after ultrasound-indicated cerclage vary despite apparently appropriate selection.
- Clinical prediction relies largely on cervical length; the value of other pre-cerclage sonographic features is uncertain.

We asked: which ultrasound features predict early failure?

In other words, how can we counsel women receiving the procedure?

OBJECTIVE

Identify pre-cerclage ultrasound features associated with delivery within 6 weeks of cerclage.

METHODS



KEY LIMITATIONS

- Retrospective, single-centre design.
- Only 10 failure events; estimates are imprecise and the model is exploratory.
- Inflammatory and other non-ultrasound predictors were not included.

RESULTS

10 / 52

delivered within 6 weeks

19.2%

early cerclage failure

Ultrasound features by outcome

Feature	Failure n=10	Success n=42	P
Cervical length, mm	7.8 ± 2.3	12.6 ± 6.5	0.045
Funnel length, mm	11.8 ± 5.7	22.8 ± 9.9	0.003
Cervical volume	163.9 ± 223.8	502.1 ± 495.3	0.011
Change with Valsalva	90.0%	26.2%	<0.001

ASSOCIATION WITH EARLY FAILURE

Change with Valsalva

Univariable OR 25.36
(95% CI 2.87–223.81; p=0.004)

Shorter cervical length

Univariable OR 0.84
(95% CI 0.72–0.99; p=0.039)

MODEL PERFORMANCE

C-statistic 0.898 | Pseudo-R² 0.40

WHAT THE FINDINGS MEAN

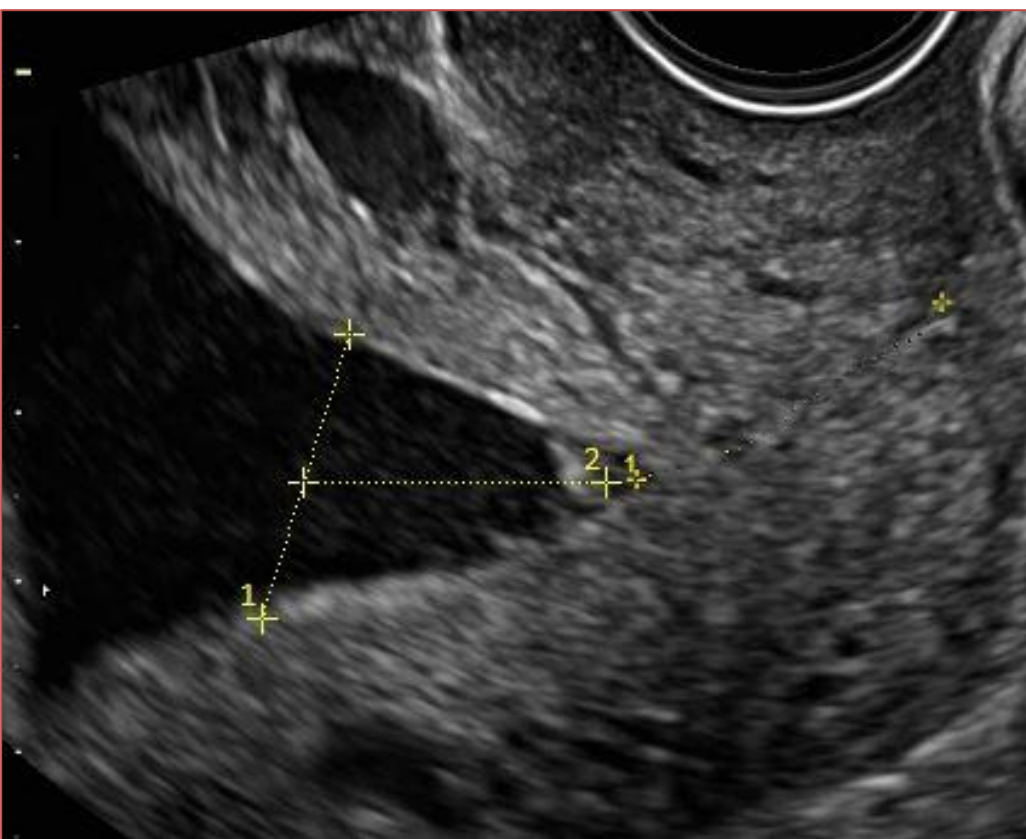
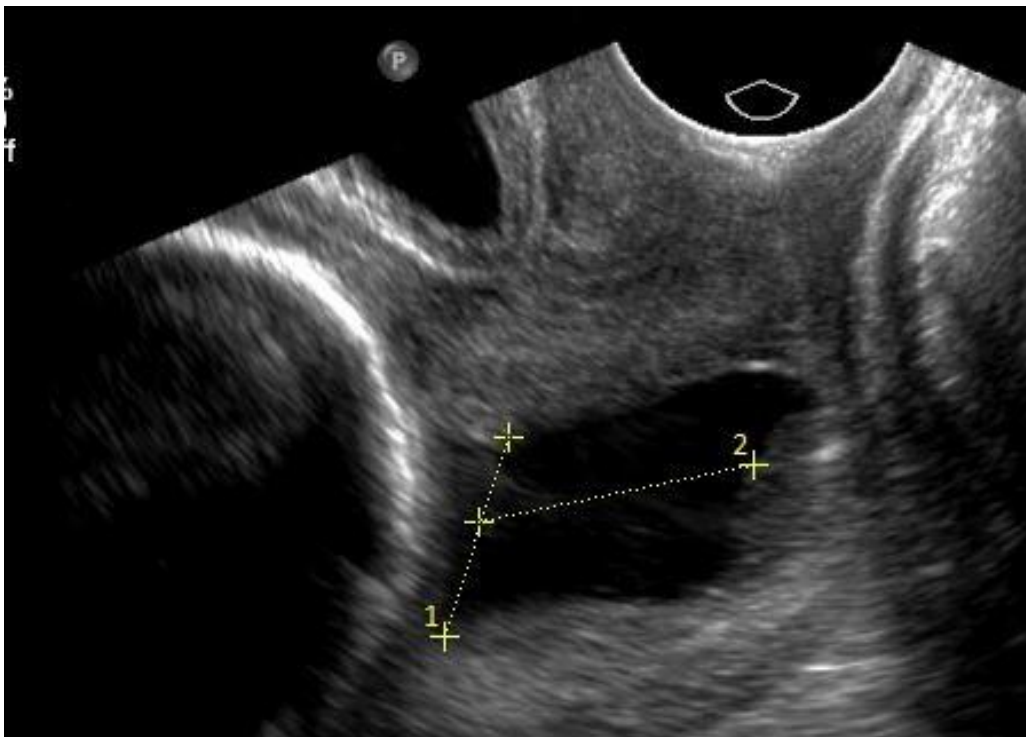
The clearest signal was dynamic, not static.

- 90% of failures showed cervical change with Valsalva, compared with 26.2% of successes.
- Change with Valsalva remained significant after multivariable adjustment.
- Shorter cervical length was associated with failure on univariable analysis.
- Funnelling, sludge and progressive shortening were not statistically significant predictors.

90%

of failures showed
change with Valsalva

vs 26.2% of successes



CONCLUSION

Short cervical length and Valsalva-induced cervical change may identify women at greatest risk of early failure after ultrasound-indicated cerclage.

Prospective validation is required before clinical implementation or development of a robust prediction model.

CLINICAL IMPLICATION

A dynamic Valsalva assessment could add clinically useful information to cervical length alone when counselling women and designing future cerclage-risk models.