

EP17.72 Investigating the relationship between the vesicocervical angle and gestational latency in patients after ultrasound-indicated cerclage placement

Sepand Alavifard¹, Jessica Li¹, Elizabeth Phan², Vasilica Stratulat^{2,3}, Stefania Ronzoni^{2,3}
¹Department of Obstetrics & Gynaecology, University of Toronto, Toronto, Canada; ²Sunnybrook Health Sciences Centre, Toronto, Canada; ³Mount Sinai Hospital, Toronto, Canada

BACKGROUND

Cervical insufficiency increases the risk of preterm delivery.¹⁻³ Cervical cerclage has been used as an intervention to prolong gestation. Cervical morphology characteristics post-cerclage, including the uterocervical angle (UCA),⁴⁻⁵ are used to predict latency, but fluctuate with uterine contractions and thus have inconsistent results (Figure 1). We identified a novel measurement on transvaginal ultrasound (TVUS), the vesicocervical angle (VCA) (Figure 2), as a predictor of latency. The objective of this study was to assess the association between the VCA after ultrasound-indicated cerclage placement and gestational latency, and to compare its predictive value with that of routine cervical length.

METHODS

Retrospective cohort study of singleton pregnancies using patient records and archived TVUS images, at Sunnybrook Health Sciences Centre in Toronto, Ontario, Canada. Patients who underwent an ultrasound-indicated cerclage in 2019-2021 were included. Univariable linear regression analysis was performed.

RESULTS

This study identified **62 pregnancies**.

- Mean maternal age 34.3 (standard deviation [SD] 4.6) years.
- Mean gestational age at cerclage placement 20.8 (SD 1.8) weeks.
- Median gravidity and parity 2 (IQR 1-3) and 0 (IQR 0-1), respectively.
- History of preterm birth or second-trimester loss present in **35.5% of patients**.
- Mean cervical length (CL) prior to cerclage placement **10 (SD 7) mm**.

Post-cerclage measurements demonstrated:

- Mean CL of 24 (SD 7) mm
- Mean VCA of 81 (SD 24) degrees
- **Median latency of 15.1 (SD 11.7-17.3) weeks following cerclage placement.**

There was no significant association between pre- or post-cerclage CL, or the novel VCA, and gestational latency.

- CL (pre) and latency odds ratio (OR) 2.57 (0.37-17.6)
- CL (post) and latency OR 0.79 (0.11-5.64)
- VCA and latency OR 1.00 (0.94-1.05)

CONCLUSION

In this cohort of patients who underwent ultrasound-indicated cerclage, neither VCA or CL (pre- or post-cerclage) were predictive of gestational latency.

These findings suggest that **cervical shortening may reflect progressive ripening rather than a purely mechanical defect**, which could explain the lack of association with ultrasound-based parameters. **Ultrasound markers like VCA and cervical length may be more useful in subgroups where mechanical insufficiency is the primary driver.** Further research is needed to identify markers that distinguish mechanical from inflammatory or biochemical pathways to better guide patient selection and counselling.

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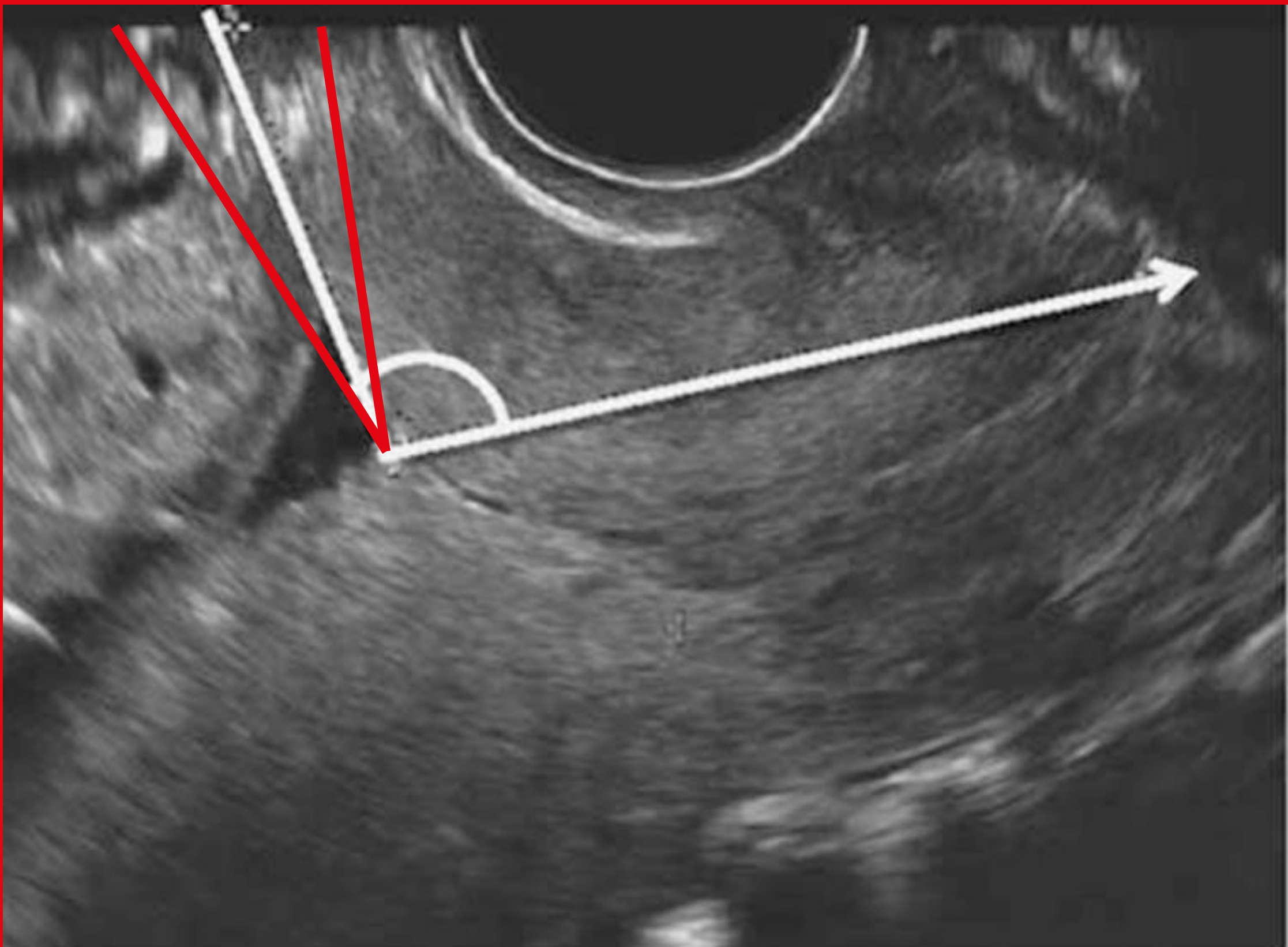


Figure 1 The UCA is the angle formed by the intersection between a line from the internal to the external os, and a line parallel to the lower aspect of the anterior uterine wall, passing through the internal os. The lower uterine segment, and therefore the angle, change with contractility.

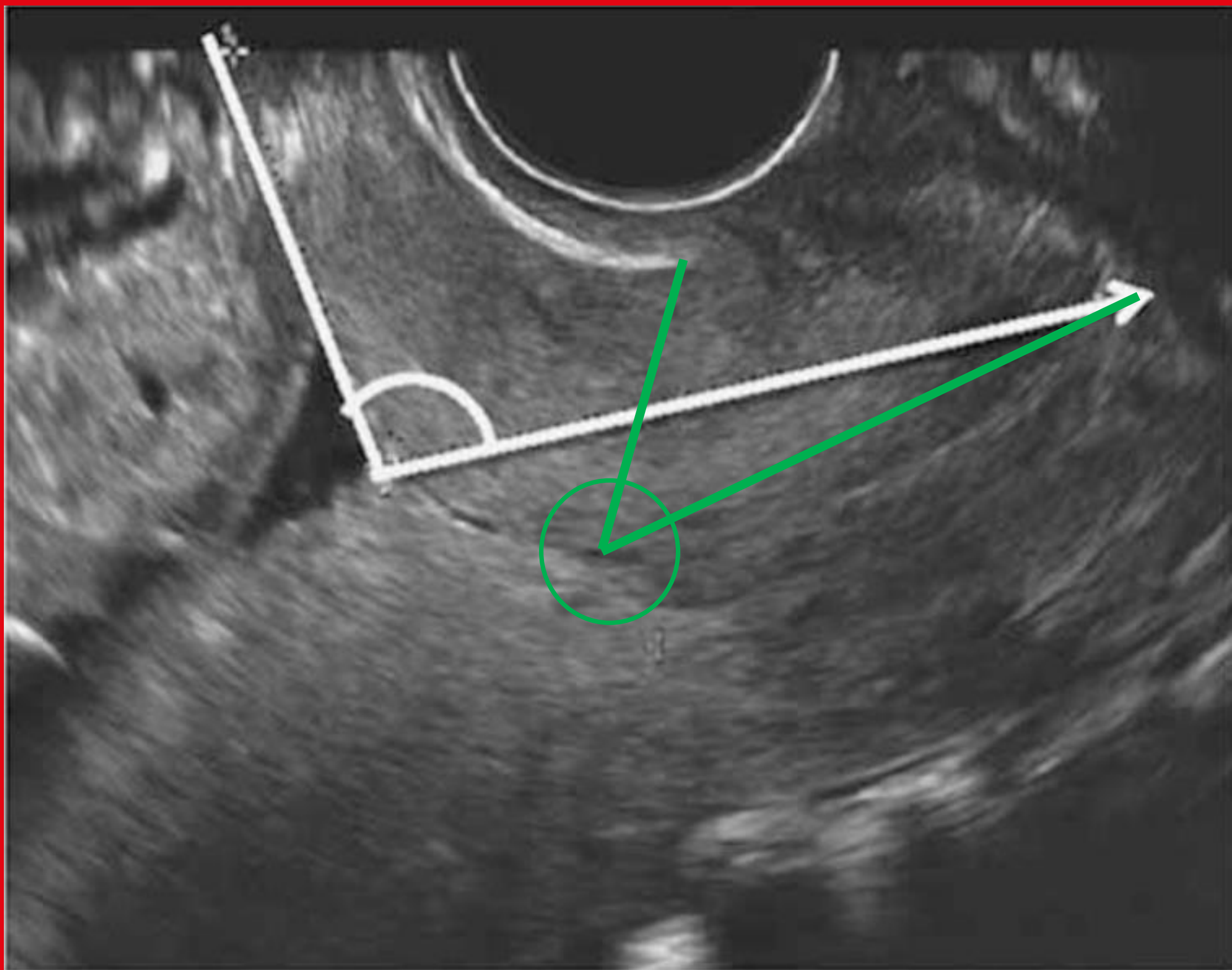


Figure 2 The novel VCA is the angle formed by the intersection between a line drawn from the distal aspect of the bladder and the internal os, and a line drawn from the internal to external os.