

Evaluation of Cervical Elastography, Volume, and Length in Women with Müllerian Duct Anomalies: A Case-Control Study

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THE FOUNDATION

OBJECTIVE: Evaluate simultaneous structural integrity (length/volume) and functional potential (tissue elasticity) in MDAs.

Methodology Visual Tree

N = 120
(Prospective Case-Control Study)



60 Cases
(Non-pregnant MDA patients:
Arcuate n=24, Septate n=31,
Bicornuate n=5)

Perfect Matching:
Age (P=0.467),
Parity (P=0.648),
BMI (P=0.798)

60 Controls
(Normal uterine morphology)

Dual-Track Modalities

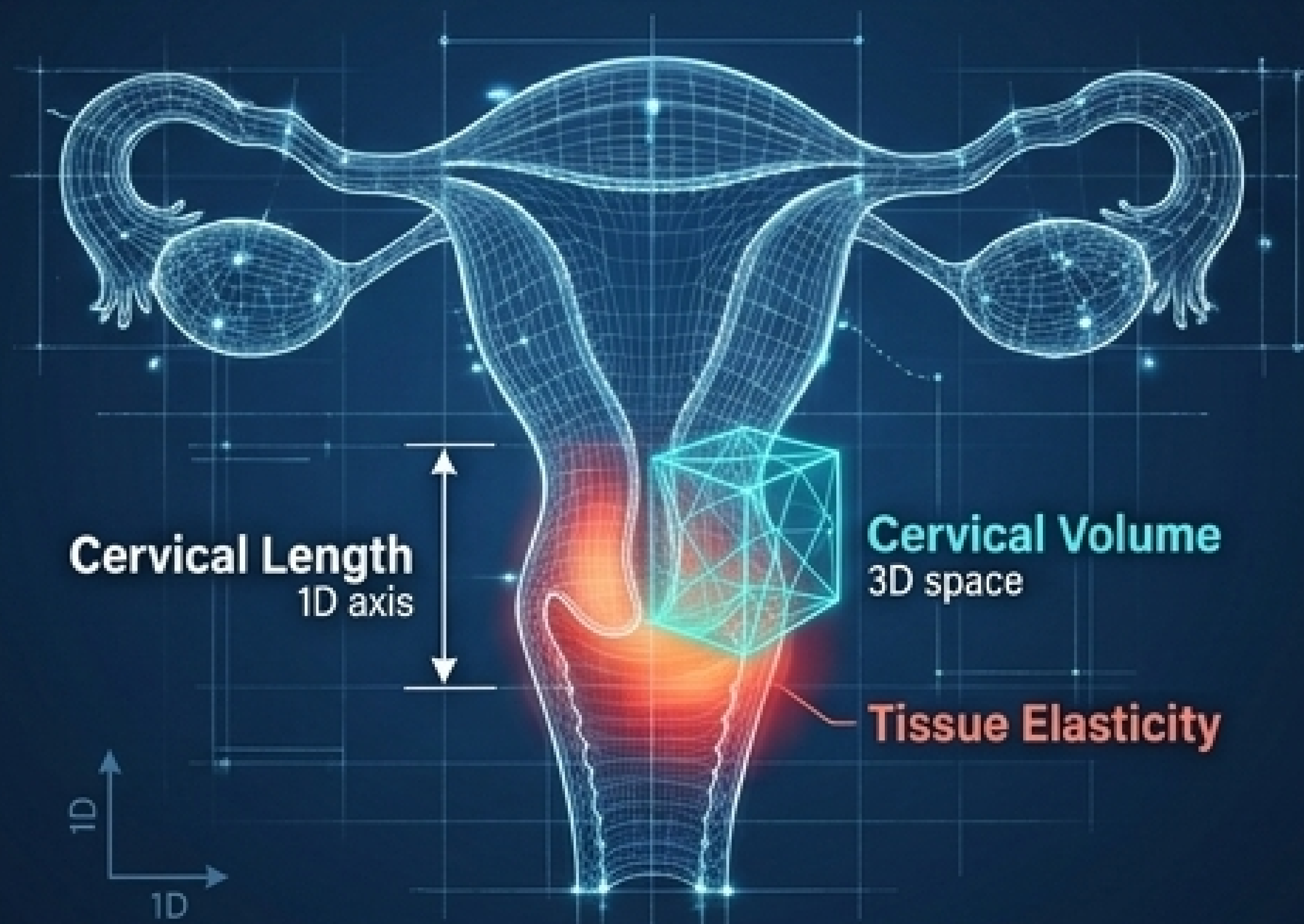
Morphological Analysis

3D Transvaginal USG evaluating Cervical Length (mm) and Cervical Volume (cm³)

Biomechanical Analysis

Strain Elastography evaluating Tissue Elasticity via Strain Ratio (ROI B/A)

THE EVIDENCE



Discovery Matrix

Morphological Shrinkage

Cervical Length:
MDA
24.37 mm
vs
Control
26.80 mm
P=0.001

Cervical Volume:
MDA
18.36 cm³
vs
Control
24.08 cm³
P<0.001

Biomechanical Preservation

Strain Ratio:
MDA vs Control
1.20 vs 1.29
No Difference
(P=0.342)

SYNTHESIS

Multivariable Regression Matrix

	Parameter	Comparative Result	Independent Predictor
1	Cervical Length	Severely Reduced (-2.45 mm)	Solely MDA Presence (P=0.001)
2	Cervical Volume	Severely Reduced (-5.74 cm ³)	Solely MDA Presence (P<0.001)

Demographics (Age, BMI, Parity) cannot explain this structural shrinkage. Cervical dimensions are strictly an embryological consequence.

Cervical Volume is a Promising Novel Morphometric Biomarker.

In Müllerian anomalies, cervical dimensions undergo an embryologically driven reduction, yet baseline tissue stiffness remains unchanged. 3D volumetric assessment surpasses standard 1D length measurements as an objective parameter for capturing the full scope of structural integrity.