

Transvaginal Three-Dimensional Ultrasound (3DTVU) techniques to visualize Cerclage Suture Location

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Objectives

3DTVUS techniques to visualize cerclage position along the cervix.

Methods

Using GE Voluson Expert series US machines with the RIC5-9W-RS probe a descriptive review of 3DTVUS techniques used to localize cerclages. Volume data of the cervix were obtained using a mid-sagittal plane visible in its entire course. The acquired volumes were manipulated to obtain reformatted views of the cervix in the mid-sagittal (A box), axial (B box), and coronal planes (C box).

Results

Cerclage position in relation to the endocervical canal was obtained with 3 techniques:

1. Multiplanar (IMAGE 1): In A box cerclage visible as 2 echogenic dots in the anterior and posterior cervical stroma: Image rotated using “z” knob to align BOTH dots with the axial plane. Suture visualized in B box circumferentially around endocervical canal.
2. Omniview (IMAGE 2) In A box draw a straight Omniview line through the 2 echogenic dots results in the visualization of the suture circumferentially around endocervical canal.
3. TUI (Tomographic ultrasound imaging) (IMAGE 3) A Box contains the endocervical canal perpendicular to the axial plane. TUI demonstrates parallel axial slices at operator defined increments through the cervix, extending along its length.

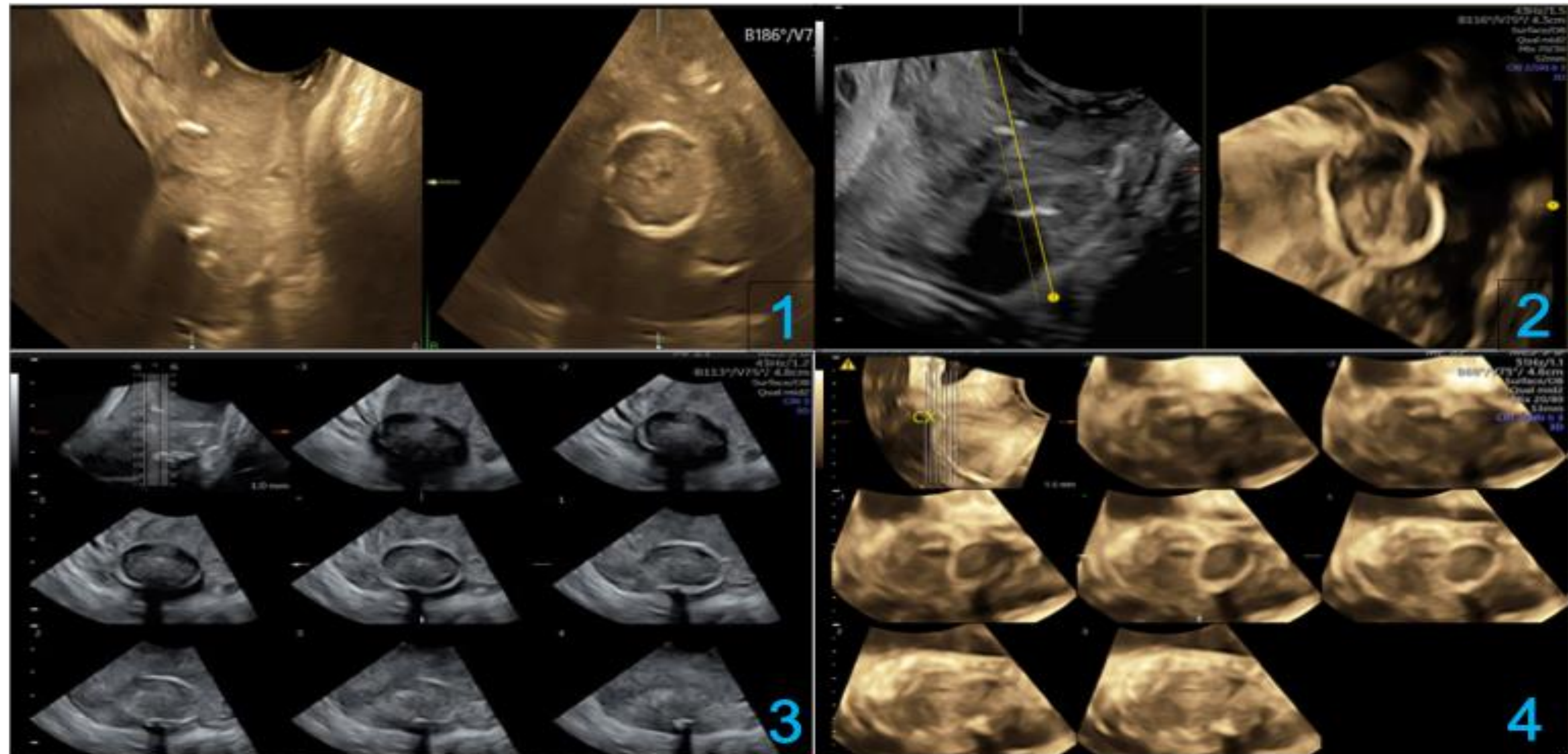


Image:

1. Multiplanar view of cervix showing cerclage proper location
2. Omniview of the cerclage in the midsagittal plane proper placement
3. TUI of the midsagittal cervix demonstrating proper location
4. TUI images demonstrating displacement of the cerclage to the right of the cervical canal.

Conclusion
Use of orthogonal multiplanar views, TUI and OmniView reconstruction enables a comprehensive evaluation of the cervical cerclage location along the cervix and allows assessment of Suture integrity and/or migration after placement (Image 4).