Three-dimensional reconstruction of the uterine artery cervical segment at 11–14 weeks’ gestation.

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Transabdominal measurement of the uterine artery (UtA) pulsatility index (PI) for pre-eclampsia screening has a relatively low interobserver reproducibility. Results could vary because the sampling point is not always the same. PI progressively decreases from the main uterine arteries.

Objective
To visualize & characterize the UtA at the cervical level, by 3D power Doppler reconstruction.

Methods
- Singleton pregnancies at 11-13+6 gestational weeks. (n=57)
- TV scan (Voluson E8, RIC5-9 probe)
- Pelvic Power Doppler ultrasound volumes
- Longitudinal view of the cervix and inferior part of the uterus
- Analyzed offline by 4DView software on a PC.

Results
- Successful 3D reconstruction 90% (102/114)
- High variability in appearance of the uterine artery
- The LOOP: Changing direction by 180°; anterior descending and posterior ascending segment
- The loop’s spatial position and appearance of its branches vary according to parity

Conclusion
3D reconstruction shows the spatial appearance of the UtA. The aspect in multiparas, likely by elongation in previous pregnancies.
Understanding the UtA’s pathway could improve the 2D technique for the PI measurement.