

Real-time ultrasound demonstration of uterine isthmus contractions during pregnancy

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Objective

The aim of this study was to investigate the frequency and characteristics of isthmus contractions during the second trimester of pregnancy, and their impact on cervical length assessment. Additionally, the study aimed to showcase novel fast-motion videos of these contractions, providing real-time visualization of this physiological phenomenon.

Methods

We conducted a prospective observational study, recording long videos of the uterine cervix in 30 singleton pregnancies during the second trimester. We measured isthmus and cervico-isthmus lengths and assessed their changes over time. We also compared maternal characteristics between those who experienced contractions and those who did not. Fast-motion videos were created to provide an enhanced visualization of isthmus contractions.

Results

Isthmus contractions were observed in 43% of participants after bladder voiding. These contractions increased cervico-isthmus length and lasted for approximately 18 minutes. The relaxation pattern of the isthmus was found to be undulatory in half of the cases. Using a cutoff of 18mm in isthmus length, we were able to distinguish pregnant women with contractions from those without. The fast-motion videos provided a unique perspective on the isthmus contractions, highlighting their dynamic nature in real time.

Conclusion

Isthmus contractions are a frequent physiological phenomenon during the second trimester of pregnancy, often triggered by bladder voiding. These contractions can interfere with cervical length assessment and may lead to false images of placenta previa. We recommend performing cervical assessment at least 20 minutes after bladder voiding to reduce the risk of bias in cervical length measurement. The fast-motion videos offer a new perspective on isthmus contractions, enhancing the understanding of their role in pregnancy physiology. Further research is needed to explore the implications of these contractions in pregnancy and birth outcomes.