

Diagnostic accuracy of first-trimester transabdominal and transvaginal ultrasound in detection of congenital uterine anomalies

Dr. Aleksandra E. Trojak¹, Miss Nirmala Vaithilingam¹

¹Queen Alexandra Hospital, Portsmouth Hospitals University NHS Trust
Portsmouth, United Kingdom

Introduction

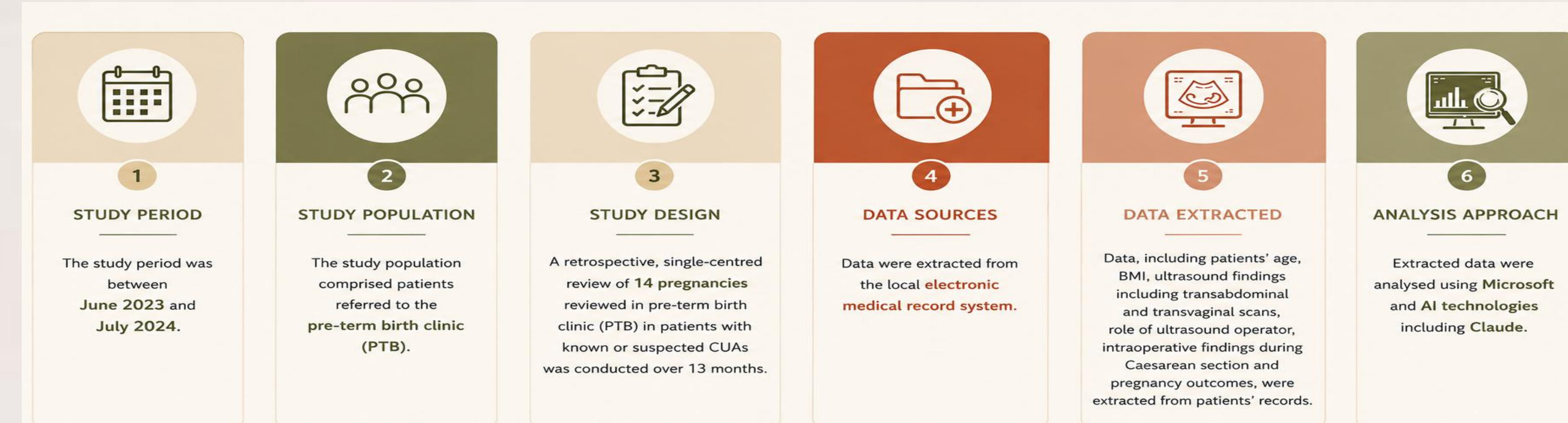
Congenital uterine anomalies (CUAs) have an estimated prevalence of approximately up to 5.5% in the general population and are frequently asymptomatic, often resulting in delayed or incidental diagnosis. The clinical significance of CUAs is increasingly recognised, with systematic reviews demonstrating possible associations with adverse pregnancy outcomes, including miscarriage, preterm birth, fetal malpresentation, prelabour rupture of membranes and increased rates of Cesarean birth.

Although hysteroscopy and laparoscopy have historically been considered the diagnostic reference standard, ultrasound assessment is now established as the preferred non-invasive diagnostic modality because of its high diagnostic accuracy. Despite this, CUAs may frequently remain undiagnosed, particularly in asymptomatic patients, and the effectiveness of routine first-trimester obstetric ultrasound in detecting these anomalies is not well established.

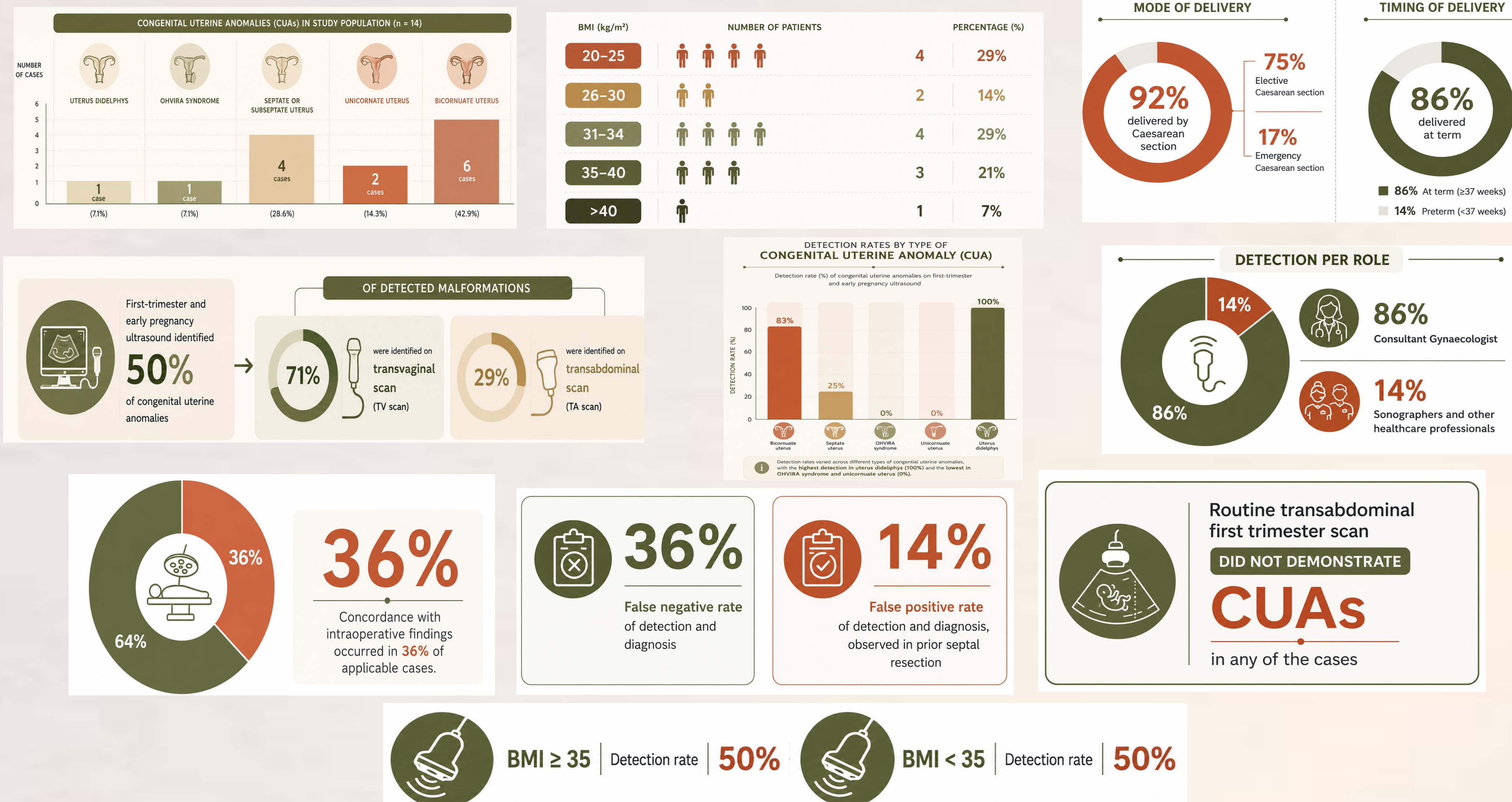
Objectives

- This study aims to determine the diagnostic performance and accuracy of routine first-trimester ultrasound in the detection of congenital uterine anomalies (CUAs).
- This study aims to evaluate factors associated with the antenatal detection of CUAs on routine ultrasound, including maternal BMI, ultrasound approach and operator expertise, as well as to assess concordance with intraoperative findings.

Methods



Results



Conclusion

- First-trimester ultrasound demonstrated limited sensitivity for the detection of congenital uterine anomalies (CUAs), with a notable false-negative rate. Detection rates were comparable across BMI categories, suggesting that reduced diagnostic yield was not primarily attributable to maternal BMI. These findings highlight the need for enhance, specialist-led diagnostic pathways for patients with suspected or known uterine anomalies to facilitate accurate antenatal risk stratification and optimise clinical management.
- Transvaginal ultrasound appears to have an important role in CUA detection, accounting for 71% of anomalies identified in early pregnancy, whereas routine transabdominal first-trimester scanning did not identify CUAs in any of the reviewed cases.
- The majority of detected anomalies were identified by a senior specialist, suggesting that operator expertise and targeted assessment may contribute substantially to diagnostic recognition. This supports consideration of specialist review or targeted imaging when a uterine anomaly is suspected.
- Detection varied substantially according to anomaly subtype. This suggests that diagnostic performance may be dependent on the anatomical configuration and sonographic characteristics of the anomaly.
- Despite the small, single-centre cohort, the findings suggest that routine first-trimester ultrasound alone may be insufficient to reliably exclude or classify CUAs. Prospective multicentre studies are warranted to establish optimal imaging protocols and determine whether enhanced detection improves antenatal surveillance and pregnancy outcomes.