

TITLE: Integrating contrast-enhanced ultrasound into the ADNEX model on reclassifying adnexal lesions with non-enhancing solid appearing components

AUTHORS: Manli Wu¹, Ying Chen¹, Man Zhang¹, Ying Wang¹, Xinling Zhang¹

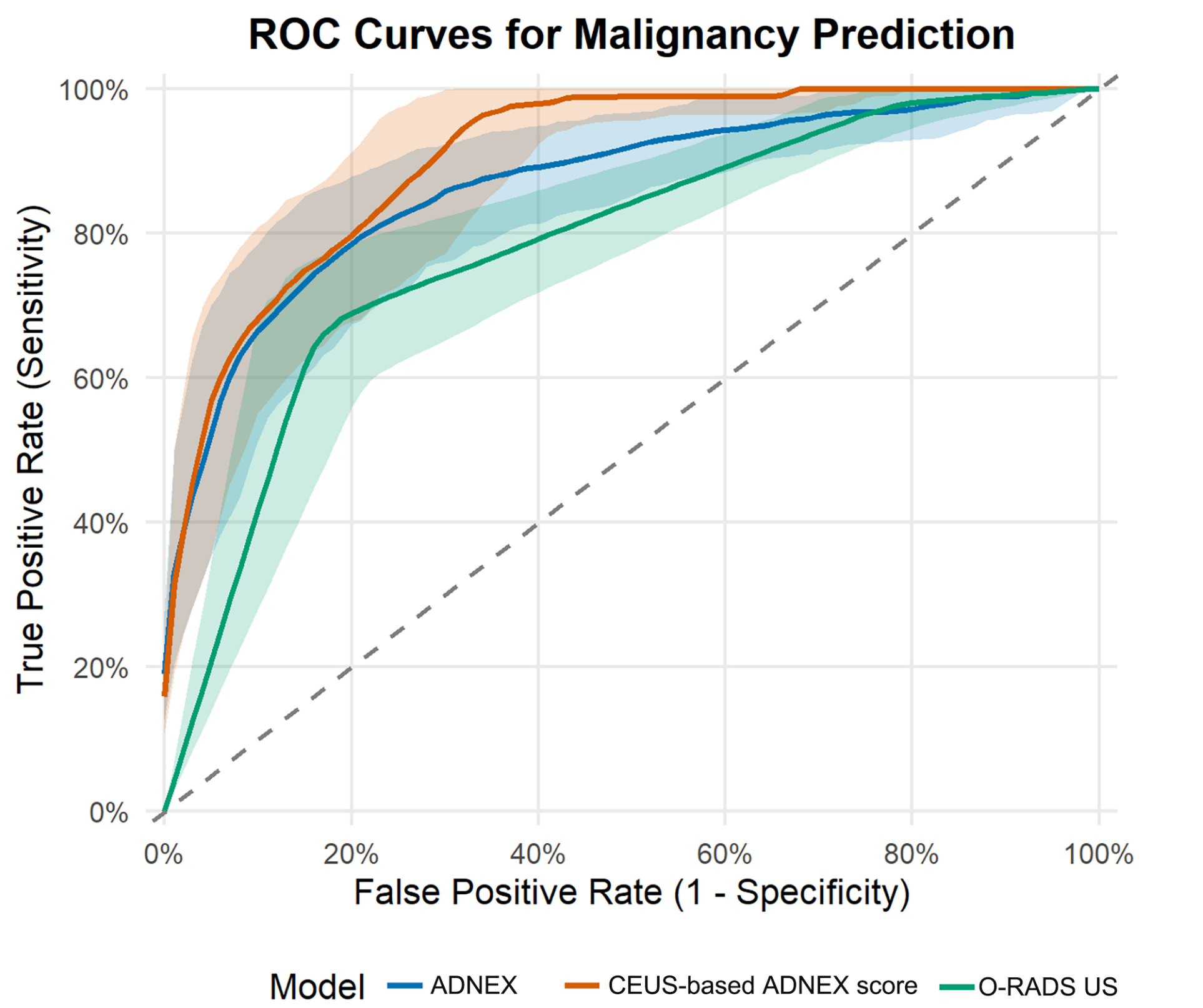
INSTITUTIONS: 1. Department of ultrasound, Third Affiliated Hospital of Sun Yat-Sen University, Guangzhou, Guangdong, China.

Purpose To evaluate the feasibility and value of substituting conventional ultrasound-derived solid component size with contrast-enhanced ultrasound (CEUS)-derived measurements in the Assessment of Different Neoplasias in the adnexa (ADNEX) model for adnexal lesions discrimination.

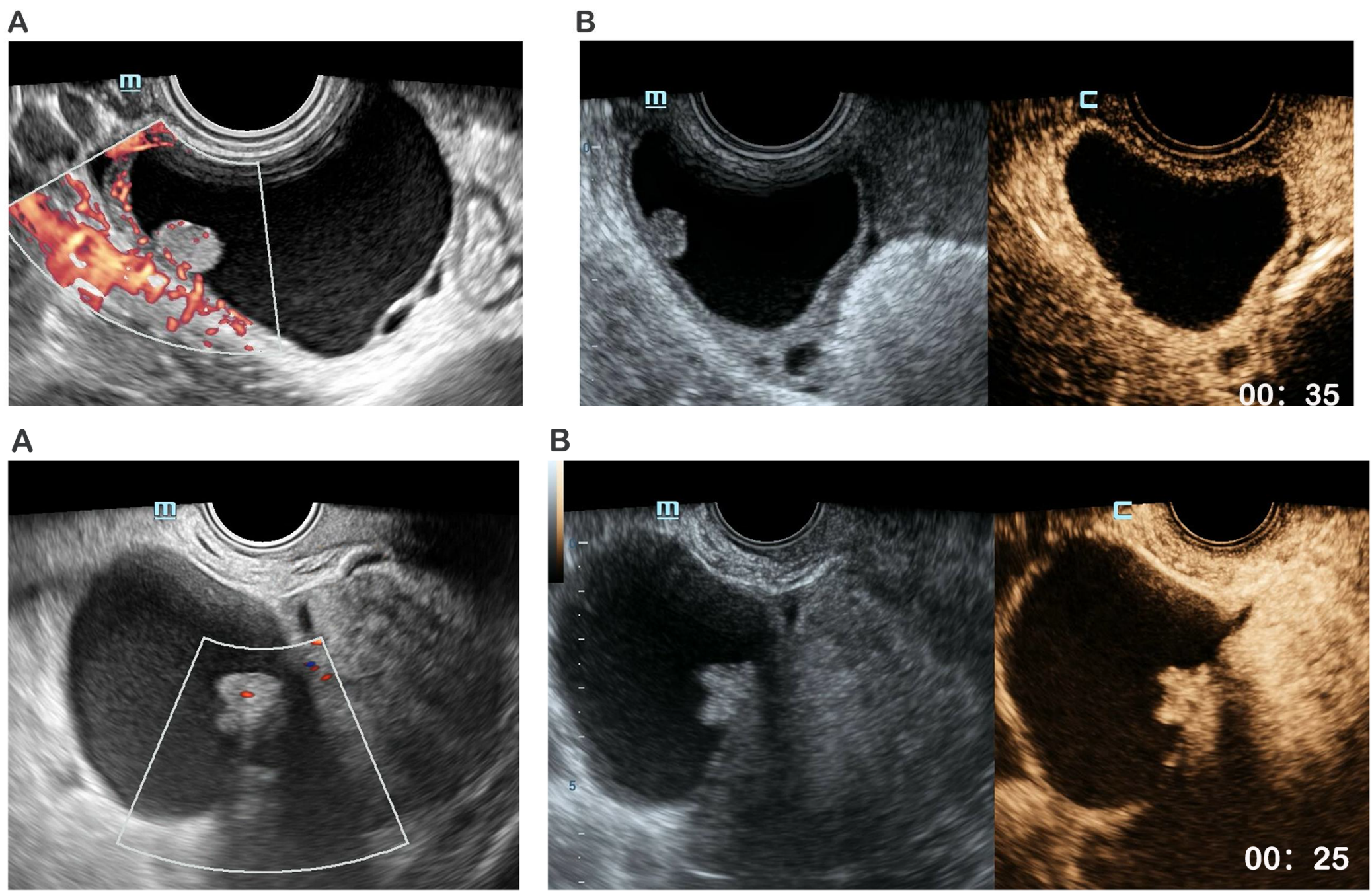
Methods This multicenter prospective study recruited consecutive patients with suspected adnexal lesions with solid components detected at ultrasound between January 2022 and June 2024. All patients underwent preoperative CEUS examination. Pathological results serve as the reference standard. Each adnexal lesion was evaluated using ADNEX, a CEUS-based modified ADNEX score (CEUS-derived substitution for solid-component measurement without updating model coefficients) and Ovarian-Adnexal Reporting and Data System (O-RADS) Ultrasound (US) score.

Results A total of 204 patients with 204 lesions were included. The area under the receiver operating characteristic curve (AUROC) for CEUS-based modified ADNEX was 0.906 (95% CI: 0.867 - 0.944), which was superior to that of ADNEX (AUROC:0.865; 95% CI, 0.814 - 0.916; P = 0.019) and O-RADS US (AUROC: 0.783; 95% CI, 0.726 -0.840; P < 0.001) in classifying adnexal lesions with solid components. CEUS-based modified ADNEX demonstrated greater specificity (0.664) compared to ADNEX (0.283; P < 0.001) and O-RADS US (0.221; P < 0.001).

Conclusions CEUS-derived modification for solid-component measurement in the ADNEX model showed potential improvements in the diagnostic specificity and clinical benefit compared with the original ADNEX framework in the classification of adnexal lesions with solid components.



ROC curves of different models



Examples of CEUS-derived modification for solid-component measurement in the ADNEX model helped improve specificity