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Results: 1431 patients were included from 21 Italian centres (12 oncological and 9 non-oncological). The outcome was benign for 995 (69.5%) patients and malignant for 436 (30.5%). The overall AUROC was 0.93 for ADNEX with CA125, the two-step strategy with CA125, and SRRisk, 0.92 for ADNEX without CA125 and the two-step strategy without CA125, and 0.87 for RMI. Calibration was best for SRRisk. RMI had the lowest utility to select patients for referral to a gynecological oncology centre. The other methods had similar utility for risk thresholds up to 0.2, for higher thresholds SRRisk had slightly higher utility. Subjective assessment had an overall sensitivity of 0.93 and specificity of 0.87. For subgroups based on menopausal status, type of centre (oncology vs non-oncology), and examiner experience, RMI had AUROCs between 0.84 and 0.90 whereas all other models had AUROCs between 0.90 and 0.96.

Conclusions: Two step strategy with or without CA125, ADNEX with or without CA125 and SRRisk had similar performance to distinguish benign from malignant adnexal tumours in patients examined by both expert and non-expert operators.

OC05.03

***Deep learning-enabled ovarian cancer detection with ADNEX-AI: a prospective, multicentre study**

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Objectives: Traditional ultrasound (US)-based tools to diagnose ovarian cancer, including ADNEX, require manual identification and measurement of tumour features. We introduce a deep learning (DL)-based ADNEX-AI framework for the automated detection of ADNEX variables in US scans, assess its performance and compare it with current clinical practice.

Methods: Interim analysis of IOTA7-AI, an international multicentre prospective study, including patients with adnexal masses from 2019 to 2023. Eligible patients were examined by transvaginal US and selected for surgery. 2D US variables and images were collected at inclusion, and histological outcome after removal of the mass. Two cohorts were created: a training cohort for developing a multi-task convolutional neural network to segment four US ADNEX features (lesion, locules, solid tissue, and papillations), and a validation cohort to assess the two-stage cascade combining the segmentation model and ADNEX without CA-125. For training, expert sonographers (level 3 EFSUMB), blinded-to-histology, provided pixelwise feature delineations serving as ground-truth. We evaluated the discrimination between benign and malignant masses using ROC curves and AUCs.

Results: The training and validation cohorts consist of 861 US images from 385 patients and 5074 US images from 655 patients, respectively. ADNEX-AI achieves an AUC of 0.91 (95% CI: 0.87-0.94), compared to 0.93 (0.90-0.96) achieved by ADNEX applied manually during the US exam. The AUC using pixelwise delineations on the training cohort was 0.90 (0.85-0.95).

Conclusions: Our DL pipeline effectively distinguishes benign from malignant ovarian tumours on US scans. The AUC difference between ADNEX-AI and traditional ADNEX may arise from the clinician's ability to examine the tumour from various angles, versus ADNEX-AI's reliance on a limited set of 2D slices. As such, when compared to ADNEX using pixelwise delineations under similar constraints of tumour visibility, ADNEX-AI demonstrated comparable performance.

OC05.04

Ultrasound masks of not-typical endometriomas: preoperative assessment of their malignancy risk and clinical-surgical characteristics

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Objectives: Not-typical ovarian endometriomas is a category of tumours where preoperative ultrasound (US) diagnosis can be challenging and indeterminate.

Methods: A retrospective, monocentric descriptive study was conducted. 3460 adnexal masses were diagnosed by US with subsequent surgical treatment and pathological examination during 8 year-period at the gynecological US reference centre. Out of 1072 ovarian endometriomas identified, 1022 were typical in presentation. However, in non-pregnant patients, 50 out of the 1072 cases (4.6%) showed not-typical sonographic features. Simultaneous presentation of US and endoscopic images is important for the diagnostic experience and professional competencies of the sonologist.

Results: The US characteristics of not-typical endometriomas in the studied series were diverse, such as giant size, papillations with or without blood flow, solid non-papillary components, multilocular cysts with more than 4 compartments, multiple irregular septa, content layering into levels, non-ground-glass echogenicity of the cyst content (low-level, hyperechoic homogeneous, diffuse suspension resembling "comets"), as well as inclusion of endometrioma within the giant peritoneal cysts. Preoperative assessment of malignancy risk according to the ORADS system was distributed as follows: ORADS 3 in 5 patients, ORADS 4 in 30, ORADS 5 in 10, ORADS 0 in 5. Clinical and surgical features of not-typical endometriomas included: rupture in 3 patients, torsion in 1, cyst abscess formation in 2, non-"chocolate" content in 5, concomitant deep infiltrative endometriosis in 34/50 patients, malignancy in 3 /50 cases.

Conclusions: The use of the term not typical for US characteristics of endometriomas appears to be preferable compared to the term atypical, as the latter is often associated with an abnormal cytological variant in publications. Pattern recognition and US expertise of an experienced sonologist are cornerstone approaches in the preoperative diagnosis of not-typical endometriomas.

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