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The Diagnostic Value of ROMA Index, O-RADS, and ADNEX models in Distinguishing Between Benign and Malignant Adnexal Lesions in Chinese Women

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Purpose

This study aimed to compare the ROMA, O-RADS, and ADNEX, alone and in combination, to classify benign and malignant adnexal lesions in Chinese women.

Methods

This retrospective and prospective multi center study included women with at least one adnexal mass. The data set comprised a total of 639 masses between February 2020 and July 2024. Clinical and pathological information, relevant tumor markers, and ultrasound findings of patients were collected.

Results

- 1. In this retrospective analysis, a total of 467 adnexal masses were included, representing a malignancy rate of 37.90%.

- 2. The ROMA index, O-RADS, and ADNEX model showed AUC of 0.807, 0.923, and 0.932, respectively.
- 3. Individually assessing the O-RADS and ADNEX models demonstrated comparable performance ($P=0.462$), Both of these models are superior to the ROMA index ($P <0.05$).
- 4. Prospective analysis showed that the combined O-RADS model matched ADNEX alone in performance ($AUC=0.970$, sensitivity= 0.945), while improving specificity (0.950 to 0.980), enhancing malignant tumor exclusion capability.

Conclusion

ADNEX and O-RADS models demonstrate comparable and excellent diagnostic efficacy for distinguishing benign from malignant adnexal masses in Chinese women, offering high clinical value for preoperative assessment.

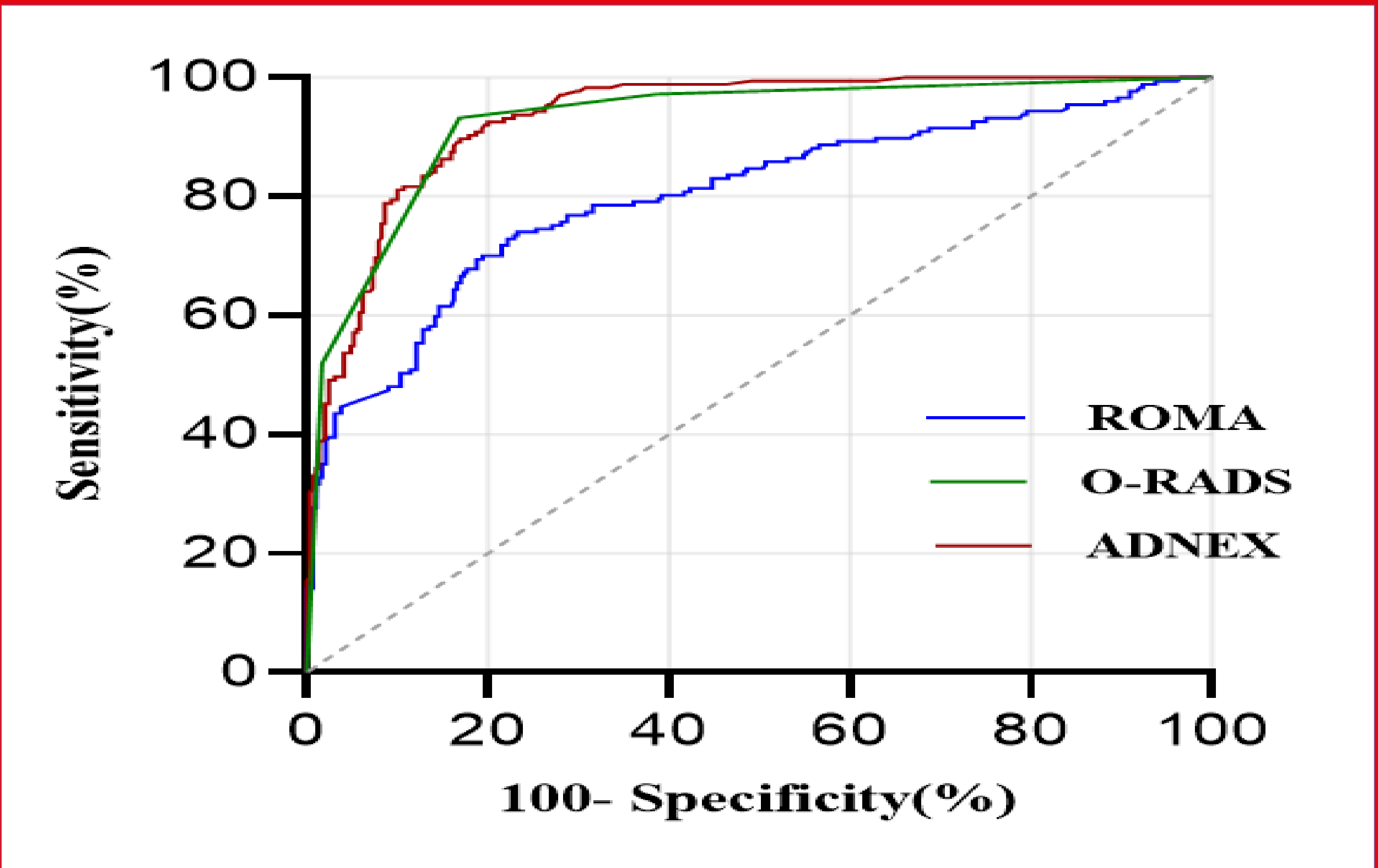


Figure 1. Analysis of retrospective data comparing the ROMA, ADNEX, and O-RADS models alone to assess the benignity and malignancy of adnexal lesions.

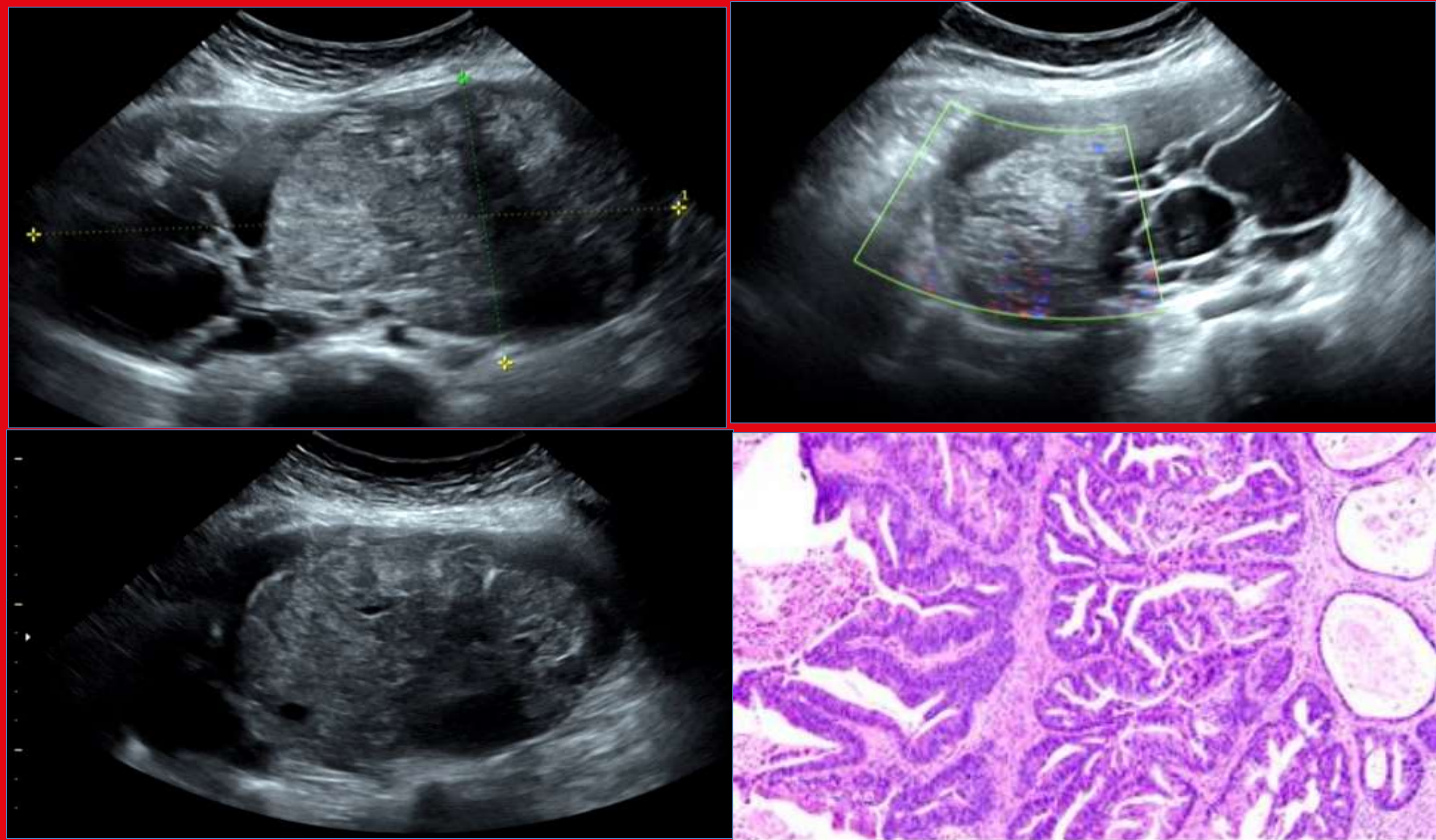


Figure 2. A borderline ovarian mucinous tumor with focal mucinous carcinoma (approximately 5%) . Ultrasound consensus classified as O-RADS 5 and the ADNEX model estimated an 81% malignancy risk.