

Application of the ovarian-adnexal radiological data-reporting system (O-RADS) for ultrasound diagnosis and management of adnexal masses

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Abstract

INTRODUCTION: “O-RADS™” is an acronym for the Ovarian-Adnexal-Imaging-Reporting-Data System which functions as an efficient quality assurance tool advancing gynecologic practice and using an ovarian/adnexal pathology description, under the auspices of the American College of Radiology (ACR). The creation of a standardized lexicon permits the development of a practical, uniform vocabulary for describing the imaging characteristics of ovarian masses in order to determine the risk of malignancy (ROM), with the ultimate goal of applying it to a risk stratification classification for consistent follow-up and management in clinical practice.

This lexicon is combined with the rules and adnexal risk prediction model of the International Ovarian Tumor Analysis (IOTA) group and its ADNEX algorithm. O-RADS US working group designed it to provide consistent interpretations to decrease or eliminate ambiguity in US reports resulting in a higher probability of accuracy in assigning ROM to ovarian and other adnexal masses, and to provide a management recommendation for each risk category. It describes 6 risk categories (0-5) according to ROM. Color flow Doppler analysis is included in this sonographic assessment. It has undergone extensive evaluation and validation, based on 5,905 cases.

- O-RADS 0, an incomplete evaluation
- O-RADS 1, the physiologic category (normal premenopausal ovary. 0 ROM)
- O-RADS 2, the almost certainly benign category (<1% ROM)
- O-RADS 3, lesions with low risk of malignancy (1% to 10% ROM)
- O-RADS 4, lesions with intermediate risk of malignancy (10% to ≤50% ROM)
- O-RADS 5, lesions with high risk of malignancy (>50% ROM)

Determination of its accuracy of malignancy risk assignment is important to measure, for demonstrating the utility of its consistent clinical use. Since gynecologists seek to address the rising incidence of mortality from ovarian malignancy with

the limited tools which we currently have, we need to recognize the potential of this tool to provide optimal practice. To that end, the authors sought to explore the benefit of O-RADS in our own clinical experience.

METHODS: Consecutive cases of sonographic female pelvic assessment from August of 2021 through May of 2022, referred to our clinic to exclude the possibility of an adnexal malignancy, and with consultation of the O-RADS system, were evaluated (IOTA-ADNEX model app is available on iOS and Android phones). If the O-RADS prediction of possible malignancy was greater than 10%, GYN/ONC consultation was obtained. The ultimate diagnosis which was obtained was recorded.

RESULTS: There were 71 cases that were assessed using the O-RADS system. While many cases of sonography were considered as being likely benign, 2 cases were rated as O-RADS-4 or O-RADS-5 at the time of ultrasound (US), and 2 cases were managed by our GYN/ONC and ultimately found to be malignant. As far as could be determined for those cases which underwent surgical evaluation, the screening sensitivity of O-RADS in our US experience was 100%.

CONCLUSION: O-RADS US is a modern algorithmic approach to predicting the statistical likelihood of a diagnosis based on the relative association of particular clinical and identifiable imaging variables (descriptors). The clinical value of using this app for prediction and management guidelines in the sonographic assessment of ovarian masses, was measured by a gynecologic sonographer. Of course, the use of this diagnostic tool has been substantially validated, and though this case series may be extremely limited in size, it does appear that its application for ultrasound imaging may have the potential to significantly address the diagnosis and treatment of ovarian malignancy, which has evaded our collective ability to diagnose it at an early treatable stage. This O-RADS online application is certainly worthy of discussion at the present time.