A new scoring model for characterization of adnexal masses based on two-dimensional gray-scale and colour Doppler sonographic features

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Abstract:

Objective: To determine the most discriminating two-dimensional gray-scale and colour Doppler sonographic features that allow differentiation between malignant and benign adnexal masses, and to develop a scoring model that would enable more accurate diagnosis with those features. Methods: A cross sectional prospective study was conducted on patients scheduled for surgery due to presence of adnexal masses at Woman's Health Center, Assiut University, Egypt between October 2012 and October 2013. All patients were evaluated by 2D ultrasound for morphological features of the masses combined with colour Doppler examination of their vessels. The final diagnosis, based on histopathological analysis, was used as a gold standard. Results: One hundred forty-six patients were recruited, 104 with benign masses, 42 with malignant masses. Features that allowed statistically significant discrimination of benignity from malignancy were; volume of mass, type of mass, presence and thickness of septae, presence and length of papillary projections, location of vessels at colour Doppler and colour score. A scoring model was formulated combining these features together; Assiut Scoring Model (ASM). The cut-off level with the highest accuracy in detection of malignancy, was ≥6, had a sensitivity of 93.5% and specificity of 92.2%. Conclusion: Our Scoring Model; a multiparameter scoring using four gray-scale ultrasound and two colour Doppler features, had shown a high sensitivity and specificity for prediction of malignancy in adnexal masses compared with previous scoring systems.

Keywords:

2D US, adnexal mass, Doppler, ovary, ovarian cancer, scoring system

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