

## Comparative Diagnostic Performance of Diffusion-Weighted Imaging Combined With Microcalcifications on Mammography for Discriminating Malignant From Benign Bi-rads 4 Lesions With the Kaiser Score

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**Abstract :** BACKGROUND BI-RADS 4 lesions raise the possibility of malignancy that warrant further clinical and radiologic work-up. This study aimed to evaluate the predictive performance of diffusion-weighted imaging (DWI) and microcalcifications on mammography for predicting malignancy of BI-RADS 4 lesions. In addition, the predictive performance of DWI combined with microcalcifications was also compared with the Kaiser score. METHODS During January 2021 and June 2023, 144 patients with 178 BI-RADS 4 lesions underwent conventional MRI, DWI, and mammography were included. The lesions were dichotomized into benign or malignant according to the pathological results from core needle biopsy or surgical mastectomy. DWI was performed with a b value of 0 and 800s/mm<sup>2</sup> and analyzed using the apparent diffusion coefficient, and a Kaiser score > 4 was considered to suggest malignancy. The diagnostic performances for various diagnostic tests were evaluated with the receiver-operating characteristic (ROC) curve. RESULTS The area under the curve (AUC) for DWI was significantly higher than that of the of mammography (0.86 vs 0.71, P<0.001), but was comparable with that of the Kaiser score (0.86 vs 0.84, P=0.58). However, the AUC for DWI combined with mammography was significantly higher than that of the Kaiser score (0.93 vs 0.84, P=0.007). The sensitivity for discriminating malignant from benign BI-RADS 4 lesions was highest at 89% for Kaiser score, but the highest specificity of 83% can be achieved with DWI combined with mammography. CONCLUSION DWI combined with microcalcifications on mammography could discriminate malignant BI-RADS4 lesions from benign ones with a high AUC and specificity. However, Kaiser score had a better sensitivity for discrimination.

**Keywords :** MRI, DWI, mammography, breast disease

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