

Misuse of BI-RADS assessment categories on pediatric and adolescent breast masses

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Breast masses in children and adolescents can be frequently identified in clinical practice, and the incidence of a breast lesion ranges from 0.1 to 3.25% in the pediatric/adolescent population. (1) These lesions often cause significant concern for patients and their families, partly because of widespread awareness of breast cancer in adults. However, pediatric breast disease differs substantially from adult breast disease. Most pediatric breast findings are related to normal development or benign conditions, and primary breast malignancy is exceedingly rare with an incidence of pediatric breast cancer of 0.08 newly diagnosed cases per 100,000 people. (2, 3, 4, 5) When imaging is clinically indicated, targeted ultrasound is the preferred initial examination because it provides effective evaluation without exposure to ionizing radiation.

Although BI-RADS [6-11] ultrasound descriptors may be useful for describing the imaging features of a pediatric or adolescent breast mass, the BI-RADS assessment categories and their associated malignancy probabilities were developed primarily for screening of adult populations and have not been validated in children or adolescents. BI-RADS classification was not intended for diagnostic evaluation of a clinically palpable breast mass in pediatric or adolescent patients.

Applying adult BI-RADS categories to pediatric or adolescent lesions, particularly BI-RADS 4 which correlates to a malignancy rate of 2-95%, substantially overestimates the likelihood of malignancy and therefore leads to unnecessary interventions (biopsy and/or excision) with potential injury to the developing breast, recommendation for additional surveillance imaging thereby utilizing additional resources and driving up healthcare costs, and patient and family anxiety. In a multicenter study of patients younger than 21

years who underwent pathologic evaluation, BI-RADS 4 was the most frequently assigned category, yet all lesions were benign. The investigators concluded that adult BI-RADS categories and their corresponding biopsy recommendations should not be routinely applied to pediatric patients [12].

BI-RADS category assessments with corresponding BI-RADS malignancy estimates have not been validated in the pediatric or adolescent population, and management should therefore be based on the patient presentation and BI-RADS assessment categories should not be utilized in these settings.

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