

ACR TI-RADS and Revised ATA Guidelines

All thyroid nodule sonographic risk stratification systems (RSSs) focus on the grey scale appearance of thyroid nodules and share the aim of estimating the risk of malignancy based on the presence of individual sonographic features as well as the combination of certain features. These RSSs generally agree in terms of what is considered a sonographic appearance that is highly predictive of malignancy as well as a sonographic appearance that predicts a very low likelihood of malignancy. These RSSs differ most in their management recommendations for nodules that are not considered to have either a high suspicion or very low suspicion of malignancy appearance. In the United States, the two most commonly used RSSs are the American College of Radiology Thyroid Imaging and Reporting Data System (TI-RADS) and the American Thyroid Association (ATA) Guidelines. This presentation will discuss the previous challenges in the utilization of these two RSSs and describe the modifications proposed for the next version of both ACR TI-RADS and the ATA RSS.

One of the main goals of the ACR TI-RADS was to standardize the description of the appearance of thyroid nodules on ultrasound by developing a lexicon of terminology as well as formatting a standard reporting template. A point-based system was chosen to enable categorization of all nodules even if some features could not be determined, such as nodule consistency in the setting of dense nodule calcification. Although widely adapted by most radiologists, this RSS has shown tremendous variability in interpretation of features based on reader expertise which limits its usefulness in everyday clinical practice. (1) For example, the sonographic feature of punctate echogenic foci is known to be associated with malignancy and therefore was assigned 3 points, the highest number available in any category. However, it is common for radiologists to confuse specular reflectors from backwalls of cysts and reverberation artifact from colloid in mixed cystic and solid nodules resulting in inappropriately high scores in these commonly encountered benign, hyperplastic nodules. (2) Additionally, it has been shown by computer learning technology that the current point designations could be optimized, largely by decreasing the points assigned to many features. (3) At the present time, the ACR TI-RADS committee is reevaluating the assigned point scores as well as the recommended sonographic follow up recommendations for low-risk adult patients.

The 2015 ATA RSS uses a pattern-based approach with nodule appearances displayed in an atlas and assigned to the categories of high suspicion (> 70% risk of malignancy), intermediate suspicion (10-20%), low risk (5-10%) and very low suspicion (< 3%). In general, this pattern approach has shown higher interobserver correlation for identification of nodule sonographic patterns than for individual features. (4) However, a number of nodule patterns are not represented in the atlas such that approximately 5.1 to 11.1% of nodules are considered non-classifiable the ATA RSS and carry a malignancy risk of 20.3%. (5) Under the 2015 ATA RSS, solid isoechoic and hyperechoic nodules and mixed cystic and solid nodules with one or more high-risk feature (such as irregular margins, taller-than-wide shape) as well as many calcified nodules could not be categorized. The revised ATA RSS will provide a continuous range of malignancy without gaps and will be able to categorize all nodules.

References:

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