

## Thyroid Nodule Margin Macrolobulation Does Not Predict Malignancy in ACR TIRADS

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### ABSTRACT

**Background:** There are 3 main scoring systems in place for thyroid nodule evaluation: Korean TIRADS, European TIRADS, and ACR TI-RADS. In both the Korean and European systems, nodule margins are suspicious only if deemed microlobulated. In the ACR TI-RADS system, a lobulated margin is assigned points regardless of whether it is microlobulated or macrolobulated.

**Objective:** We evaluated the performance of ACR TI-RADS when points for lobulated margins are applied only when the margins meet a quantified measure of margin microlobulation and not applied when nodules only demonstrate macrolobulation.

**Methods:** We retrospectively reviewed ultrasound and pathology records (05/01/2018 to 07/31/2020) to find all thyroid nodules at one institution characterized as having lobulated margins using the ACR TI-RADS lexicon and subsequently undergoing FNA. Nodule margins were evaluated to note the presence or absence of microlobulation, quantitatively defined as a protrusion with a base < 2.5 mm in length. The impact to detection of malignant nodules and avoidance of benign FNA when margin points for lobulation were added only when microlobulated was analyzed.

**Results:** 58 of 516 thyroid nodules undergoing US-guided FNA were classified as lobulated, comprising the study population. 21 (36.2%) had microlobulated margins, with 12 of the 21 (57.1%) being malignant (Table 1). Comparatively, of the 37 nodules showing only macrolobulated margins without microlobulation, only 2 (5.4%) were malignant ( $p < 0.0001$ ). For 53 nodules  $\geq 10$  mm, 15 (28.3%) benign

nodules would not have met size criteria for FNA had points for margins not been applied when only showing macrolobulation, whereas all 10 malignant nodules would still have been sampled.

**Conclusion:** Adding points to the ACR TI-RADS score for lobulated thyroid nodules should only apply when microlobulations are present, defined as protrusions with a base  $< 2.5$  mm in diameter.