

## **SURGEON-PERFORMED ULTRASOUND TO PREDICT EXTRATHYROIDAL EXTENSION OF PAPILLARY THYROID CARCINOMA**

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**Background/Purpose:** Ultrasonography is the imaging modality most capable of distinguishing detail in the thyroid, and has been reported to identify extrathyroidal extension (ETE) of papillary thyroid carcinomas, a feature that imparts worse prognosis. Preoperative recognition of the presence or absence of ETE could be useful for surgical planning. To investigate whether surgeon-performed ultrasonography can accurately detect ETE, we performed a retrospective cohort study of patients who underwent ultrasonography and surgery by the same clinician.

**Methods:** Blinded review of preoperative ultrasound images was performed, and the presence or absence of ETE as reported by surgical pathology was subsequently compared to ultrasound scoring. 158 subjects met inclusion criteria. Scoring was performed by estimating tumor circumference contact with the thyroid capsule, and rating according to increasing percentage of circumference contact in increments of 25% (0, no contact; 1, 1-25% contact; 2, 26-50% contact; 3, 51-75% contact, 4, 76-100% contact).

**Results:** 43 patients (27.2%) were assigned scores of 0, 40 (25.3%) scores of 1, 47 (29.7%) scores of 2, 23 (14.6 %) scores of 3, and 5 (3.2%) scores of 4. In total, 33 patients had confirmed ETE (20.9%). Scores were associated with ETE on pathology with  $p=0.0041$ .

**Discussion & Conclusion:** Scoring correlated strongly with ETE but was not an entirely accurate predictor. Prospective studies including dynamic images may improve accuracy. Still, our results demonstrate the potential utility of surgeon-performed ultrasound, and suggest that capsular contact of nodules suspicious for PTC warrants attention during performance and documentation of diagnostic ultrasound.