

## Poster 185

*Thyroid Cancer Friday Poster Clinical*

### **PREOPERATIVE ULTRASONOGRAPHIC ELASTOGRAPHY AND THE AFIRMA GENE-EXPRESSION CLASSIFIER IN DETECTING THYROID MALIGNANCIES**

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Several studies have suggested that the stiffness of a thyroid nodule could be an indicator of malignancy. Ultrasonography can be used to identify a stiff nodule by using Acoustic Radiation Force Impulse Elastography technology. The Afirma gene-expression classifier (GEC) helps guide in the management of indeterminate thyroid nodules. We aim to evaluate the accuracy of elastography and Afirma GEC in predicting malignancies in patients presenting with indeterminate thyroid nodules. This is a retrospective review of all patients who underwent surgery for indeterminate thyroid nodules by a single surgeon over 1-year period. Analysis of ultrasound features including elastography, internal vascularity, echogenicity, irregular margins and calcifications. Color intensity was used to determine the stiffness. Clinical and pathological data including Afirma GEC testing were collected. A total of 93 thyroid nodules were examined; 64.9% presented with stiffness in elastography, 35.1% were soft on elastography. 75.6% of malignant thyroid nodules were stiff on elastography, compared to 24.4% were soft ( $p < 0.05$ ). 50.8% of the stiff nodules were malignant. Stiffness on ultrasound elastography predicted malignancy in thyroid nodules (OR: 2.38, Sensitivity: 75.6%, PPV: 50.8%, NPV: 69.7%,) Interestingly, the presence of both stiffness and suspicious Afirma GEC testing was significantly associated with higher risk of malignancy in indeterminate thyroid nodules (OR = 3.25,  $p = 0.045$ , Sensitivity: 50%, Specificity: 76.5%, PPV: 57.9%, NPV: 70.3%) Our results indicate that the Afirma GEC in addition to elastography on sonographic assessment predict higher risk of malignancy in indeterminate thyroid nodules.