

Ultrasound finding and nodule malignancy:

Table 3 shows the sensitivity and specificity of ultrasound in the evaluation of malignant thyroid nodules and this show that central

vascularity will be more specific and highly diagnostic accuracy (48.7%, 53.97%, respectively).

Table 3 the predictive value of ultrasound for detection of malignant thyroid nodules

Finding	Sensitivity	Specificity	PPV	NPV	LR	Diagnostic accuracy
Size \geq 10mm	66.7%	41.1%	41.1%	66.6%	1.13	50.79%
Hypoechoic	54.2%	46.2%	38.2%	62.1%	1.01	49.2%
Calcification	66.7%	48.46%	40%	65.2%	1.08	49.21%
Blurred margin	67.1%	42.2%	39.5%	65.7%	1.21	50.8%
Vascularity type 2	62.5%	48.72%	42.9%	67.8%	1.22	53.97%

PPV: positive predictive value, NPV: negative predictive value, LR: likelihood ratio

In Table 4 the malignant nodules presented more frequently than did benign nodules as a solid hypoechoic appearance and irregular or blurred margins (52.2% vs. 47.8%), and intranodular vascular pattern with calcification (63.3% vs. 36.4%) and there sensitivity and

specificity by ultrasound in the evaluation of these nodules will be more, and have highly diagnostic accuracy (58.3%, 79.49%, 71.5% respectively) in comparison to the former features (50%, 71.79%, 63.5%, respectively).

Table 4 the predictive value of ultrasound for detection of malignant thyroid nodules with combination of feature.

Finding	Sensitivity	Specificity	PPV	NPV	LR	Diagnostic accuracy
Calcification + Vascularity type 2	58.33%	79.4%	63.6%	75.6%	2.84	71.43%
Hypoechoic + Blurred margin	50%	71.79%	52.2%	70%	1.77	63.5%

PPV: positive predictive value, NPV: negative predictive value, LR: likelihood ratio

Discussion

The use of US in the assessment of thyroid disease has greatly increased the detection of small thyroid nodules unrecognized at clinical examination⁽²⁾. Thyroid nodules are shown by US to be present in 30-50% of the population⁽⁸⁾. Although most thyroid "incidentalomas" are benign, approximately 5% to 6.5% may be malignant⁽⁹⁾. In our study we concentrate on the finding of Grey scale, color and power Doppler of thyroid nodule and exclude other associated findings like cervical lymph-adenopathy.

Value of US and CFD findings as predictors of malignancy

US findings are important in predicting malignancy in non-palpable lesions. Although previous reports

have denied that US findings have a predictive role, in our series sensitivity and specificity analysis confirmed that irregular or blurred nodular margins, an intranodular vascular pattern and microcalcifications were closely linked to neoplastic lesions⁽¹⁰⁾. On the other hand, a hypoechoic appearance or the presences of small lesions were not independent risk factors for malignancy in nonpalpable thyroid nodules.

The presence of calcifications and internal vascularity presented a higher specificity for malignancy (79%) than the findings of hypoechoic and irregular margins (71%) but the predictive value of calcifications and internodal vascularity was blunted by their low sensitivity (58%). Our results also confirm that thyroid cancer tends to be