

The diagnostic value of FNAB for early diagnosis of thyroid cancer: A Greek center experience

Preliminary results

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INTRODUCTION: Fine needle aspiration biopsy (FNAB) is the initial investigation of choice for thyroid nodules. The Bethesda system (B), which classifies thyroid cytological patterns into 6 different categories (B1-6), each linked to a risk of malignancy, has been widely adopted.

METHODS: A total of 563 patients (106 males/457 females), (range = 16 - 86 years) underwent FNAB for the same number of thyroid nodules. Their mean age was 56.1 ± 14.1 years. We correlated the demographic profile (age and gender) and sonographic features of these nodules with the FNAB outcome. The Bethesda system for reporting thyroid cytopathology was used.

RESULTS: Out of total 563 cases, 190 (33.7%) cases were diagnosed as non diagnostic (B1), 339 (60.2%) were diagnosed as benign (B2), 17 (3.0%) as B3 (atypia/follicular lesion of undetermined significance), 7 (1.2%) as B4 (follicular neoplasm or suspicious for follicular neoplasm), while 5 (0.9%) cases were categorized as B5 (suspicious for malignancy) and 5 (0.9%) as B6 (malignant) (Table 1). Remarkably, two nodules of category B5 and B6 each had a maximum diameter of 9mm and 8mm respectively. When comparing benign result (B2) vs result of category B3-6 (Table 2), irregular shape (7.1% in B2 vs 17.6% in B3-6, $\chi^2=4.66$, $p=0.043$), ill-defined margins of the nodule (13.3% in B2 nodules vs 29.4% in B3-6 nodules, $\chi^2=6.4$, $p=0.020$), and the presence of calcifications (34.2% in B2 nodules vs 64.7% in B3-6 nodules, $\chi^2=12.3$, $P=0.001$) decreased significantly the possibility for benign (B2) result, whereas features such as the size of nodule, the presence of central vascularity, the composition and the hypoechogenicity of the nodule did not affect the possibility for B2 vs B3-6 result. Finally, there was no association of gender and age with the Bethesda category result.

CONCLUSION: Our study supports that the irregular shape of a nodule, ill defined margins, and the presence of calcifications decrease the possibility of a Bethesda benign result. FNAB of nodules < 10 mm may reveal suspicious or positive for malignancy cytology.

Table 1:
FNAB results according to the Bethesda category

FNAB results	Total (n= 563) (%)
BS 1	190 (33.7%)
BS 2	339 (60.3%)
BS 3-B6	34(6,0%)

Table 2:
Demographic and sonographic features according benign (B2) or not (B3-6) cytology

Demographic and sonographic features	Bethesda Category 2 (n= 339) (90.8%)	Bethesda Category 3-6 (n= 34) (9.2%)	p-value
Age, mean (SD), years	55.88 ± 14.43	50.54 ± 15.45	NS*
Male/female	68/271	7/27	NS
Shape			
Irregular shape	7.1%	17.6%	0.043
Margins			
Ill-defined	13.3%	29.4%	0.020
Calcifications			
Calcifications present	34.2%	64.7%	0.001
Size of nodule			
Mean ± S.D (mm)	15.81 ± 6.9	16.40 ± 7.3	NS
< 10mm	10.0%	8.8%	NS
> 10mm	90.8%	91.2%	NS
Solitary nodule	46.0%	41.2%	NS
Composition			
Solid nodule only	48,5%	44,1%	NS
Underlying echogenicity of the parenchyma			
Heterogeneity	79.1%	79.4%	NS
Echogenicity of nodule			
Hypoechoic	50.1%	61.8%	NS
Central Vascularity			
Central vascularity present	19.5%	20.6%	NS
Patients on LT4 treatment	52.5%	50.0%	NS

*NS = Not significant