

THE ROLE OF THYROID FINE-NEEDLE ASPIRATION CYTOLOGY IN THE TREATMENT AND FOLLOW-UP OF THYROID NODULES IN THE PEDIATRIC POPULATION

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Background: Although thyroid nodules are rare in children compared to adults, the risk of malignancy is higher in childhood. Thyroid fine-needle aspiration (FNA) is a reliable diagnostic method used in the prediction of malignancy in the evaluation of thyroid nodules together with clinical and ultrasonographic findings.

Objective and hypotheses: To compare clinical, ultrasonographic, cytological and histopathological findings in patients who underwent FNA.

Method: The study included 80(52F,28 M) patients who underwent FNA(n=80), for thyroid nodules at presentation or at follow-up. Clinical, ultrasonographic and cytological findings of patients were evaluated retrospectively.

Results: Tables 1 and 2 show the cytopathology results, histopathology results and some characteristics of the patients. Mean age of the patients was 13.7±2.8 years during FNA. Autoimmune thyroiditis was present in 32.5% (n=26) and history of radiotherapy to the head or neck in 10% (n=8). The cytological diagnoses of patients included inadequate or hemorrhagic in 10% (n=8), benign in 42.5 % (n=34) , atypia or follicular lesion of undetermined significance (AUS/FLUS) in 15% (n=12) suspicion of follicular neoplasia (SFN)in 7.5% (n=6), suspicion of malignancy(SM), in 8.8% (n=7) malignant in 16.3% (n=13). There were no significant correlations between cytological findings and age, gender, erythrocyte sedimentation rate, thyroid hormones, thyroid autoantibodies and ultrasonographic findings of the thyroid nodules. Thirty-seven patients underwent thyroidectomy. The results of histopathological examination indicated 83.8% as malignant, 16.2% as benign. 25% of benign lesions according to cytological diagnosis was malignant, but all of malignant lesions were found malignant. Histopathologic examination was indicated as malignant in 25% of patients with benign FNA cytopathology, in 100% of AUS / FLUS , in 75% of FN , in 85.7% of SM. All patients who received radiotherapy had malignancy. In our study, the sensitivity of FNA was 80%, specificity 100%, positive predictive value 100%, negative predictive value 75%, and diagnostic value was 87.5%.

Conclusion: FNA results were highly compatible with thyroid histopathological examination. There were no clinical or sonographic findings that were related with thyroid cytopathological and histopathological examination.

Table 1. FNA results and some characteristics of the patients

	Inadequate (n=8)	Benign (n=34)	AUS/FLUS (n=12)	SFN (n=6)	SM (n=7)	Malign (n=13)	P
Gender (%)							
Girl	75	61.8	50	66.7	42.9	92.3	0.2
Boy	25	38.2	50	33.3	57.1	77,7	
Autoimmunity(%)							
Yes	37.5	29.4	8.3	16.7	85.7	30	0.01
No	62.5	70.6	91.7	83.3	14.3	70	
Radiotherapy history (%)							
Yes	0	2.9	16.7	16.7	14.3	23.1	0.3
No	100	97.1	83.3	83.3	85.7	76.9	
Nodule (%)							
Cystic	16.7	30.3	27.3	20	0	8.3	0.3
Solid	33.3	54.5	54.5	80	85.7	83.3	
Mixed	50	15.2	18.2	0	14.3	8.3	
Nodule diameter (%)							
>1cm	87.5	60.6	63.6	100	42.9	36.4	0.2
<1cm	12.5	39.4	33.4	0	57.1	63.6	
Histopathological examination (%)							
Benign		37.5	0	33.3	14.3	0	0,13
Malign		62.5	100	66.7	85.7	100	

AUS/FLUS: Atypia or follicular lesion of undetermined significance

SFN: Suspicion of follicular lesion or neoplasia

SM: Suspicion of malignancy

Table.2 Histopathologic examination and some characteristics of the patients

	Benign (n=6)	Malign (n=31)	P
Gender (%)			
Girl	33.3	71	0.09
Boy	66.7	29	
Autoimmunity (%)			
Yes	16.7	35.5	0.35
No	83.3	64.5	
Radiotherapy history (%)			
Yes	0	22.6	0.25
No	100	77.4	
Nodule diameter (%)			
>1cm	83.3	39.3	0.29
<1cm	16.7	60.7	
Result of FNA (%)			
Benign	37.5	62.5	0.007
AUS/FLUS	0	100	
SFN	33.3	66.7	
SM	14.3	85.7	
Malign	0	100	

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