



FINE NEEDLE ASPIRATION BIOPSY OF THE THYROID GLAND

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SUMMARY

The article discusses the diagnostic capabilities of fine-needle aspiration biopsy (FNA) for the detection of malignant tumors of the thyroid gland. A central place in diagnosis is occupied by fine-needle aspiration biopsy, the results of which were the basis for the selection of patients subject to surgical treatment. The results of FNA, indicating the presence of carcinoma or the impossibility of excluding its presence, served as the basis for surgical intervention for the patient.

KEY WORDS: *fine needle aspiration biopsy, histological examination, cytological examination.*

RELEVANCE

Recently, in the structure of endocrine diseases, the number of different variants of thyroid gland (thyroid) pathology has been growing, which is associated with endemic goiter, environmental problems and weakening of the preventive direction in medicine [1-5]. Multinodular euthyroid goiter (MEZ) is a collective clinical concept characterized by the presence in the thyroid tissue of two or more focal formations, which can be located in one or both lobes of the thyroid gland in a euthyroid state. They can be detected by palpation or using ultrasound (US), fine-needle aspiration biopsy (FNA) followed by cytological examination, computed tomography (CT) or magnetic resonance imaging (MRI) [2,3,6-8]. Frequency of MEZ, according to Tsurkan A.Yu. [6], is 56.54%, and Chernikov R.A. [2] gives a figure of 52.68%. It should be noted that the prevalence of this disease in the structure of surgical pathology of the thyroid gland has increased significantly over the past decades and tends to grow [2,5,9]. According to most authors, MEZ is an indication for surgical intervention (hemithyroidectomy, subtotal resection or thyroidectomy) [2,3,9]. However, the question of whether thyroid nodules, which were initially identified by palpation or instrumental methods and confirmed by histological examination during FNA, correspond to the data of postoperative histological examination or not, is still a topic of discussion among researchers [5].

PURPOSE OF THE STUDY

Study based on an assessment of the results of fine-needle aspiration biopsies and verify by histological examination of thyroid gland preparations removed during surgical interventions.

MATERIAL AND RESEARCH METHODS

The work is based on a study of long-term and short-term results of treatment of patients with thyroid cancer in the Andijan branch of the Russian Scientific and Practical Center for Surveillance and Radiotherapy from 2011 to 2021. The duration of the study is limited to 10 years, since about 10 years ago, the branch completely switched to a modern diagnostic algorithm, which includes mandatory fine-needle puncture biopsy for all patients with nodes > 1 cm in size - the "gold standard of diagnosis." This made it possible to significantly increase the number of patients who underwent surgery in the early stages of the disease. All diagnoses were established on the basis of a comprehensive clinical and laboratory examination with mandatory confirmation of the diagnosis by histological examination. The examined group consisted of 197 patients with thyroid cancer aged from 14 to 75 years.

RESULTS

To assess the accuracy of diagnosis using FNA in 197 patients operated on in 2011 - 2021, a comparison was made of the data from the preoperative cytological report and the postoperative histological diagnosis. In 29 (15.3%) patients, papillary carcinoma was suspected. The diagnosis after surgery was confirmed in 57 (43.5%) patients; false positive results were obtained in 74 (56.5%) patients. Among 87 benign cytological findings, subsequent histological examination revealed 8 (2%) cancers. Additional analysis of these observations showed that in 5 cases there were errors by the cytologist when interpreting a cytological smear, in 2 cases the patients had microcarcinomas against the background of colloid goiter, and in one case there was insufficient sampling of material from a patient with a malignant tumor against the background of polynodous goiter. Among 17 patients operated on with a cytological diagnosis of follicular tumor, histological examination revealed papillary carcinomas in 2 (12.4%).

47 patients were diagnosed with "classic" papillary thyroid cancer, 24 patients had the follicular variant of papillary cancer, 2



patients suffered from papillary-trabecular cancer, and in one case there was a sclerosing variant of papillary cancer . In 23 (36.5%) cases, cancer arose against the background of goitrous transformation of the gland, in the remaining 51 (63.5%) against the background of an unchanged gland .

Table 1. Results of cytological diagnosis of operated patients

Number of Operated Patients	Cancer	Sensitivity	Specific Nost	False Negatives	False Positives
197 (100%)	24 (12%)	87.7	84.4	12.3	15.6

Fine-needle aspiration biopsy followed by cytological examination was performed at the preoperative stage in 129 patients with thyroid nodules (Table 2).

Table 2 . Findings from fine-needle aspiration biopsy in patients with thyroid carcinoma.

	Cytological conclusion	Amount of pain nykh
Positive result - 112 (83.5%)	Papillary carcinoma	61 (45.5%)
	Medullary carcinoma	2(1.5%)
	Follicular carcinoma	1 (0.75%)
	Undifferentiated cancer	1 (0.75%)
	Follicular tumor	47 (35%)
False negative result - 16 (12.05%)	Colloid goiter	15(11.3%)
	Autoimmune thyroiditis	I (0.75%)
	Not informative	1 (0.75%)
	Not produced	5 (3.7%)

When considering the results presented in Table 2 , 16 (12%) false-negative cytological responses are noteworthy. Basically, these answers were obtained in the first years of development of fine-needle aspiration biopsy (2016-2017) and were associated with insufficient experience of the team performing FNA and the cytologist . Subsequently, the number of false negative results did not exceed 2% (8 cases of cancer per 408 cytological reports of colloid goiter over the past 4 years).

The data presented in Figure 5 shows the variants of histological subtypes of papillary thyroid cancer that we encountered during our work.

CONCLUSIONS

Thus, a study of 197 fine-needle aspiration biopsies of the thyroid gland followed by histopathological examination showed high sensitivity and specificity of the method in the diagnosis of papillary carcinoma. As can be seen from the above data, there is a significant number of false positive cytologist reports. The reason for this is the insufficiently clear cytological criteria for papillary cancer, in particular, an ambiguous interpretation of the meaning of papillary structures.

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