

Diagnostics and Treatment Nodular Goiter

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Abstract: The analyzed material is represented by 717 patients who underwent fine-needle aspiration puncture biopsy. The indications and choice of the scope of surgical intervention were based on the cytological structure, the prevalence of the pathological process in the thyroid gland, its function and the need to adhere to the principles of radicality. Early forms of thyroid cancer are not always detected even by modern instrumental methods. Determination of tactics in surgery of focal formations of the thyroid gland should be based on a complex of all available clinical data.

Keywords: thyroid cancer, occult cancer, fine needle aspiration, calcitonin, ultrasound.

The introduction in recent years of modern methods of preoperative diagnosis of thyroid diseases [2] has shown the inconsistency of the previously existing tactics of mandatory removal of all nodules of this organ. When determining the indications for surgery and choosing its volume, it is necessary to clearly understand that we are talking about a large group of patients, including those of working age [5]. The number of such patients is growing progressively. The reason for this is both the deterioration of the general environmental situation and the improvement in the detection of thyroid nodules. Thus, the introduction into clinical practice of modern ultrasound diagnostic methods (ultrasound) [1] has made it possible to detect non-palpable formations in the thyroid gland. As a result, the frequency of detection of nodular formations in “healthy” patients reached 10-40%. Therefore, balanced tactics in relation to this group of patients are especially important today. Modern diagnostic methods [4] expand the possibilities by clarifying the nature of the process before surgery and create conditions for reasonable limitation of indications for surgical intervention for goiter and reducing its volume. Fundamentally, the tactical approach should be aimed at maximizing the use of all the capabilities of pre-operative research methods.

The purpose of this study was to develop optimal tactics for surgical treatment of patients with thyroid nodules. In many situations, fine-needle aspiration biopsy (FNA) [3], especially in combination with ultrasound control of the needle position, helps to clarify the diagnosis of the disease. However, its effectiveness decreases significantly in the presence of multiple nodules in the thyroid gland and as the size of the nodule increases. The steady increase in the incidence of thyroid cancer [6] forces us to look for new ways to identify its early forms and improve tactics for examining and treating thyroid nodules.

To diagnose nodular formations in the thyroid gland and determine their nature, ultrasound and FNA with cytological examination of the punctate were used .

The analyzed material was represented by 717 patients who underwent TAB. The size of the nodes in most patients exceeded 1.0 cm. Often these were non-palpable - accidentally identified nodular formations (incidentalomas).

The morphological material obtained during FNA was divided into four categories. The cytological picture of nodular formations obtained during FNA is presented in the diagram.

Benign changes are a group of patients (70.4%), including numerous variants of benign hyperplasia, thyroiditis and normal thyroid gland. Patients with benign cytological changes in the thyroid gland were subject to observation and treatment by an endocrinologist, with the exception of situations related to the presence of other indications for surgery (compression of the neck organs, nodular goiter with symptoms of thyrotoxicosis, severe cosmetic defect of the neck, the presence of risk factors for thyroid cancer, etc.).

Malignant changes, detected in 1.07% of patients, were an absolute indication for surgical intervention.

Changes suspicious for malignancy amounted to 3.16%. This group included both follicular and hurth cell tumors of the thyroid gland. The identification of this group indicates the limited capabilities of FNA in the diagnosis of certain thyroid tumors. As is known, follicular adenoma is a tumor of the follicular structure without signs of invasion of the capsule and (or) vessels characteristic of follicular cancer. Cytological examination does not allow distinguishing follicular adenoma from follicular cancer. That is why they are combined into one cytological category (follicular tumor). With such a cytological picture, surgical treatment is indicated.

For patients in this group, TAB was performed repeatedly until an informative result was obtained. With the accumulation of experience, the frequency of uninformative results was reduced by 2.6 times.

A negative result on cytological examination of punctate specimens did not always serve as convincing evidence of the absence of malignant growth. The largest number of diagnostic errors in ultrasound scanning and fine-needle aspiration biopsy occurred in the group of patients who had autoimmune thyroiditis with nodulation , as well as multinodular goiter. In a number of patients with polynodous goiter, it was not always possible to obtain a biopsy specimen reflecting the true cellular composition of all nodes. During puncture, material was sometimes obtained from a degenerative area, and the result of a fine-needle aspiration biopsy was regarded as uninformative. In a number of cases, even when obtaining the necessary cytological material, certain difficulties arose in its evaluation. Thus, if papillary and medullary cancer is detected by cytological examination with a fairly high degree of reliability, then it is extremely difficult to distinguish the follicular form of cancer from an adenoma of follicular cells.

The choice of the scope of surgical intervention on the thyroid gland with malignant changes was based on the morphological structure, the prevalence of the pathological process in the gland, its function and the need to adhere to the principles of radicality. In the group of patients operated on due to the fact that, according to FNA , a follicular tumor or thyroid cancer was detected, various thyroid diseases were diagnosed during postoperative morphological examination.

When comparing FNA data and postoperative PGI data, it was revealed: among the cytologically diagnosed papillary cancer in two clinical cases, it was confirmed histologically in both cases. When follicular-papillary cancer was verified in seven cases, the histological picture looked like this: follicular-papillary cancer was confirmed in four cases, follicular cancer was detected in one case, and in two cases the diagnosis of cancer was not confirmed (toxic adenoma and nodular form of autoimmune thyroiditis were identified). Another 21 patients were operated on due to the fact that, according to FNA , there was a diagnosis of "follicular tumor". Postoperative morphological examination diagnosed various diseases of the thyroid gland.

Consequently, in 28.6% of patients with cytological signs of follicular neoplasm, subsequent histological examination confirmed the diagnosis of a malignant tumor. In all other observations, various benign forms of goiter occurred. Follicular adenomas occurred in 47.6% of patients operated on with a cytological picture of "follicular tumor".

In all cases of surgical treatment of nodular goiter with unilateral lesions, the removed thyroid tissue was sent for express diagnostics and the operation was completed only after receiving the results of an urgent histological examination. The extent of cancer surgery was determined based on the histological type of the node, the aggressiveness of the tumor and its extent. For papillary carcinoma, follicular cancer and more common papillary carcinoma, thyroidectomy was performed with removal of tissue from the lymph nodes of zone VI of the neck on both sides.

FNA data with the results of the final histological examination of tissues removed during surgery showed that this method is quite sensitive and specific in diagnosing the nature of focal lesions of the thyroid gland. However, a favorable result on cytological examination of punctate did not always serve as convincing evidence of the absence of malignant growth. Clinical experience shows that early forms of thyroid cancer are still not always detected even by modern instrumental methods. Even fine-needle aspiration biopsy with cytological examination of the obtained material still cannot completely solve the problem of early diagnosis of thyroid carcinoma. A favorable result of a cytological examination of thyroid punctate, which represents only individual cells or their clusters, cannot always serve as a decisive criterion for refusing surgical intervention. Regardless of the results of cytological examination, in the presence of clinical signs of malignant transformation, surgical treatment and histological clarification of the diagnosis should be sought.

Conclusions. A puncture biopsy is a necessary, but not completely informative, research method. It is impossible to rely on it as the only method that determines the tactics of treating patients, even with significant experience of the cytologist. Determination of tactics in surgery of focal formations of the thyroid gland should be based on a complex of all available clinical data.

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