

CLINICAL AND MORPHOLOGICAL ASPECTS OF AUTOIMMUNE THYROIDITIS

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Resume. The relevance of the topic is related to the need to form unified approaches to the diagnostic criteria of Autoimmune thyroiditis. Autoimmune thyroiditis affects about 3-4% of the population. AIT is found in about 20% of older women. In recent years, clinicians in many countries have noted an increase in the number of AIT patients among children and adolescents. Currently, in the diagnosis of autoimmune thyroiditis, the leading role is played by the diagnosis of hypothyroidism, the presence of high titers of antithyroid antibodies in the blood and characteristic signs during ultrasound examination of the thyroid gland. Cytochemical analysis of peripheral blood leukocytes is of particular importance in the diagnosis of AIT, which determines an increase in the amount of glycogen, lipid levels, activity of alkaline and acid phosphatases and a decrease in the content of cationic proteins.

Key words: autoimmune thyroiditis, diagnosis, treatment.

Autoimmune thyroiditis (chronic lymphomatous thyroiditis, Hashimoto's thyroiditis) this is a chronic inflammatory disease of the thyroid gland of autoimmune origin, ending in a violation of its function, the morphological substrate of which is extensive lymphoid infiltration [1, 6, 9]. Autoimmune thyroiditis (AIT) is more common in women aged 40-50 years [17, 18]. The ratio of women and men diagnosed with AIT is 4-15:1 [1, 6]. About 3-4% of the population suffer from autoimmune thyroiditis, and the number of patients increases with age [2]. Autoimmune thyroiditis is found in about 20% of elderly women [17]. The risk of hypothyroidism in women with an isolated increase in antibody titers to the structural components of the thyroid gland (thyroid gland) without impairment of its function ranges from 2.1 to 5% per year [16, 17]. In recent years, clinicians in many countries have noted an increase in the number of patients with autoimmune thyroiditis among young people, especially among children and adolescents [5]. The prevalence of AIT in children ranges from 0.1 to 1.2% [13].

Diagnostics. Clinically, there are hypertrophic, atrophic, focal (focal) and latent forms of autoimmune thyroiditis [6]. In the hypertrophic form of AIT, patients complain of an enlarged thyroid gland, difficulty swallowing, weakness, and a feeling of compression of the neck. Diffuse hyperplasia of the thyroid gland is determined upon examination. On palpation, it is dense, has a lobular-elastic consistency, and is

not soldered to the skin. As the disease progresses, the density of the gland increases, its tuberosity may appear, a symptom of swinging (when palpating one lobe, the other sways). Thyroid tenderness occurs in combination with subacute thyroiditis. Hyperthyroidism is observed in 5% of patients with hypertrophic form, which gives a picture of the so-called "Hasitoxicosis". Patients are concerned about palpitations, feeling hot, sweating, weight loss, irritability.

"Hasitoxicosis" has its own characteristics:

- 1) it proceeds in waves, with periods of deterioration and improvement;
- 2) thyrotoxicosis is better treatable than with diffuse toxic goiter (DTZ);
- 3) the presence of ophthalmopathy is characteristic;
- 4) it is usually observed at the beginning of the disease;

5) relapses of hyperthyroidism are provoked by acute respiratory infections, mental and physical overloads, pregnancy, childbirth, and abortions. In the future, hypothyroidism gradually develops, manifested by complaints of lethargy, drowsiness, chilliness, constipation, memory impairment, hair loss, impaired sexual functions, hoarseness of voice, facial puffiness, increased body weight, pasty, dryness and peeling of the skin, bradycardia, anemia, elevated levels of thyroid stimulating hormone (TSH) and a decrease in triiodothyronine (T3), thyroxine (T4) in the blood [6]. The thyroid gland is not palpable in the atrophic form of AIT. At the same time, the clinic of hypothyroidism is determined. The atrophic form develops gradually over decades. At the same time, galactorrhea - amenorrhea is possible due to an excess of thyrooliberin [6].

The focal (focal) form of AIT is characterized by a lesion of one lobe, which becomes small and dense. A puncture biopsy reveals signs of autoimmune thyroiditis in this lobe [6]. In the latent form of AIT, only immunological signs of the disease are detected without clinical manifestations. The size of the thyroid gland is normal. The latent form is often combined with nodular goiter. Depending on the functional state of the thyroid gland, in any form of autoimmune thyroiditis, there may be euthyroidism, hyperthyroidism (rarely) or hypothyroidism [6]. AIT has a benign course. However, a combination of AIT and thyroid cancer is possible. Adenocarcinomas and thyroid lymphomas (10-15%) are extremely rare against the background of AIT [1]. Currently, in the diagnosis of autoimmune thyroiditis, the diagnosis of hypothyroidism, the presence of high titers of antithyroid antibodies in the blood and characteristic signs during ultrasound examination of the thyroid gland are of leading importance. In the general blood test, lymphocytosis, monocytosis, leukopenia [5] and an increase in ESR are possible. A biochemical blood test in the presence of hypothyroidism reveals an increase in cholesterol, lipoproteins, and triglycerides. Immunological blood examination reveals an increase in the number and activity of T-helpers and T-killers

with a decrease in the number of T-suppressors, an increase in the level of immunoglobulins. Ultrasound examination of the thyroid gland reveals an uneven structure with the presence of hypoechoic areas or nodes without a capsule. A cardinal feature of AIT is a diffuse decrease in tissue echogenicity [7]. It should be remembered that the ultrasound method does not allow differentiating autoimmune thyroiditis and diffuse toxic goiter, because with DTZ there is also a diffuse decrease in echogenicity. Therefore, the conclusion of an ultrasound of the thyroid gland should contain only a statement of the fact of the presence of diffuse hypoechoic tissue characteristic of autoimmune thyroid disease, but not contain a diagnosis of AIT or DTZ. In the hypertrophic form of AIT, ultrasound reveals an increase in the volume of the thyroid gland. In the atrophic form of AIT, ultrasound of the thyroid gland reveals a very small volume of hypoechoic tissue (usually less than 3 cm³).

Percutaneous aspiration fine needle biopsy of the thyroid gland is performed under the supervision of ultrasound. 3-4 sections of the gland should be punctured. Plasma cell and lymphoid infiltration are determined in the biopsy, and the ratio of lymphocytes with small (up to 8 microns) and large (more than 8 microns) nuclei is reduced to 4.5 with a norm of at least 7; Ashkenazi-Gürtele oxyphilic cells (large epithelial oxyphilic cells). Cytological examination of biopsy material in AIT makes it possible to detect numerous lymphoid cells of varying degrees of maturity (light blast elements reflect the centers of reproduction), plasmocytes, a mottled composition of chronic lymphoid infiltrate (macrophages, histiocytes, less often neutrophils, giant multinucleated cells of the type of foreign body cells), B cells (scattered, in the form of loose structures, sometimes very polymorphic), a small number of follicular epithelial cells, felt-like structures (fragments of partially destroyed cells located in a filamentous - fibrous substrate), elements of fibrous tissue. Depending on the histological variant of the disease, the components of the cytogram can be presented in different ratios. With special variants of the cytological picture (the predominance of one of the components - lymphoid, B - cell, follicular, inflammatory, fibrous), clinical, laboratory and echographic data become important [3]. With a typical AIT clinic, characteristic ultrasound data, high titers of antithyroid antibodies, and the absence of suspicion of malignant thyroid disease, puncture biopsy may not be performed [1].

Radioisotope scanning of the thyroid gland with technetium or radioactive iodine reveals an increase in its size (with hypertrophic form), blurred contours, a change in shape (normally the shape of a "butterfly", with AIT - in the form of a drop), uneven capture of a radiopharmaceutical with areas of reduced accumulation, lack of intensive capture in the center [6]. Sometimes a single cold node is visualized.

The absorption of radioactive iodine by the thyroid gland can be normal, reduced or increased. It should be noted that thyroid scintigraphy and a sample with the absorption of radioactive iodine in case of suspected AIT have little diagnostic value.

However, the value of the results of these tests increases if a single node is found in the thyroid gland or if the increase in thyroid gland continues despite treatment with thyroid hormones. In these cases, a fine needle biopsy of a node or an enlarged area is performed to exclude a neoplasm [10].

When studying the content of antithyroid antibodies in the blood, it is most important to determine antibodies to thyroid peroxidase. Antibodies to the II colloidal antigen are also often detected. This antigen is a non-encoded colloid protein and differs from thyroglobulin. With DTZ, it is very rare. Antibodies to thyroid-stimulating hormone receptors are found in 10% of patients. In order to diagnose AIT, it is recommended to simultaneously determine antibodies to thyroglobulin and the microsomal fraction [6]. During the radioimmunological examination of the hormonal status at the stage of hyperthyroidism, the blood content of T3, T4 is increased; with a decrease in thyroid function, the content of thyrotropin increases (the earliest sign of hypothyroidism), the level of T3, T4 decreases. An increase in TSH levels above 5 IU/l at a normal concentration of free T4 is regarded as subclinical hypothyroidism, and an increase in TSH levels with a decrease in free T4 is regarded as manifest hypothyroidism. The development of hypothyroidism in the early stages can be confirmed by a test with intravenous administration of 200 mcg of thyrooliberin, in which at the 30th minute there is a sharp rise in the level of thyroid-stimulating hormone, two or more times higher than the physiological reaction of thyrotropin to pharmacological load [5]. In patients with euthyroid condition, the blood content of T3, T4, and TSH is normal. With AIT, the level of prolactin in the blood may increase [6]. Changes in cytochemical parameters of peripheral blood leukocytes are of particular importance in the diagnosis of AIT. Cytochemical analysis of capillary blood leukocytes in patients with AIT reveals an increase in the amount of glycogen, lipid levels, activity of alkaline and acid phosphatases and a decrease in the content of cationic proteins [11, 12]. The increase in the content of glycogen and lipids in leukocytes in AIT is due to the need for adequate provision of phagocytosis. An increase in the activity of alkaline phosphatase indicates the activation of gluconeogenesis and synthetic processes in the cell. Acid phosphatase is characteristic of young granulocytes, performs a metabolic function in leukocytes and can serve as an indicator of the tension of intracellular processes. The function of lysosomes, which are characterized by the presence of acid phosphatase, is associated with the process of self-destruction and degeneration, which are the basis of the cytopathogenic effect of the pathological process. An increase in the activity of this enzyme makes it possible to enhance the process of phagocytosis. An increase in the activity of acid phosphatase is a sign of an acceleration of catabolic processes and the severity of immunopathological reactions in autoimmune thyroiditis. A decrease in the content of cationic proteins in leukocytes in AIT can be associated with their release from cells

as a result of the action of immune complexes on leukocytes, which destabilize lysosomal and cell membranes, which causes suppression of the protective properties of microphages.

Autoimmune thyroiditis is a clinical diagnosis established on the basis of a combination of clinical signs and the results of instrumental and laboratory research. None of the methods, even the most informative, by itself makes it possible to diagnose AIT. The more clinical, instrumental and laboratory signs of the disease a patient has, the more likely it is to have AIT [8].

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