VOLUME-4, ISSUE-3

MODERN ECHODIAGNOSTICS OF NODULAR FORMATIONS OF THE THYROID GLAND IN PATIENTS

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Relevance of the topic: Modern methods of ultrasound diagnostics play an important role in the detection and differential diagnosis of focal pathologies of the thyroid gland. Ultrasonography is a minimally invasive, inexpensive and highly informative first-stage diagnostic method. Modern ultrasound diagnostics technologies allow us to detect structural changes in the thyroid gland and assess the risk of malignancy. Under focal pathology of the thyroid gland, we understand the presence of formations in the gland that differ in structure from the tissue. Focal pathology of the thyroid gland occurs in 4-20% of cases in adults, and in 0.2-1.5% of cases in children. When examined by palpation, nodular formations are detected in almost 5% of healthy people. The composition of focal pathology of the thyroid gland includes benign nodules and cysts, adenomas, and malignant tumors.

Thus, ultrasound diagnostics allows you to distinguish between various focal formations, and sometimes their variants. To increase the accuracy of diagnosis, additional ultrasound methods are used, including: 1) Doppler blood flow mapping method; 2) Sonoelastography - a method for assessing the stiffness of nodes; 3) MicroPure (Toshiba) technology - for detecting microcalcifications. These methods significantly increase the sensitivity, specificity and accuracy of diagnosis.

Goals and objectives. To study the effectiveness of using radiological diagnostic methods in determining the prevalence of focal changes in the thyroid gland among the population and modern ultrasound diagnostics of focal diseases of the thyroid gland in young patients.

Materials and methods. These examinations were conducted to identify changes in the structure of the thyroid gland of patients. The studies were conducted using ultrasound examination of the thyroid gland of patients who applied to the clinics of the “ULTRA VEDA” family enterprise with nodular diseases of the thyroid gland and students of the Urgench branch of the TTA from September 2024 to May 2025. Thyroid screening was conducted among volunteer students aged 17 to 21 years. During the study, the results of the examination of 113 patients were evaluated. Of these, 61 were women and 42 were men. Voluntary consent was given for diagnostic studies. Exography was performed on ultrasound scanners AplioXG (Toshiba, Japan) and Chison Cbit - 8 (China) in B mode with 7-14 MHz sensors, color Doppler and EDK, pulsed wave Doppler, tissue harmonics, three-dimensional reconstruction images. The following ultrasound signs were assessed: exogenousity, exostructure, shape, contours, presence of exogenous inclusions. In addition, according to the results of ultrasound examination, the characteristics of blood flow in nodular formations of the thyroid gland were also assessed.

Research results.

When conducting the study, taking into account the degree of proliferative changes in focal formations in the thyroid gland, in order to determine the diagnostic significance of the studied ultrasound parameters, the patients were retrospectively divided into 4 clinical groups according to the results of the examination:

Group I - Patients with single focal formations in the thyroid gland. These formations, the average size of which was 5-6 mm, required dynamic observation. Patients were under the supervision of an endocrinologist for half a year. (27 = patients)

Group II - Patients with single focal formations in the thyroid gland, the average size of which was 11-20 mm. All of these patients underwent fine needle aspiration biopsy (FNAB) and cytological examination. As a result of the study, it was confirmed that the formations were of good quality (benign tumor). (39 = patients)

Group III - Patients who underwent surgery due to nodular formations. Indications for surgery: the presence of multiple nodules, node growth, the size of a single node is more than 20 mm, the thyroid gland is enlarged on palpation and affects the function of neighboring organs (swallowing disorders, difficulty breathing, dizziness). However, local lymph nodes were not enlarged on ultrasound. (31 = patients)

Group IV - Patients who underwent surgery for various forms of thyroid cancer (17 patients). According to the histological results of the postoperative material: 5 patients (29.4%) - papillary cancer, 8 patients (47.0%) - follicular cancer, 4 patients (23.5%) - medullary cancer were detected. Thyroid cancer is usually detected by ultrasound as hypoexogenous, hypovascular nodular formations, often with unclear contours and highly exogenous and calcified areas. The non-encapsulated variant of papillary thyroid cancer is characterized by irregular, jagged tumor edges, which is a pathognomonic ultrasound sign. The encapsulated variant of papillary cancer and follicular cancer usually did not differ from adenomas and colloid nodules.

Conclusion. The above data show that radiological methods are of great importance in the timely and early detection of the prevalence of focal pathologies developing in thyroid diseases among the population, as well as in the correct and comparative diagnosis. This approach improves the early diagnosis of thyroid cancer and reduces the number of unnecessary radical surgeries.