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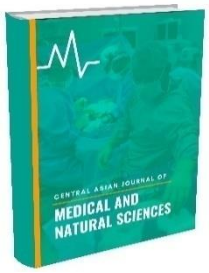

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Fine-Needle Aspiration Biopsy under Ultrasound Navigation Control as a Screening Method for the Study of Thyroid Nodes

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Annotation: The aim of the study is to identify nodular formations of the thyroid gland among the population of the city of Tashkent with subsequent morphological verification to exclude the oncological nature of the formation. On the basis of the Center for Endocrinology named after Academician Yolkin Kholmatovich Turakulov in the city of Tashkent, 196 fine-needle aspiration biopsies of thyroid nodules under the control of ultrasound navigation were performed in the period 2020-2021. In 98.3% of cases, nodular formations were of a benign nature, which corresponds to world statistics, confirming that thyroid cancer is a rather infrequent pathology, however, it is necessary to have even greater vigilance in order not to miss a malignant neoplasm. The majority of patients with thyroid pathology, in comparison with the statistical data, the prevalence of thyroid cancer in the city of Tashkent, remains outside the diagnostic study, which increases the likelihood of missing this pathology, while fine needle aspiration biopsy is the "gold standard" in the early diagnosis of cancer at early stage.

Key words: fine needle biopsy, ultrasound navigation, thyroid cancer.

Introduction. According to WHO, more than 200 million people suffer from this pathology. At the same time, malignant tumors of the thyroid gland account for 1–3% of oncological pathologies. The presented data indicate the relevance of this problem and the need for oncological alertness of the doctor when examining a patient with thyroid pathology.

One of the main diagnostic methods used in diseases of the thyroid gland is: palpation of the thyroid gland and lymph nodes, determination of the level of thyroid and thyroid-stimulating hormones, and ultrasound examination of the thyroid gland. Due to the availability and non-invasiveness, high information content, ultrasound is an extremely effective method for the differential diagnosis of thyroid pathology [5]. Despite a sufficient arsenal of diagnostic methods that allow one to suspect nodular changes in the thyroid gland, and in the presence of modern expert ultrasound devices that are equipped with color Doppler mapping, compression elastography, shear wave elastography, which make it possible to assume the morphological nature of the formation, based on the combination of all

indicators. Thyroid biopsy with cytological examination is the "gold" standard in diagnostic algorithms [1,6]. Morphological examination allows to identify and differentiate the pathology of the thyroid gland in the early stages, when clinical manifestations may be absent, and laboratory-instrumental results are minimal [2]. The use of ultrasonic control methods for performing minimally invasive interventions greatly facilitates manipulation and reduces the risk of possible complications.

The aim of the study is to identify nodular formations of the thyroid gland among the population of the city of Tashkent with subsequent morphological verification to exclude the oncological nature of the formation.

Methodology. On the basis of the Center for Endocrinology named after Academician Yolkin Kholmatovich Turakulov in the city of Tashkent, 196 fine-needle aspiration biopsies of thyroid nodules under the control of ultrasound navigation were performed in the period 2020-2021. Of these, the majority of patients were female (n = 168 (87.1%), the average age of which was 56.3 ± 5.6 years.

Puncture biopsy was performed under the ultrasound guidance of a Philips affiniti 50 apparatus equipped with a 6 MHz linear transducer. The puncture was performed with a 21G needle, 4 cm long, complete with a 10 ml syringe, using the “free hand” technique. All nodules larger than 10 mm were punctured, as well as smaller nodules, but with suspicious ultrasound signs (TIRADS 4A or more) or high laboratory values [7]. All puncture material was placed on 4 defatted glass slides, thin smears were prepared, and sent for cytological examination with subsequent fixation of the material.

Statistical data processing was carried out in the Excel program using special formulas.

Results. When performing a fine-needle biopsy under the guidance of ultrasound navigation, no complications were detected at the time of the procedure and after the manipulation. In 1 (0.52%) case, an allergic reaction in the form of dermatitis to the antiseptic used to maintain the sterility of the procedure was detected. In total, there were 178 (92.2%) informative cases at the initial performance, but 13 (6.7%) patients out of 15 (7.7%) non-informative cases underwent repeated fine-needle aspiration biopsy, 2 (1.04%) patients refused from a repeat procedure. In 98.3% of cases, nodular formations were benign in nature, which corresponds to world statistics, confirming that thyroid cancer is a rather infrequent pathology [5,6,7], however, it is necessary to have even greater vigilance in order not to miss a malignant neoplasm or conditions that can degenerate into it, such as follicular neoplasia, which can degenerate into follicular carcinoma [2].

In the study of patients with this pathology, 2 (1.04%) were identified. All the results of the cytological examination were classified according to Vessels, 2009. However, in some cases of non-informative cases, the cytologist lacked the amount of cytological material, which is associated with a slight negative pressure created by the 10 ml syringe, but the 20 ml syringe is larger, which can cause inconvenience to the doctor in performing the manipulation, and increases the risk of possible complications. Therefore, 15 patients, with their voluntary consent, underwent a vacuum fine-needle aspiration biopsy using an apparatus created at the Center for Endocrinology named after Academician Yolkin Kholmatovich Turakulov in Tashkent, thanks to which a colloid formation was detected in 8 (4.2%) patients, 6 (3.2%) cases of adenomatous formation, 1 (0.52%) case of follicular neoplasia.

Findings. Most patients with thyroid pathology remain out of the diagnostic study, which increases the likelihood of missing thyroid cancer, while fine needle aspiration biopsy is the "gold standard" in the early diagnosis of cancer at an early stage. In some cases, more powerful vacuum equipment is needed to increase the information content of the research method.

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