

CYTOLOGICAL DIAGNOSIS OF THYROID CANCER IN THE ARAL BAY REGION

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Abstract

In recent years, the number of endocrine diseases, in particular thyroid pathologies, has been increasing under the influence of environmental factors. The Aral Sea region is of particular importance as a zone of ecological crisis, where salts, chemicals and radionuclides in water and air lead to the growth of endemic goiter and oncological diseases. Thyroid cancer (TC) is one of the most common malignant tumors of the endocrine system. Its early diagnosis is of decisive importance in improving the prognosis of patients.

Keywords: Thyroid gland, cancer, cytological diagnostics, needle biopsy, Aral Sea.

Introduction

Cytological diagnosis is widely used in world practice as a quick and less traumatic method of confirming thyroid tumors after clinical and instrumental methods.[5,7,9]

The Aral Sea region, as an ecological crisis area, is characterized by a high prevalence of endocrine diseases, in particular, thyroid cancer. This study was devoted to assessing the effectiveness of cytological diagnostic methods for thyroid tumors during 2021–2024.[6,9,16] During the study, samples obtained by needle biopsy from 120 patients were subjected to cytological examination and the results were compared with the results of histological examination.[5,11,18] The findings showed that papillary carcinoma predominated in 57.1% of all cases. The overall level of agreement of cytological diagnosis with histology was 92.4%. In conclusion, cytological examination has been proven to be a reliable, effective and less traumatic method for detecting thyroid cancer at an early stage in the Aral Bay region. [3,8,16] It is known that the unfavorable environmental situation of the Aral Bay region increases the likelihood of endocrine pathologies, including thyroid cancer. (UTT) and fine needle aspiration biopsy (IIAB) methods are dedicated to clarifying the diagnostic value.[15,18]



Objective To assess the possibilities of early detection of thyroid cancer by cytological methods in the Aral Bay region.

Material and methods

The study was conducted in 120 patients (87.5% women, 12.5% men) who presented with thyroid pathology in the Aral Sea region in 2021–2024.



87.5%

12.5%

All patients underwent CT, MRI, and MRI, and the results were compared with surgical and histological examinations. Suspicious nodules were identified by ultrasound, and material was obtained by needle biopsy under ultrasound guidance.

The obtained cytological preparations were stained using Giemsa and Papanicolaou methods. Cytological results were compared with histological conclusions.

Results:

The study showed that thyroid cancer is 4 times more common in women than in men (87.5% women vs. 12.5% men) and is most common in the 36-48 age group (31.2%). Cold nodules were detected in 87.5% of patients on SPECT-CT. A strong statistical correlation was found between the results of UTT and IAB ($p < 0.001$). The overall agreement of cytological examination with histology was high. Cytological features characteristic of malignancy were observed in 35 out of 120 patients (29.1%). Papillary carcinoma was detected in 20 patients, follicular carcinoma in 8 patients, medullary and anaplastic types in 7 patients. Thyroid adenoma and colloid goiter were noted in the remaining patients. Concordance of cytological findings with histological results was 92.4%.

75 %

Ordinary

cytology

92 %

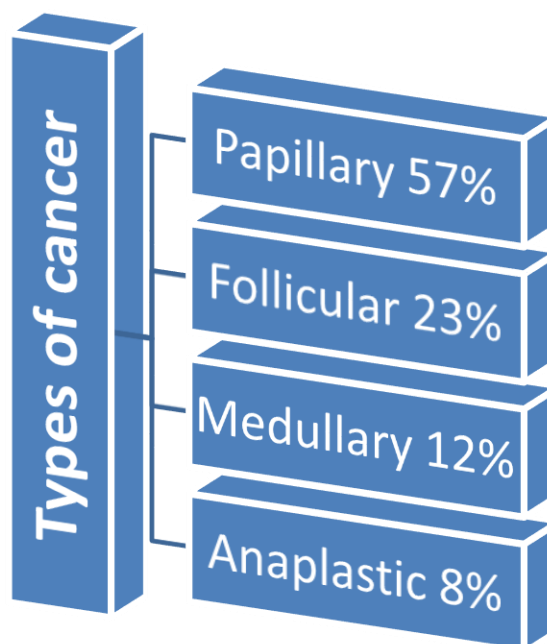
Liquid

cytology

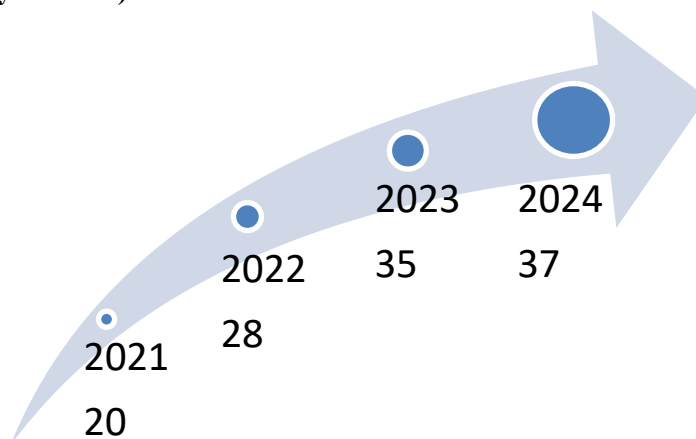




Types of cancer:



Cases Over Years dynamics):



Discussion

It has been established that the incidence of thyroid cancer is high in the Aral Sea region, which is associated with the influence of environmental factors. Cytological methods, especially the analysis of needle biopsy materials, are highly effective in detecting cancer at an early stage. The high incidence of the papillary form may also be related to radiation and iodine deficiency in the region.

Conclusion:

The IIAB method performed in the UTT direction is a reliable, highly effective and less traumatic method for detecting thyroid cancer at an early stage in the conditions of the Aral Bay region. OFECT-CT has an additional diagnostic value in the isolation of nodes, which plays an important role in the assessment of the risk of malignancy.



1. Thyroid cancer cases in the Aral Bay region are an urgent problem for public health.
2. Cytological diagnostics should be widely used in medical practice as a rapid, reliable, and safe method.
3. It is necessary to eliminate environmental problems in the region and strengthen preventive screening measures among the population.

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