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УДК 616-006.699
76.29.49: ОНКОЛОГИЯ

DIFFICULT DIFFERENTIAL DIAGNOSIS BETWEEN THYROID CANCER AND THYMUS CANCER

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Abstract. Thymoma is a malignant epithelial-nature neoplasm of the thymus characterized with slow growth, tendency to local spreading. Thymoma is an extremely rare malignant tumor. Here a clinical case with difficult differential diagnosis of thymus cancer is reported.

Keywords: thymus cancer, clinical case, nonresectable tumor, thymoma, thyroid cancer

Introduction. Thymoma is a malignant epithelial-nature neoplasm of the thymus characterized by slow growth, tendency to local spreading. Thymoma is an extremely rare malignant tumor. Thymus cancer incidence rate is 0.13 per 100 000 population [1]. The maximum incidence rate according to age is between 35 and 70 years old. It is assumed that this tumor is developed due to impaired immune processes, in particular, autoimmune systemic diseases, besides, according to some available information the Epstein-Barr virus and irradiation of the mediastinum can also contribute [5, 6, 7]. Distant metastases are typically localized in the lungs, pleura, pericardium, diaphragm. Extrathoracic metastases are rare [2, 3, 4].

Case description. Patient G., born 1973, has been under the regular medical check-up in RCOC, Izhevsk since December *2018 with the diagnosis*:

Primary disease: pT1bN2M1b (LYM, ADR) IVb thymus cancer. After biopsy of the tumor on January 10, 2019. After 5 chemotherapy treatment cycles in August 2019. Progression in October 2019 – metastatic lesion of the lung. The palliative chemotherapy is in progress. Comorbids: hypertensive disease of the 2nd stage, risk 4; mitral valve prolapse 1st degree; congestive heart failure I; functional class 2; chronic bronchitis, non-acute; respiratory failure III.

Case history: in 2017 the patient started experiencing some neck pain, then hoarseness. He did not seek medical attention. In September 2018 he got worse and came to City Clinical Hospital No.2 of the Ministry of Health of the UR (herein Hospital No.2) where he was examined by an ear nose throat doctor and a neurologist, anti-inflammatory therapy was carried out for exacerbation of dorsopathy, but it had no effect. In December 2018 he was re-examined in Hospital No.2 and sent to an oncologist. On *December* 21, 2018 he was first examined in RCOC where the thyroid cancer was suspected, examination was conducted. CT of the thoracic region dated December 21, 2018 showed: conglomerated solid mass in superior mediastinum, with irregular contours, up to 53x62x68mm large, the process invaded the lumen of the trachea, adjacent sections of the esophagus and the right lobe of the thyroid gland; single lymph nodes up to 19x25mm large at the level of tracheal bifurcation were detected in the mediastinum; a solid ovoid mass with irregular contours up to 23x30mm large in the right adrenal gland. Neck ultrasound of December 21, 2018 showed: ultrasound signs of tumor-caused damage to the right lobe of the thyroid gland – middle third and lower third replaced by inhomogeneous hypoechoic mass the most part of which had retrosternal localization (primary thyroid tumor, or tumor sprouting from the outside), lymphadenopathy of the neck on the right - hypoechoic nodes of up to 0.7cm in diameter, a hypoechoic node of up to 2.1cm in diameter in the supraclavicular region on the right. The case was reviewed at the interdisciplinary conference on December 21, 2018: additional examination, surgical treatment in RCOD was recommended. Fiber optic laryngoscopy dated December 26, 2018: periorganic deformation of upper third of the trachea and upper third of the esophagus, with subcompensated stenosis. Fine-needle aspiration biopsy of the mass in the right lobe of the thyroid gland with ultrasound navigation was completed on December 26, 2018. Cytological conclusion No. 60 of December 26, 2018: malignant neoplasm.

On January 09, 2019 the patient was admitted to RCOD with a complaint of permanent shortness of breath on minimum exertion, continuous intense pain in the occipital region, cervical spine, generalized weakness, hoarseness.

The examination detected: the larynx was displaced to the left by the tumor. In the right supraclavicular region, a dense fixed painful conglomerate of lymph nodes of up to 2cm in diameter was palpated. Dense mobile painless lymph nodes of up to 0.5 cm in diameter were palpated on both lateral surfaces of the neck. The glottis was narrowed, paralysis of the right vocal fold.

On January 10, 2019 tracheostomy and biopsy of superior mediastinum tumor was done. Intraoperative pattern looked as follows: the right lateral and posterior tracheal walls, the lower pole of the right thyroid lobe, the prethyroid muscles above the sternum, the fatty tissue were infiltrated by a gray tumor, the process was recognized as nonresectable. Histologic examination No.121546 of January 17, 2019: the malignant small-large cell tumor was detected among the fibrofatty and muscle tissue with ingrowth into the struma-type tissue of the thyroid gland, the small-cell G III carcinoma looked more probable.

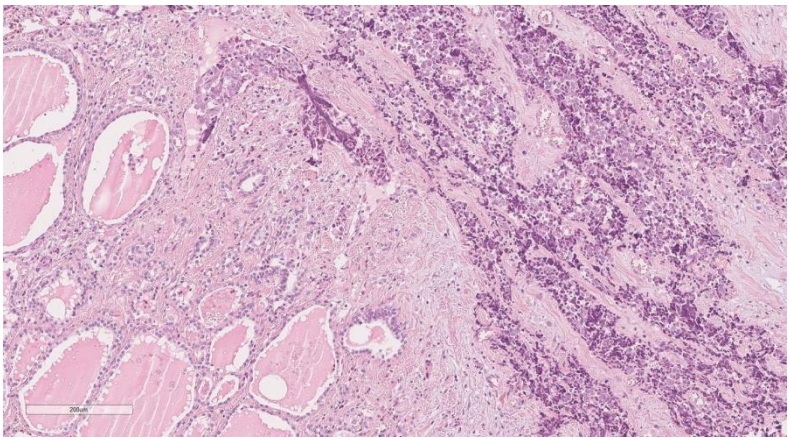

Figure 1. Histological examination.

Immune histochemical test No.122199 of January 28, 2019: cytokeratin AE1/AE3 (+); cytokeratin 7 (+); p63 (+); chromogranin (-); synaptophysin (+) locally, up to 2% of the tumor cells; thyrocalcitonin (-); TTF-1 (-); PAX8 (-/+) with background. Conclusion: papillary, follicular and medullary thyroid carcinomas were excluded; the histologic pattern and the immunophenotype of thyroid tissue evidenced the presence of G III hybrid carcinoma without signs of organ specificity (the main component was glandular squamous cell carcinoma, the minor component was

neuroendocrine carcinoma making up 2% of the tumor).

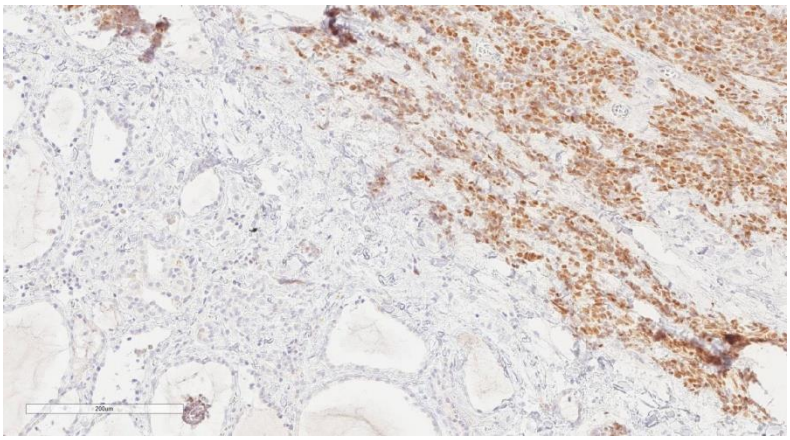

Figure 2. Immunohistochemical examination (p63).

On January 29, 2019 the case was reviewed at the interdisciplinary conference to determine further tactics; it was recommended that the patient be sent for consultation in the Federal State Budgetary Institution "N.N. Blokhin National Medical Research Center of Oncology" of the Ministry of Health of the Russian Federation (hereinafter NMRCO).

Histologic preparations were revised in NMRCO. Histological conclusion No. 8080/2019 of February 28, 2019 for blocks No. 121546: morpho-immunohistochemical pattern of the tumor did not contradict the pattern of intrathyroidal thymic cancer. Computed tomography of thoracic organs conducted on March 11, 2019 showed the following: conglomerate of merging tumor lymph nodes up to 6x4.6 cm large and up to 7 cm long was detected in the anterior mediastinum; the tumor surrounded and compressed the trachea along the right semicircle, merged with the supraclavicular, subclavicular, parasternal and paratracheal lymph nodes; common carotid artery passed in the thickness of the tumor; bifurcation lymph nodes in the mediastinum were up to 3.2x1.5 cm, parasternal lymph nodes 2.4x1.2 cm; a nodular formation up to 3.9x2.3 cm large was detected in the right adrenal gland spreading to its limbs. Taking into account the CT data the diagnosis was made: thymus cancer T1bN2M1b IVb. One line of chemotherapy was scheduled. Starting from March 22, 2019 5 cycles of chemotherapy were performed with TCarbo regimen. After 4 cycles the CT data showed positive dynamics within stabilization (-27.6%). The 6th cycle was not performed due to hematological toxicity – grade 3 thrombocytopenia, grade 1 leukopenia, grade 2 neutropenia, grade 2 anemia. Computed tomography of thoracic organs conducted on August 02, 2019 showed the following: conglomerate of merging tumor lymph nodes up to 4.6x3.4 cm large and up to 6.5 cm long was detected in the anterior mediastinum; the bifurcation node decreased to 2.1x1.1 cm, the parasternal ones on the left remained up to 2.1 cm; formation in the right adrenal gland decreased to 2.2x1.2 cm. On August 07, 2019 the patient was recommended to get medical supervision at the assigned community clinic.

On October 16, 2019 at control examination in RCOD the computed tomography of neck, thoracic organs, abdominal organs showed the following: conglomerated solid mass with irregular contours 59x72x87 mm large was detected in the superior mediastinum; mediastinal lymph nodes were up to 12x24 mm; solid mass up to 25x48 mm large was detected in the right adrenal gland, it was impossible to exclude invasion of the hepatic capsule; solid mass with a diameter of 11 mm appeared in S8 of the left lung.

On November 06, 2019 telemedicine consultation was held with NMRCO – the patient was recommended to take systemic therapy with GemCis regimen to tumor progression, capecitabine therapy could be offered alternatively.

The plan of chemotherapy with GemCis regimen was worked out at the interdisciplinary conference on November 07, 2019.

At the beginning of palliative chemotherapy the patient complained of shortness of breath at rest, generalized weakness, intense pain in the right side of the neck relieved by narcotic analgesics, discomfort in the chest; objectively the general state of the patient was ECOG 2, solid fixed conglomeration of lymph nodes with a diameter of up to 6 cm was palpated in the right supraclavicular region, bilateral paralysis of the vocal folds, the glottis was narrowed to 3 mm. The 1st chemotherapy cycle was performed; hospital treatment for the 2nd cycle was postponed due to thrombocytopenia, neutropenia. On December 23, 2019 the 2nd cycle of palliative chemotherapy was performed with GemCis regimen and the patient underwent it with grade 0 toxicity.

Control computed tomography of the neck, thoracic organs, abdominal organs conducted on December 30, 2019 showed the following: conglomerated solid mass with irregular contours 50x50x88 mm large was detected in the superior mediastinum; mediastinal lymph nodes were up to 13x18 mm; solid mass up to 15x30 mm was detected in the right adrenal gland; solid mass with a diameter up to 11 mm in S8 of the left lung showed no dynamics.

The 3rd cycle of chemotherapy with GemCis regimen was performed on January 29, 2020. The

patient underwent it with grade 2 hematologic toxicity and grade 1 emetogenic toxicity.

At the moment the patient is in a relatively satisfactory condition, complains of periodic non-intense dull pain in the right half of the occipital region, neck, right side of the chest, intensifying in side position, shortness of breath on exertion, palpitation, generalized weakness. Examination detects solid fixed conglomerate of lymph nodes of 3x3 cm large in the right supraclavicular region, skin in the right supraclavicular region is hyperemic, tracheostomy is functioning.

Conclusion. Unfortunately, the most unfavorable prognosis is observed in patients with nonresectable forms of thymus cancer. In patients who have not undergone surgical treatment the 5-year survival is 35.6%.

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POSSIBILITIES OF PREDICTION OF RECURRENT MYOCARDIAL INFARCTION

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Abstract. There 131 patients with Q-wave myocardial infarction were observed (mean age 51.9±9.13 year). For all patients were prescribed beta-blockers, ACE inhibitors, statins, aspirin and if needful antiarrhythmics and aldosterone blockators. The observational time was 24 months. During this period recurrent myocardial infarction (RMI) observed in 39 (29.7%) patients. Analysis of the data showed that of the estimated factors most important for prognosis of the RMI counts in acute early postinfarction angina pectoris, arterial hypertension, diabetes Mellitus, as well as the instrumental methods that reflect the functional state of the myocardium: LVMi, and ejection fraction. No less important was the thrombolysis in the first hours of admission, heart rate at rest, estimated at 10-14 days of the disease. In addition, we can not exclude the relationship of RMI and overweight.

Key Words: recurrent myocardial infarction, prognostic model, integrated indicator.

According to the WHO in 2005 the incidence of acute myocardial infarction (MI) increased by 32.7% compared with 1997 and amounted to 10.7 million people in a population older than 50 [Cleland J.G., Coletta A.P et al. 2005]. The frequency of recurrent myocardial infarction (RMI) is 25-29%. RMI seriously worsens the prognosis and further course of the disease, causing a cascade of complications (heart failure (HF), arrhythmias, a decrease in the quality of life), and also significantly affect mortality rates [1]. Determining the prognosis for MI is a difficult task, since it requires taking into account a large number of interrelated factors that have different prognostic significance [2,3]. Currently existing traditional approaches to risk assessment are not always perfect, which makes it difficult to choose the appropriate treatment tactics for this category of patients.

The purpose of the study was to carry out an integrated assessment of risk factors for PIM, allowing to predict its development within the next 2 years already by 10-14 days of the disease.

Materials and methods: We examined 131 male patients with primary Q wave MI, aged 30 to 69 years (51.9 ± 9.13 years). The diagnosis was established on the basis of the WHO criteria in the presence of two of three signs: a characteristic attack of anginal pain or its equivalent lasting at least 30 minutes, the appearance of pathological Q or QS in two or more ECG leads, and creatinine phosphokinase activity exceeding the upper limit norms more than 2 times. All patients were familiarized with the protocol and agreed to participate in the study. The study did not include patients with the following MI complications and concomitant pathology: atrial fibrillation; AV blockade of the II-III degree; arterial hypotension (blood pressure <100/60 mm Hg); at the age over 65; with chronic diseases complicated by renal and liver failure; decompensated diabetes mellitus; malignant arterial hypertension; oncological diseases; consequences of acute cerebrovascular accident; echo-negative patients.

At the stationary stage of AMI, treatment was carried out in accordance with the recommendations for the management of MI patients with ST segment