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Multispiral computed tomography in tongue cancer diagnostics

Relevance. Oral cancer morbidity and mortality is growing worldwide in recent years delivering 2.2% in the structure of oncopathologies. Cancer tongue occurs in 50-60% cases of malignant oral cavity tumor. Computed tomography (CT) with contrast enhancement is the "gold standard" in examination of patients with tongue cancer.

Purpose of the study was to evaluate the capacity of multispiral CT in diagnosing and assessing the prevalence of tongue cancer.

Results. The obtained data allowed assessing primary localization of the pathological process – the dorsum and root of tongue (52%), the spread of the process beyond organ (8%) - to the walls of oropharynx. In most cases (78%), soft tissues of the neck had metastatic lesions of lymph nodes. In patients with conglomerates of hyperplastic lymph nodes (16%), CT has visualized the involvement of large neck vessels (the common carotid artery and its branches, the jugular veins) into the process.

Conclusion. In tongue cancer, multispiral CT with contrast enhancement allows clarifying the prevalence of the process, assessing the condition of neck vessels, determining the condition of the neck lymph nodes which is important in choosing the appropriate method of treatment.

Keywords: tongue cancer, computer tomography.

Relevancy. Malignant tumors of oral cavity rank second in frequency among malignant tumors of head and throat after malignant tumors of the larynx. Oral cavity cancer makes about 2.2% in the structure of all malignant tumors. Tongue cancer accounts for 50–60% of malignant tumors of oral cavity. By location, the tumors are frequent in the middle third of the tongue lateral surface and in the root of the tongue, less frequent – on the lower surface of the tongue, and very rare – on the dorsal surface and the tip of the tongue.

From the point of histology, 90% of malignant tumors of the tongue belong to extensive cell cancer. Small salivary glands in the rear parts of a tongue can be affected by gland cancer (adenocarcinoma), sometimes – malignant lymphomas. Small salivary glands in the root of the tongue often produce epithelial tumors (mucoepidermoid carcinoma).

Risk factors for malignant tumors of the oral cavity are smoking, alcohol abuse, eating very hot food, incorrectly adjusted dentures traumatizing the tunica mucosa of the oral cavity, and unsanitary condition of the oral cavity.

Pre-malignant conditions of the tongue include leukoplakia, papillomatosis, and decubital tongue.

Neoplastic process in the tongue spreads rapidly and affects the surrounding tissues; it belongs to the extremely aggressive malignant tumors. Tongue cancer metastasis spread via the lymphatic system.

Computed tomography is a recognized way to visualize tumors of oral cavity including tongue tumors. Multispiral computed tomography requires increased contrast. It allows localizing the tumor, evaluating the state of the oral cavity and the cervical vessels, and plays an important role in evaluating the distribution and nature of the cervical lymphadenopathy.

Purpose of the study is to evaluate the capacity of multispiral computed tomography in the determination of spread and diagnostics of tongue cancer.

Materials and methods. 87 patients with suspected tongue cancer underwent multispiral computed tomography of oral cavity and soft tissues of the neck and pathological examination at the Department of Radiology of the Kazakh Institute of Oncology and Radiology. Age of the patients – 42 to 76 years, average age – 58. Multispiral computed tomography was performed using Light Speed VCT (GE) apparatus with enhanced contrast due to bolus administration of Visipaque (Takeda).

Results and analysis. In the study, the limited lesion of the back of the tongue was observed in 9 cases (10%), in the root of the tongue - in 26 (30%) cases, of them 1 patient had a lesion on the dorsal surface of the tongue. In 45 (52%) cases, the tumor process was localized on the back and root of the tongue, in 7 (8%) cases, the process was spread on the pharyngeal walls.

On computer-tomographic scans, tongue tumors were more often visualized as areas with uneven high density and different levels of clarity; nodular formations with clear edges and spreading non-structured tissue masses on the pharyngeal walls were less often. After enhancing contrast, the contrast agent was not intensively, non-uniformly absorbed by the masses, areas and modified pharyngeal walls.

During examination, 68 (78%) patients had metastatic lymph nodes in the soft tissues of the neck. Of them, 21 (30%) patients had multiple metastases in lymph nodes less than 1.0 cm in diameter; 47 (70%) patients had hyperplastic lymph nodes of more than 1.2 cm in diameter with an increase to large conglomerates. After enhancing

contrast, the hyperplastic lymph nodes encapsulated the contrast agent.

In 11 patients (16%) with the conglomeration of hyperplastic lymph nodes, the common carotid artery with the offshoots and the jugular vein were also affected by the process.

Conclusion. In tongue cancer, multispiral computed tomography with contrast enhancing allows evaluating the process distribution, the condition of cervical blood vessels and the cervical nodes. It is an important tool in choosing the adequate treatment methods.

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