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CURRENT VIEWS TO THE PROBLEM OF SURGICAL TREATMENT OF PULMONARY METASTASES (LITERATURE REVIEW)

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Abstract

Metastasis of tumors are one of the most important problems in modern oncology. During complex examination metastases in the lung was detected in 6 - 30% of patients with malignant tumors of any localization. In most cases lung metastases occurs in malignant kidney tumors (37.7%), musculoskeletal system (18.6%), breast cancer (15.7%), at least - in cancer and uterine sarcomas (4.2%). Despite increasing availability of different treatments there is no general consensus on treatment strategy in lung metastases, especially single and multiple. Most researchers recommend chemo-immunotherapy-hormone therapy depending on the histogenesis of malignant tumors, although in recent years appear supporters of the surgical method, as a component of combined and complex treatment.

Based on the above, the choice of rational approach to the diagnosis and treatment of metastatic lung lesions and pleura is topical problem in the practice of oncology.

Keywords: lung metastases, surgical treatment.

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Introduction

A large number of works [1,2,5,6,9,13,16,19, etc.] are devoted to metastatic lung tumors, their diagnosis and treatment.

Malignant tumors of almost all localizations metastasize to the lung, but the most frequent are primary tumors of bone, testicle, kidney, breast, soft tissues, colon, genital organs, melanoma.

Without touching upon the whole problem of treatment of patients with pulmonary metastases, we note that surgical treatment is mainly subject to single and isolated metastases, both uni- and bilateral, making up 8-40% of all cases of metastatic lung lesions [1,6,8] and occurring in 1.5-5% of thoracotomies performed for lung malignancies [11,14].

Despite the actual generalization of the process, in surgical removal of solitary and single metastases to the lungs the long-term results are not worse than in radical operations for primary lung cancer - in 20-30% and even in 50% of cases there is a 5-year survival rate [3,7,10,14,20].

The survival rate after surgical removal of pulmonary metastases is 2-3 times higher in patients whose primary tumor was localized in the zone of outflow through the vena cava compared to patients whose primary focus was in the zone of outflow through the portal vein (stomach, colon) [11], but opinions on this matter are controversial [17].

Combination of surgical intervention with chemo-, radiation and immunotherapy in various combinations [7,16,20] contributes to the improvement of long-term results of surgical treatment of metastatic lung tumors, which depends on the histological structure of the primary tumor, its sensitivity to ionizing and chemical effects.

The clinical picture of metastatic lung lesions is very scanty, it can be more pronounced when bronchi of different caliber are directly or indirectly involved in the process - then it is very similar to the clinical picture of central lung cancer (cough, hemoptysis, chest pain), but it occurs infrequently - in 15-30% of cases [6,14].

The main method of diagnostics of secondary lung lesions remains radiologic. Regular radiological control of lungs in patients operated earlier radically for extrapulmonary tumors makes it possible to detect metastatic lung lesions in time and perform necessary therapeutic measures [4,10,21].

I.Neifeld et al. [15] recommends always taking lung tomograms to detect metastases in X-ray-negative images.

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Currently, in patients with detected intrapulmonary metastases, indications for surgical intervention are determined by the degree of surgical risk, absence or complete regression of the primary tumor and metastases to other organs, and histological structure of the primary tumor [15].

Surgical intervention can be justified only by satisfactory long-term results. The latter depend on the period between the removal of the primary tumor and the appearance of pulmonary metastases and the time of doubling of pulmonary metastases [14]. The longer the period between the treatment of the primary focus and the appearance of pulmonary metastases, the more likely the absence of metastases to other organs and tissues [11,13]. According to many authors [8,12,15], surgical intervention on the lungs is justified only in cases when this interval is 12-24 months or more.

Important importance is also attached to the doubling time of detected and traced pulmonary metastases. A poor distant result was noted in cases when the doubling period of metastases was less than 40 days, especially less than 20 days, indicating high "aggressiveness" of the tumor and weakness of the body's immune defense [4,6,8]. Conversely, when the doubling time of pulmonary metastases exceeded 40 days, their removal was more favorable and more than 5 years in this group lived 60-65% of patients. [6,18,21].

Chemotherapy in combination with surgery is especially indicated for patients with pulmonary metastases with a doubling time of less than 40 days [8]. There is a direct correlation between the duration of the period after removal of the primary tumor and the appearance of pulmonary metastases, on the one hand, and the doubling time of pulmonary metastases, on the other hand. The shorter this interval, the shorter the time of pulmonary metastases volume doubling, the worse the prognosis after their surgical removal [3,7].

Important full-fledged preoperative examination of patients to exclude metastatic lesions of other organs. For this purpose, along with a thorough external examination, liver and brain scanning and echography, bone marrow puncture with cytologic examination, mediastinoscopy and biopsy [9] are performed along with a thorough examination of the primary focus area to exclude the presence of disease recurrence. In patients with a primary focus in the portal vein outflow zone, laparoscopy or even laparotomy is also mandatory to exclude liver damage [16].

At the same time, a thorough radiological examination of the lungs is carried out to clarify the localization, number and size of metastases in them. For this

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purpose, in addition to conventional radiographs in two projections, oblique radiographs and obligatory tomograms are performed. The number of the latter reaches 15-18, with additional metastases up to 3 mm in diameter being detected in about 15% of cases [6,16,20], as well as multiple lung lesions.

According to some authors [21], the histological structure of the tumor does not affect the long-term results, while others [12] see a direct dependence of the long-term results on the histological structure of the tumor. I.Neifeld et al. [15] believe that primary cancerous tumors have a better prognosis than sarcomas. The age and sex of patients do not affect the long-term results [9].

In bilateral metastatic lung lesions, both two-stage and one-stage surgeries are recommended. In two-stage operations, intervention on the less affected side is recommended first, and 2-4 weeks later surgery is performed on the other lung [19,22]. Simultaneous surgery on both lungs is predominantly performed by median longitudinal sternotomy [14,21].

In recent years, there are more and more reports on successful surgical treatment of multiple lung metastases [2,5,9,18], with a 5-year cure rate in 15-25% of cases.

The scope of surgical intervention on the lung in its secondary lesions can vary from pulmonectomy to cryodestruction of metastases in multiple lesions. The share of pulmonectomies in surgical treatment of secondary lung lesions is relatively small - 6-20% [11,13,19]. The indication for pulmonectomy is usually a large size of the metastasis, which has replaced almost the entire lung tissue, or localization in the area of the main bronchus, often with secondary atelectasis of the lung.

Lobectomy for secondary lung lesions is performed in 25-35% of all radical interventions [7]. Its performance with simultaneous lymphadenectomy gives the best long-term results [10]. Wedge and segmental lung resections at their secondary lesions make 60-80% of all radical lung surgeries and their number continues to increase [12].

In multiple, especially bilateral lesions, when the number of metastases is counted in tens, the lung intervention is minimal in volume and consists in painstaking single and bilateral cryodestruction of metastases.

Continuous radiologic control after surgery for secondary lung lesions allows timely detection of new new metastases or recurrences and performing repeated lung surgeries with satisfactory long-term results [9,10]. Such necessity occurs in 10-20% of cases [16,20].

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The increase in the number of radical interventions in secondary lung lesions, noted everywhere in recent years, is significantly inferior to the growth of combined methods of treatment of secondary lung tumors, when surgery is one of the components of treatment. This is due to statistically reliable better long-term results of using a combined method compared to surgery alone [4,8,15].

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