

# **SURGICAL TREATMENT LUNGS METASTASES OF KIDNEY CANCER**

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**Summary.** The analysis of 73 long-term results of treatment of patients with metastatic kidney cancer to the lungs. The estimation of the feasibility of surgical removal of lung metastases in this pathology. The method of treatment of patients with metastases to the lungs depends on the nature of the primary tumor, radicalism previous treatment, the tumor volume of the lung. The efficacy of surgical and combined treatment of patients with metastatic kidney cancer in the lungs.

**Key words:** malignant tumors of kidney, lung metastases, surgical treatment, complex treatment.

## **Introduction.**

Questions metastasis (causes, differential diagnosis, treatment approaches) remains one of the most pressing problems of oncology. In the practice of Thoracic Surgeons metastatic lung lesions occur quite often. This is due to the fact that the organs of the chest, especially the lungs are one of the most favorite places of metastasis of malignant tumors. Often, such a development of the disease is one of the causes of death for cancer patients [1]. The frequency of metastasis of malignant tumor in the kidney lung, according to various authors, varies from 25% to 49.5% of the number of cases [2, 6, 5]. In 70-90% of cases of metastasis are in the "mantle" lung zone. [7] The spread of metastases in the lungs most often occurs lymphohematogenous way - to 50.0 - 81.8% of the cases, at least - hematogenous (9.4 - 30.2%) and lymphatic (4.3 - 23.5%) pathways [2, 9].

Until recently, the occurrence of distant metastases in the lungs and other organs was considered a sign of tumor dissemination and hopelessness patient. Such patients are often prescribed only symptomatic treatment or admitted they were not subject to the active treatment. However, now it is proved that the timely and careful application of modern methods of treatment for a long time can extend the

life of the patient, to improve its quality, and in some cases completely cure the patient.

The method of treatment of patients with metastatic renal cancer to the lungs depends on the localization and histological structure of the primary tumor, before the character of the treatment, the timing of detection of metastases and of their anatomical location in the lung tissue, physical condition of the patient [4, 8, 10]. Lung metastases can be divided [3, 7]: the number of - solitary (1), single (2 - 3), multiple (more than 3); localization - single-sided.

The first report on the successful outcome of surgical treatment of metastases to the lung belongs to Barney JD, Churchill ED (1939). In the 1940 report followed E. Churchill on the first re-resection of both lung metastases. In the Soviet Union the first resection of lung metastases of extrapulmonary malignancy produced BE Linberg in 1948 by pioneers of surgery of pulmonary metastases were AA Wisniewski, ES Lushnikov, IG Skrizhinskaya, AI Pies, AI Maximov. However, despite the fact that the surgical removal of metastases is performed for over 40 years, patient selection criteria for this time have not changed, first, the complete removal of the primary tumor or the possibility of removing it, and secondly, the absence of other symptoms of metastatic disease, in Third, the number of nodes must be limited and available to complete surgical removal, and finally the patient should move the planned surgery. In recent years, the indications for surgical treatment of active pulmonary metastases increased significantly [3].

Choice of treatment tactics in metastases of malignant kidney tumors in the lungs caused by the specific objective evidence. Based on the analysis of their extensive clinical experience, we have set the task to evaluate the results of various therapeutic approaches and determine whether surgical removal of lung metastases in this category of cancer patients.

## **Materials and methods**

The Department of tumors of the chest cavity of the National Cancer Institute over the past 25 years were followed up 73 patients who underwent surgical removal of lung metastases of malignant tumors of the kidney. Adult patients with a diagnosis of kidney cancer was 52 (71.23 + 5.3%). In 21 patients (28.77 + 5.3%) diagnosed childhood nephroblastoma. Men (44) were 60.27 + 5.73% of the patients, women (29) - 39.73 + 5.73%. The patients' ages ranged from 1 year to 73 years, average - 39.4 years (mean age was 53.2 years old adults, children - 5.3 years).

Planning the surgical removal of lung metastases was performed with regard to the need of chemotherapy (with nephroblastoma in children), which allows for combination therapy. In the case of the establishment of stage IV disease at diagnosis, treatment was initiated with the primary tumor, and later performed surgery on the lungs.

In children with Wilms' tumor in order to achieve partial response or stabilization process was carried out according to standard neoadjuvant chemotherapy techniques, and postoperative treatment for lung supplemented adjuvant chemotherapy.

In adult patients with metastatic kidney cancer in the first place, it was a question about the possibility of surgery and in the postoperative period in the adjuvant immunotherapy operation was carried out (using interferon) outpatients.

In selecting patients for surgery on the lungs necessarily excluded metastases to other organs and systems. Responsible is to determine the possibility of bilateral removal of all lesions with single-stage or two-stage delayed operations, and also takes into account the ability to save sufficient functional reserve of the rest of the lung.

## **Results and discussion**

In the surgical treatment of metastatic lung lesions in most cases, one-sided thoracotomy was performed - in 58 (79.45 +4.73%) patients, at least two-sided - in 15 (20.55 +4.73%) patients. Metastatic kidney cancer often affects the right lung

(36 cases) -  $49.32 \pm 4.73\%$ , than the left (22) -  $30.14 \pm 4.73\%$ , metastases in the lungs of the two were 15 patients ( $20.55 \pm 4.73\%$ ). Bilateral removal of pulmonary metastases most often performed in stages with an interval of 2-3 weeks. In the absence of contraindications, 6 patients ( $8.22 \pm 3.21\%$ ) young patients with solitary and isolated bilateral metastases are made cross-sectional bilateral sparing resection of the lung. Depending on the number of metastases often conducted operations with solitary metastases - in 30 ( $41.1 \pm 5.76\%$ ) patients in the unit - in 25 ( $34.25 \pm 5.55\%$ ) and multiple - in 18 ( $24, 66 \pm 5.04\%$ ) patients. If patients during long-term observation revealed new metastases in the lungs - these patients were subjected to repeated pulmonary resections including the preservation of sufficient pulmonary reserve and the absence of contraindications to surgery.

By the volume of surgical procedures in order to maintain sufficient respiratory reserve often performed atypical pulmonary resection and edge - 68 ( $93.15 \pm 2.96\%$ ), at least lobectomy - 5 cases ( $6.85 \pm 2.96\%$ ), pneumonectomy were carried out. Optimal surgical removal of lung metastases in must be considered economical resection (atypical and edge), at least - lobectomy. Performing pneumonectomy for lung metastases is undesirable, although permissible in solitary nodes of large dimensions.

According to the cancer-registry of the National Cancer Institute, we analyzed the long-term results of treatment of patients with malignant tumors of the kidney after surgical removal of lung metastases (Table 1).

Table 1. Survival of patients with malignant tumors after surgical removal of kidney lung metastases

Observation interval	Survival (%)
3 years	$80,1 \pm 5,0$
5 years	$72,8 \pm 5,7$
10 years	$43,9 \pm 7,7$
15 years	$20,9 \pm 9,2$

The table shows that the results justify our chosen treatment strategy in patients with metastatic kidney cancer in the lungs, as 72.8% of patients survived 5 years, 43.9% - 10 years, and 20.9% - live more than 15 years .

Given the differences in the character of the differing approaches to the treatment of nephroblastoma in children and kidney cancer in adults, we analyzed the survival of patients according to age (Table 2).

Table 2. Survival of patients with malignant tumors after surgical removal of kidney lung metastases, depending on age

Observation interval	Survival (%)	
	Adults	Children
3 years	84,3 ± 5,5	68,9 ± 10,1
5 years	75,0 ± 6,8	60,7 ± 10,9
10 years	41,2 ± 9,2	33,1 ± 13,0
15 years	14,5 ± 10,0	6,2 ± 6,7

There were no significant differences in the long-term results of treatment of malignant kidney tumors in adults and children, we have not detected ( $P > 0.05$ ). In children, the survival rate of patients is somewhat worse because of the high aggressiveness of the tumor.

### **Conclusions.**

Currently, there is no clear approach to the treatment of cancer patients with metastatic disease of the lungs. The outcome of the study have led us to change the tactics of treatment of patients with metastatic kidney cancer to the lungs.

If earlier the detection of distant metastases was a sign of tumor dissemination and patients were prescribed only symptomatic treatment, then our long-term results suggest the feasibility of surgical removal of lung metastases in patients with malignant tumors of the kidneys in order to improve treatment outcomes.

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