

glutathione reductase erythrocytes, mkmol/s*mg the squirrel		p<0,001	p<0,001	p<0,001 p <sub>1</sub> <0,001 p <sub>2</sub> <0,001	p<0,001 p <sub>1</sub> <0,001 p <sub>2</sub> <0,001
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The note: n - number surveyed; p - a significance value of authentic distinctions in comparison with control; p<sub>1</sub> - a significance value of authentic distinctions in comparison with indicators before treatment; p<sub>2</sub> - a significance value of authentic distinctions in comparison with indicators of group 1; p<sub>3</sub> - a significance value of authentic distinctions between indicators of groups 2 and 3.

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### **Main principles of appointment to surgical treatment for patients with pulmonary tuberculomas in an Extreme-North region.**

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Based on analysis of features seen in development variants of different types of tuberculomas in 302 patients living in the Extreme North, differential approach to surgical treatment has been formulated. Using clinically and morphologically grounded treatment approach, which allows for development variants in different clinical anatomical types of tuberculomas, not only helps to conduct an adequate chemotherapy regime, but also enables to perform surgical interventions at early stages during clinical follow-up. Implemented to medical practice, this differential approach to chemotherapy and surgical treatment of patients with pulmonary tuberculomas based on main features in development variants and clinical course of tuberculomas remarkably decreases the probability of tuberculosis relapse.

**Keywords:** morphogenesis, surgery, pulmonary tuberculoma, Extreme North.

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**Introduction.** Until now there is no universally accepted approach to treatment of patients with pulmonary tuberculomas. Some authors state, that tuberculomas are a form of tuberculosis that do not require active medical intervention, as long as tuberculomas usually have favorable prognosis with a tendency towards clinical resolution and long-term stabilization. [3]. Other researchers point out the potential threat to patient's health due to a strong probability that tuberculoma will progress to a disease in future, and hence conclude the necessity of surgical resection. [2, 4].

One of the reasons for inconsistency in approaches to treatment of patients with tuberculomas is that the decisions made in this question do not always account for existing pathogenesis and morphogenesis variants of development seen in different types of tuberculomas. In this respect, study of pathogenesis variant features of tuberculoma development under environmental and socio-epidemiological conditions of the Extreme North appears to be an interesting contribution to development of novel approaches to treatment of tuberculosis.

**The aim of the study** was to define the criteria for appointment of patients to surgical treatment, based on variant development features of the different types of pulmonary tuberculomas under conditions of the Extreme North.

**Materials and methods.** Morphological variants of tuberculomas were studied by clinical radiological observation of the causes of tuberculomas and histological examination of resected material, in 302 patients. Pulmonary tuberculomas were classified to anatomical types by the classification of M.M. Averbakh (1969). There were 213 (70.5%) men and 89 (29.5%) women. Persons of middle age (53.3%) and young persons (31.1%) predominated. The proportion of the elderly-aged patients (60 years and elder) was 15.6%.

**Results and discussion.** Based on analysis of development variants for different types of tuberculomas in 302 patients, clinically and morphologically grounded treatment approach has been formulated. We proceeded from the principle of differential approach to predicting the primary form and the clinical manifestation features of the tuberculoma later on.

The major criteria for determining treatment approach were the size of tuberculoma, the presence of destruction areas, and primarily, distinctive features characterizing the development variants of tuberculomas. Tuberculomas that developed as a result of infiltrative, disseminated or cavitary tuberculosis, became active or progressive more often, and melting of tuberculoma in the course of treatment was not unusual, in which cases development of a cavity with tuberculous seeding foci followed.

To our knowledge, this is the first time, when, based on the observed features in the development variants and clinical course variants of the different types of pulmonary tuberculomas, **clinically and morphologically grounded indications to surgery** have been formulated and applied to medical practice:

**1. Tuberculomas (manifested as either homogeneous mass, or a filled cavity)** that developed due to infiltrative, disseminated or cavitary tuberculosis, by nature of their morphological features, often cause progressive tuberculous process with high incidence of drug resistant *M.tuberculosis*. This dramatically reduces chances for healing by conservative treatment and calls for early surgical treatment by absolute indications, irrespective of the size or activity of such tuberculomas.

**2. Tuberculomas (there are 2 types of these: laminated and infiltrative-pneumonic)** that had formed as a result of focal tuberculosis or rounded pneumonic focus, by nature of their anatomical structure, can persist for a long time without transforming to progressive tuberculous process and without emergence of drug resistant *M.tuberculosis*. For tuberculomas that developed from focal tuberculosis or rounded pneumonic focus, a large size alone or medium

size with presence of necrotic debris is an **absolute indication** for surgical treatment. Medium size without necrotic debris and small size are considered as **semi-elective indications**.

Implementation of clinically and morphologically grounded indications for surgery of pulmonary tuberculomas required adjustments to organization of patient waiting list in the surgical department. Depending on features seen in tuberculoma formation variants, and chemotherapy intensity and duration, the patients with indications to surgery should be divided into **2 groups**:

**Group 1** includes patients with newly identified lung tuberculomas that had evolved as an outcome of tuberculosis therapy. These patients are referred to surgical department after chemotherapy course and after determination of indications for operative intervention, unless a patient has pulmonary hemorrhage or haemoptysis, both of which are salvage indications for surgery.

**Group 2** includes newly identified patients with fully formed pulmonary tuberculoma without signs of active tuberculosis. Patients from this group can be referred to surgical department immediately after detection of their disease.

The proposed approach to patient treatment maximally reduces the time from disease detection to scheduling of surgery. Furthermore, elective surgical interventions are performed in due time, not when all possibilities of anti-tuberculosis therapy have been exhausted and the patient has started to experience serious reduction of bodily compensational and functional abilities.

Let us stress, that in active detection of patients, the affordance of identifying main features in formation variants of the different types of tuberculomas, and predicting their clinical course, was as important as preventive measures. Thorough study and description of main features in clinical and morphological manifestations of different types of tuberculomas enabled finally to formulate **the principles for detecting and appointing patients to surgical treatment**:

**1. Newly identified patients with fully formed pulmonary tuberculomas** without clinical or radiological signs of active tuberculous process can be appointed for surgery, skipping the preliminary anti-tuberculosis therapy. This patient group is mostly ( $79.5 \pm 2.8\%$ ;  $p < 0.01$ ) comprised of patients with laminated or infiltrative-pneumonic type of tuberculomas associated with predominantly productive course of disease.

**2. Patients with infiltrative, disseminated and cavitary forms of tuberculosis** must be followed-up by surgeons and tuberculosis specialists (phthisiatrists) as the group of most likely potential source of tuberculomas of a homogeneous type or a “filled cavity”-type. In this patients group, elective surgical consultations must be conducted at certain stages of intensive chemotherapy, depending on an extensiveness and clinical course of the specific pathological process. The initial surgeon consultation takes place during the first months after tuberculosis detection, when the surgeon, in collaboration with the district tuberculosis specialist (phthisiatrist), plans the treatment approach. Next consultation with the surgeon should be taken at the third or fourth month during intensive phase of chemotherapy, because tuberculomas mostly form at this phase of therapy.

To conclude, the formulated criteria for appointing patients to surgical treatment depending on clinical and morphological development conditions for different types of tuberculomas, required in the end not only rearrangements in hospitalization wait list of the surgical department, but also timely performance of appropriate elective surgical interventions, in order to avoid the situation of resorting to surgery only after all possibilities of anti-tuberculosis therapy had been exhausted.

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### **Optimization of endovascular treatment tactics of patients with large and giant cerebral arteriovascular malformations**

**R.R. Bayramov, P.I. Nikitin, V.S. Panuncev, K.Yu. Orlov**

Urgency. Arteriovenous malformations (AVM) - are shown in 0.06 %-0.11 % of observations among brain vascular diseases. Diagnostic possibilities define frequency of diffusion of disease [1]. Large and giant AVM affect 16 to 35 % of all patients with this pathology. Their main clinical symptoms are intracranial bleedings (52-71 %), epileptic seizures (23-40 %), headaches and progressive neurological deficit (12%) [6, 7]. The lethality and rasping invalidism caused by large and giant ABM makes up 1 % and 1.5 % accordingly. The main objective of surgical treatment is excluding AVM from blood circulation, in connection with high risk of a repeated hemorrhage [3, 4, 5].

The majority of presented AVM classifications can be divided into 3 categories considering morphological characteristics, features of hemodynamic and parameters important for surgical treatment cerebral AVM. Medvedeva J.A., Matsko D.E. (1993) describe