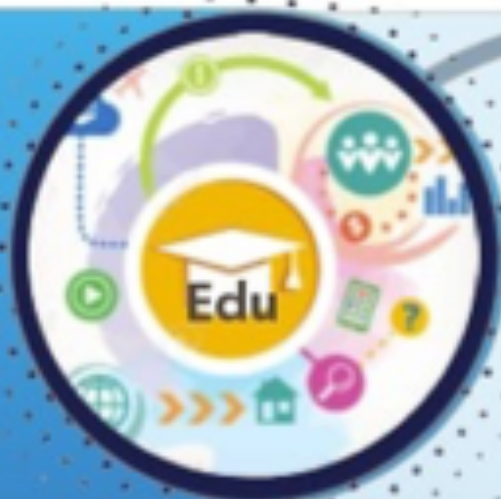


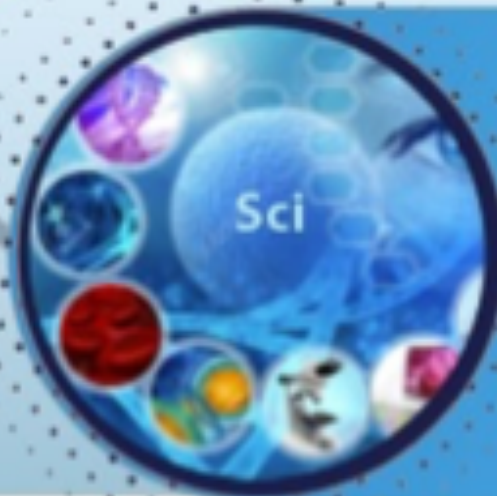


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## Morphofunctional Assessment of the Features of Manifestations of Acute Purulent-Destructive Lung Diseases

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### ABSTRACT

**Background.** To date, the issues of structural restructuring of the respiratory part of the lungs in connection with the restructuring of the microcirculatory bed in patients with acute purulent-destructive lung diseases remain insufficiently studied.

**Material and methods.** The study is based on data from 175 patients, including 129 patients with acute lung abscesses, 22 patients with pulmonary gangrene and 24 patients with chronic bronchitis. Morphometric studies were carried out using ImageJ graphics packages.

**Results.** In patients with acute abscesses and gangrene of the lungs, certain associated changes in the large bronchi of the catarrhal and sclerotic bronchitis, with a predominance of dystrophic changes, denudation of basal cells, enlargement of intercellular spaces and instability of the bronchial epithelium, which is manifested by the proliferation of goblet cells and a nested change in the functional activity of the cells of the epithelial layer.

**Conclusion.** Morphological and immunohistochemical studies revealed stereotyped variants of the structural reorganization of the microcirculatory bed of the respiratory part of the lungs.

**Keywords:** Acute purulent-destructive lung diseases, pulmonary gangrene, acute and chronic lung abscess, morphological diagnostics of the respiratory region

### INTRODUCTION

The persistence of a high incidence of acute purulent-destructive lung diseases, low quality of life, high mortality and disability determine the urgency of the problem of their treatment [1-3].

Clinical and morphological studies conducted in recent years have shown that the nature of the course of acute purulent-destructive lung diseases is largely determined by the reactivity of the macroorganism [4].

In the pathogenesis of acute purulent-destructive lung diseases, there are three main links, the interaction of which determines the course of the disease. These are impaired bronchial permeability, an acute infectious inflammatory process in the pulmonary parenchyma, and impaired blood flow in the microcirculatory system, leading to the destruction of lung tissue [5-6].

Blockade of microcirculation in the affected area and intensive deposition of fibrin both in the microvessels of the organ and in the surrounding interstitial tissue of the lung leads not only to the development of ischemic and

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inflammatory disorders but also impedes the access of drugs to the focus of destruction, which reduces the effectiveness of treatment and causes destabilization of cell-stromal interactions in the lesion [7].

On the other hand, the failure of the primary fibrin block leads to the progression of the inflammatory process and the involvement of new anatomical structures of the lungs, which negatively affects subsequent reparative processes due to the presence of a predominantly intracellular form of regeneration in the respiratory part of the lungs [8].

At the same time, the issues of structural restructuring of the respiratory part of the lungs in connection with the processes of fibrin formation and fibrinostabilization, changes in the functional activity of cell populations of the inflammatory infiltrate, and reorganization of the microcirculatory bed remain insufficiently studied. This substantiates the expediency of the above-mentioned directions in the study of the problem of acute purulent-destructive lung diseases.

## MATERIAL AND METHODS

The study is based on data from 175 patients, including 129 patients with acute lung abscesses, 22 patients with pulmonary gangrene and 24 patients with chronic bronchitis. Among the patients with purulent-destructive lung diseases, there were 128 (84.8%) men and 23 (15.2%) women. Patients ranged in age from 22 to 80 years, with an average age of  $51.8 \pm 11.8$  years. Among patients with chronic bronchitis, there were 20 (83.3%) men and 4 (16.7%) women aged 22 to 77 years, the mean age was  $47.6 \pm 2.31$  years.

The criteria for excluding patients with pulmonary destructive processes from the study were: lung destruction of specific etiology (tuberculosis, syphilis) and lung cancers accompanied by pulmonary parenchymal destruction.

In accordance with the tasks set in the work, a morphological study of bronchial biopsies of large bronchi was carried out in 35 patients aged 32 to 65 years with acute abscesses without sequestration (28 patients), acute abscesses with sequestration (4 patients) and gangrene (3 patients) of the lungs. They made up the main group. The comparison group included 24 people suffering from chronic bronchitis.

In order to assess the nature and severity of morphological changes in the respiratory part of the lungs in purulent-destructive lung diseases, 116 studies (95 men and 21 women aged 24 to 80 years) of the tissues of the res-

piratory part of the lungs were carried out. Depending on the clinical form of purulent-destructive lung diseases, the observations were divided into two groups. The first group consisted of 97 patients with acute abscesses, including 69 patients with acute lung abscesses without sequestration and 28 patients with acute abscesses with sequestration. The second group included 19 patients with pulmonary gangrene.

Histological treatment of tissues was carried out according to the generally accepted method, sections with a thickness of 4-6  $\mu\text{m}$  were stained with hematoxylin and eosin, Weigert's picrofuchsin, according to Gordon-Sweet, according to the method of A.N. Yatskovsky.

To determine the expression of type IV collagen and podoplanin, the method of double indirect immunofluorescence was used.

The Zeiss Axioscop 40 microscope (Carl Zeiss, Germany) was used for the study.

Morphometric studies were carried out using ImageJ graphics packages. The obtained data were processed statistically using computer programs JMP 5.1, and SigmaStat 3.10 for Windows. The results of the work are presented in the form of values  $X$  (arithmetic mean)  $\pm m$  (mean error).

Intergroup differences were assessed using the Mann-Whitney U-test or the Holm-Sidak test with a normal distribution of the trait and equality of variances, and qualitative traits were compared using the x-squared ( $\chi^2$ ) test. The level of statistical significance was  $p < 0.05$ .

## RESULTS

In the conditions of acute purulent destruction, morphological changes of the large bronchi of the type of catarrhal or sclerosing bronchitis were observed, with an excess of the frequency of these changes in chronic bronchitis. The incidence of catarrhal-sclerosing forms of bronchitis in acute purulent-destructive lung diseases was less than in patients with chronic bronchitis.

In the integumentary epithelium of the large bronchi of patients with acute purulent-destructive lung diseases, the ciliated border was often disturbed, the number of goblet cells was normal or moderately elevated. Signs of focal hyperplasia of goblet cells were noted in 28.6% of cases, basal cells - in 17.1%. In patients with chronic bronchitis, there were few goblet cells, their hyperplasia was noted in 8.3% of cases, while pronounced focal hyperplasia of basal cells was observed in 50% of cases.

In the conditions of the development of acute purulent destruction in the integumentary epithelium of the large bronchi, dystrophic changes prevailed (68.6%). In 60% of cases, disintegration of epithelial layer cells with the formation of interepithelial cavities was determined. A nested decrease in the functional activity of epithelial cells was noted.  $26.8 \pm 4.32\%$  of epithelial cells retained functional activity. The basement membrane was homogenized, of uneven thickness, averaging  $4.82 \pm 0.16$   $\mu\text{m}$ . Polymorphic subepithelial infiltration was characterized by low intensity and focal character.

Patients with chronic bronchitis were characterized by atrophic changes in the epithelium (45.8%). Nevertheless, the functional activity of epithelial cells was reduced to a much lesser extent than in patients with acute purulent-destructive lung diseases:  $68.4 \pm 5.67\%$  of epithelial cells remained functionally active. An increase in the intercellular spaces between the epithelial cells of the integumentary epithelium was observed much less often than in patients with acute purulent-destructive lung diseases (8.3%).

There was a thickened, sclerosed basement membrane of the epithelium, its thickness averaged  $8.12 \pm 0.3$   $\mu\text{m}$ . Subepithelial polymorphocellular infiltration with a predominance of macrophages and lymphocytes was determined. Expansion of the elements of the microcirculatory bed and lymphatic capillaries against the background of sclerotic changes of the lamina propria was revealed.

Thus, in the biopsies of large bronchi of patients with acute abscesses and gangrene of the lungs, morphological changes of the type of catarrhal or sclerosing bronchitis prevailed. At the same time, dystrophic changes, denudation of basal cells, disintegration of epithelial cells and enlargement of intercellular spaces, instability of the bronchial epithelium, which was manifested by the proliferation of goblet cells and a nested change in the functional activity of cells, prevailed in the integumentary epithelium. The basement membrane was moderately thickened, uneven in thickness, and homogenized.

In patients with acute lung abscesses, the clinical picture was characterized by chest pain in 65% of patients, cough with sputum production in 94.9%. All patients reported anorexia, weakness, fatigue, and shortness of breath. In 92.8% of patients, the body temperature was elevated. In 55.7% the body temperature was from 37°C to 38°C, in 30.9% - 38°C and above. 67.0% had weight loss. Plasma protein below 65 g/L was observed in 29.9% of patients. All patients had high activity of the inflammatory process according to laboratory methods,

high ESR (48.5% more than 40 mm/h, maximum value 75 mm/h), C-reactive protein, fibrinogen, leukocytosis, shift of the leukocyte formula to the left.

In the majority (56.7%) of patients, the right lung was affected, the left lung was affected less often - in 30 (30.9%) patients. The lower lobe of the right lung was affected more often (28.9%), the upper lobes of the right and left lungs were affected by the pathological process approximately equally often (11.3% and 10.3%, respectively). Bilateral pulmonary suppurations were diagnosed in 12 (12.4%) patients.

In 41.3% of patients, the condition was severe (33%) and extremely severe (8.3%) at admission. 11.3 per cent had mild severity and 47.4 per cent had moderate severity.

In the analyzed group, 43 patients had complications. In 39.2% of patients - pyopneumothorax and pleural empyema, in 12.4% - sepsis, in 7.2% - pulmonary hemorrhage, in 3.1% of patients - phlegmon of the chest wall.

Morphological examination made it possible to identify three variants of histopathological reorganization of the respiratory tract in patients with acute lung abscesses. These structural variants had distinctive features depending on the degree of expression of the processes of fibrin formation and fibrinostabilization, the functional state of the cell populations of the inflammatory infiltrate, and the nature of disturbances in the microcirculatory bed of the respiratory part of the lungs.

The first morphological variant was observed in 58% of patients with acute lung abscess without sequestration and in 7.1% of patients with acute lung abscess with sequestration. The focus of purulent destruction was well limited from the surrounding tissues to "young" fibrin deposits, with a period of fibrin formation from 2 to 48 h. The inflammatory cell infiltrate contained  $61.8 \pm 2.19\%$  neutrophils,  $33.4 \pm 0.97\%$  macrophages, and  $4.76 \pm 0.1\%$  lymphocytes. In the area of the fibrin block, the formation of microcavities around the cell populations of the inflammatory infiltrate was observed. The membrane receptors of macrophages, neutrophils, and lymphocytes were not blocked by fibrin deposits, and thus the cells were able to perform their inherent biological functions.  $61.7 \pm 2.21\%$  of macrophages,  $82.1 \pm 3.08\%$  of neutrophils, and  $89.5 \pm 2.39\%$  of lymphocytes retained functional activity.

The microvessels in the area of limitation of the acute purulent-destructive focus were full-blooded. There was no presence of fibrin deposits in their lumen, only in isolated cases a delicate network of "young" fibrin was ob-

served in the hemocapillaries on the surface of leukocytes. Thus, the patency of blood vessels for the formed blood elements was preserved. The relative cross-sectional area of the vessels was  $14.7 \pm 1.09 \mu\text{m}^2$ , the number of vessels per unit area was  $3.45 \pm 0.37 \mu\text{m}^2$ .

Immunohistochemical verification of type IV collagen revealed local sites of cleavage and destruction of the basement membranes of alveolocytes and endotheliocytes. Fixation of basement membrane fragments on the fibrin matrix was observed.

The vessels of the deep lymphatic system of the lung were well visualized. The lymphatic vessels that were in the focus of purulent destruction or on the border with it were subjected to the greatest damage. Exfoliation of the endothelium of lymphatic vessels, deformation and destruction of their walls were determined. Lymphatic vessels located in the restricted zone and in more distant areas, as a rule, retained their morphological structure.

All patients with the presented variant of morphological transformations of the respiratory tract noted chest pain, pronounced signs of respiratory failure were observed (an increase in respiratory rate of more than 22 per minute in 84.1%, cough with sputum production in 95.7%, including more than 200 ml per day in 30.4%), and moderate signs of intoxication syndrome (body temperature of more than  $38^\circ\text{C}$  was noted in 31.9%, systolic arterial pressure of less than 100 mm Hg in 33.3% of patients).

The second morphological variant was observed in the overwhelming majority of patients (85.7%) with acute lung abscess with sequestration and in 26.1% of patients with acute lung abscess without sequestration.

In the respiratory part of the lung, the predominance of fibrin formation over fibrinolysis was noted. At the same time, there was a pronounced limitation of the purulent-destructive focus by "young" and "maturing" fibrin. In the area of the fibrin block, fibrin deposits formed a dense network, into which cell populations of the inflammatory infiltrate were literally "embedded". It contained a moderate number of neutrophils and macrophages ( $54.8 \pm 1.64\%$  and  $44.2 \pm 1.46\%$ , respectively) and a low content of lymphocyte cells ( $0.98 \pm 0.03\%$ ). Such closure of cells in a "fibrin cocoon", blocking their functional activity, led to the impossible elimination of "young" and "young" fibrin, its maturation and the development of sclerotic changes. Functional activity was maintained in  $58.8 \pm 2.22\%$  of neutrophils,  $49.8 \pm 1.38\%$  of macrophages, and  $60.8 \pm 1.73\%$  of lymphocytes.

Massive fibrin deposits were detected in the lumen of blood vessels, with impaired patency of blood vessels. Exfoliation of the endothelium, swelling of the vessel wall, its infiltration by lymphohistiocytic rad cells, and conglomerates of mononuclear cells in the lumen of the vessels were observed.

The relative cross-sectional area of the vessels was  $9.68 \pm 1.23 \mu\text{m}^2$ , the number of vessels per unit area was  $3.63 \pm 0.69 \mu\text{m}^2$ .

Cleavages and destruction of basement membranes were extended, occupying from 20 to 50% of the circumference of microvessels. In some cases, pronounced destructive changes in basement membranes were observed with the preservation of collagen-IV positive structures in the form of globules.

Lymphatic vessels were visualized in a smaller number, extended changes in the vascular wall in the form of deformation and exfoliation of endothelial cells were noted.

The clinical picture of the course of the disease in the morphological variant described above was characterized by blurring of the symptoms of the manifestation of the disease. Chest pain was noted in 57.1% of patients, in 60.7% the amount of expectorated sputum per day was less than 200 ml, tachypnea more than 22 per minute - in 32.1%. Signs of intoxication syndrome (tachycardia - 92.9%, decrease in systolic blood pressure - 67.8%, increase in body temperature over  $38^\circ\text{C}$  - 53.6%) were pronounced.

The third morphological variant was observed in 15.9% of patients with acute lung abscess without sequestration and in 7.1% with acute lung abscess with sequestration. At the light-optical level, there was a weak limitation of the focus of destruction with a weak formation of a fibrin block from "young" fibrin deposits. The processes of fibrin formation and fibrino stabilization were characterized by a tendency to accelerate the transition of "young" and "young" fibrin into more mature forms. The cellular populations of the inflammatory infiltrate were not locked into a fibrin cocoon. The functional activity of macrophages was significantly reduced ( $49.1 \pm 2.83\%$ ) against the background of relatively preserved or increased activity of neutrophils and lymphocytes ( $63.9 \pm 3.53\%$  and  $82.5 \pm 3.81\%$ , respectively).

The vessels of the microvasculature remained permeable in most cases. Vascular walls and perivascular lung tissues underwent sclerotic changes.

Patients with this type of morphological transformations of the respiratory part of the lungs were character-

ized by a severe course of the disease, often the process was widespread or bilateral. There was a pronounced pain syndrome (in all patients), pronounced signs of respiratory failure (tachypnea in 76.9% of patients, cough with a significant sputum discharge of more than 200 ml per day in 69.2%) and intoxication (tachycardia in 92.3%, a decrease in systolic blood pressure of less than 100 mm Hg in 84.6%, an increase in body temperature and high activity according to laboratory methods in all patients).

Most patients with pulmonary gangrene noted an acute onset of the disease, with an increase in body temperature to febrile figures, the appearance of cough with foul-smelling sputum, chest pain, aggravated by breathing and coughing. Patients associated the onset of the disease with hypothermia, previous colds and contact with patients with acute respiratory viral infections.

All patients with pulmonary gangrene noted chest pain, which was accompanied by cough with foul-smelling sputum, weakness, fatigue, shortness of breath, and decreased appetite. An increase in body temperature was noted in all patients. At the same time, in 4 (21.1%) patients it ranged from 37°C to 38°C, in 12 (63.2%) it ranged from 38° to 39°C, in 3 (15.8%) it exceeded 39°C. Heart rate in 10 (52.6%) exceeded 100 beats per 1 minute. Systolic blood pressure in 13 (68.4%) patients was below 100 mmHg. Respiration rate more than 22 times per minute was recorded in 16 (84.2%) patients.

In all patients with pulmonary gangrene, high activity of the inflammatory process was noted according to laboratory methods of study (high ESR values - in 11 (57.9%) from 44 to 70 mm/h, C-reactive protein, fibrinogen, leukocytosis, shift of the leukocyte formula to the left).

In 9 (47.4%) patients, gangrene was localized in the right lung, in 8 (42.1%) - in the left. Bilateral localization of the pathological process was noted in 10.5% (2 patients) of cases. In the right lung, the pathological focus was more often localized in the lower lobe (21.1%), in the left lung there was a more frequent lesion of both lobes - 15.8%.

5 (26.3%) patients had complications from the pleural cavity. Pulmonary hemorrhage was recorded in 5 (26.3%) patients. Contralateral pneumonia was observed in 4 (21.1%) patients.

In 5 (26.3%) patients, the condition at admission was extremely severe, in 10 (52.6%) - severe, in 4 patients (21.1%) the condition was determined to be of moderate severity.

Morphological examination in cases of lung gangrene in the respiratory part of the lung showed a tendency to accelerate the transition of "young" and "young" fibrin into more mature forms. The foci of destruction were vaguely limited from the surrounding lung tissues by an insignificant amount of "young" fibrin. The purulent exudate contained a large number of necrotic and necrobiologically altered neutrophils ( $64.4 \pm 1.52\%$ ) with moderate ( $34.4 \pm 1.16\%$ ) and insignificant ( $1.16 \pm 0.04\%$ ) numbers of macrophages and lymphocytes.

The grid arrangement of fibrin deposits was determined. Phagocytic cells (a large number of neutrophils and a moderate number of macrophages) did not close themselves into a fibrin cocoon. However, the functional activity of macrophages was significantly reduced ( $48.7 \pm 1.20\%$ ) against the background of preserved or increased activity of neutrophils and lymphocytes ( $65.0 \pm 1.97\%$  and  $74.0 \pm 2.05\%$ , respectively).

Multiple fibrin-erythrocyte thrombi were observed in the lumen of blood vessels, in some cases with the phenomena of organization and revascularization. Exfoliation of the endothelium and divergence of elastic elements of blood vessels were noted.

Significant structural changes in the basement membranes of the alveolar epithelium and blood vessels in the form of cleavage and destruction were observed.

The relative cross-sectional area of the microvasculature bed in the total number of observations was the smallest and amounted to  $8.93 \pm 0.73 \mu\text{m}^2$ , the number of vessels per unit area was  $3.37 \pm 0.79$  units. The blood supply to the region of destructive changes was statistically significantly reduced compared to the indicators of patients with acute lung abscesses.

Significant morphological changes in the vessels of the deep lymphatic system of the lung were noted: exfoliation of the endothelium, deformation of the vessel lumen, destruction of the vascular wall.

## DISCUSSION

In acute abscesses and gangrene of the lungs, the associated large bronchi are predominantly sclerosing forms of bronchitis, which contribute to the impairment of the drainage function of the bronchi and changes in catarrhal that precede the development of purulent-destructive lung diseases [9].

The integumentary epithelium of the bronchi is dominated by dystrophic changes, denudation of basal cells, disintegration of epithelial cells and enlargement of intercellular spaces, proliferation of goblet cells, and nest-

ed changes in the functional activity of epithelial cells [10].

There is evidence that patients with acute lung abscesses in the respiratory region have three variants of structural and functional disorders due to the peculiarities of the processes of fibrin formation and fibrinostabilization, the activity of cell populations of the inflammatory infiltrate and the patency of the vessels of the microcirculatory bed, which coincide with our data in the form of a complete limitation of the focus of acute purulent destruction by young fibrin, preservation of patency of blood vessels. vascular and phagocytic cell activity, free arrangement of phagocytes [11].

Nevertheless, other studies indicate that the predominance of fibrinogenesis processes over fibrinolysis closes the population of phagocytic cells in the "fibrin cocoon" with a decrease in their functional activity, blocking the patency of vessels by fibrin deposits [12].

In general, among the known facts, the processes of fibrin formation and fibrin stabilization with a tendency to accelerate the transition of "young" fibrin to more mature forms, weak formation of a fibrin block of "young" fibrin deposits both around individual phagocytic cells and around the focus of purulent destruction as a whole, a decrease in the functional activity of macrophages against the background of preserved activity of neutrophils and lymphocytes [13].

### CONCLUSION

In patients with lung gangrene, the fibrin block is not clearly expressed, there is a tendency for accelerated transition of young fibrin deposits to more mature forms, the functional activity of macrophages is reduced, against the background of maintaining the activity of neutrophils and lymphocytes, the blood supply to the region of destructive changes is statistically significantly reduced, compared to patients with acute lung abscesses. Changes in the basement membranes of the alveolar epithelium and endothelium of blood vessels in the form of cleavage and destruction are most pronounced. Structural-spatial reorganization of the basement membranes of the alveolar epithelium and endothelium of blood vessels in patients with acute abscesses and gangrene of the lungs proceeds in the form of cleavage and destruction. The nature of the reorganization of the microcirculatory bed of the respiratory part in patients with acute abscesses and gangrene of the lungs is stereotypical, and the degree of severity of morphological changes depends on the clinical variant of the course of purulent-destructive lung diseases.

**Conflict of Interest** – the author declares that there is no conflict of interest.

**Financing** is not provided.

**Ethical component** – all studies were conducted in accordance with the protocol of the Ethics Committee of the Republic of Uzbekistan.

### REFERENCE:

1. Atakov, S. (2023). Pharmacodynamic Substantiated Approaches To The Choice Of Antimicrobial Therapy For Nosocomial And Non-Nosocomial Pneumonia. *Journal Of Education And Scientific Medicine*, 2(3), 15-23. Retrieved from <https://journals.tma.uz/index.php/jesm/article/view/566>
2. Bobokulova, S. (2023). On Clinic-Laboratory Features Of The Course Of Acute Purulent-Destructive Lung Diseases In Patients Undergoing Sars-Cov-2. *Journal Of Education And Scientific Medicine*, 2(2), 10-18. Retrieved from <https://journals.tma.uz/index.php/jesm/article/view/441>
3. Bobokulova, S., Khamdamov, S., Korikhonov, D., Boboev, K., & Abdurakhmanov, A. (2023). How To Treat Acute Purulent-Destructive Lung Diseases, If They Are Sequels To Covid-19: Problems And Ways To Solve Them. *Journal Of Education And Scientific Medicine*, 1(1), 47-55. Retrieved from <https://journals.tma.uz/index.php/jesm/article/view/394>
4. Bobokulova, S., Abdurakhmanov, F., Boboev, K., Korikhonov, D., Yakubov, I., Yarkulov, A., Khamdamov, S. (2023). How Does Lipid Peroxidation Affect The Development Of Pneumosclerosis: Experimental Justification. *Journal Of Education And Scientific Medicine*, 1(1), 2-7. Retrieved from <https://journals.tma.uz/index.php/jesm/article/view/368>
5. Differentiated Approaches To The Diagnosis And Treatment Of Acute Lung Abscesses In Patients Who Have Had COVID-19 // Bobokulova Sh. A. // *British Medical Journal* Volume-3, No 1, 2023 - 134-143 // <https://ejournals.id/index.php/bmj/article/view/782>
6. Evaluation Of The Effectiveness Of Various Methods Of Treatment Of Acute Purulent-Destructive Lung Diseases In Patients With Diabetes Mellitus // Khamdamov // *British Medical Journal* Volume-3, No 2, 2023 - 77-87 // <https://ejournals.id/index.php/bmj/article/view/811>
7. Khamdamov, S. (2023). Controversial Issues Of Choosing A Method Of Treatment Of Acute Lung Abscesses In Patients With Diabetes Mellitus. *Journal Of Education And Scientific Medicine*, 1(3), 85-100. Retrieved from <https://journals.tma.uz/>

trieved from <https://journals.tma.uz/index.php/jesm/article/view/468>

8. Khamdamov, S., Abdurakhmanov, F., Bobokulova, S., Korikhonov, D. & Boboev, K. K. (2023). Possibilities Of Modern Physical Methods Of Antisepsis In The Treatment Of Acute Lung Abscesses In Patients With Diabetes Mellitus. Journal Of Education And Scientific Medicine, 1(1), 37-46. Retrieved from <https://journals.tma.uz/index.php/jesm/article/view/395>

9. Khamdamov, S., Bobokulova, S., Korikhonov, D., Boboev, K. & Abdurakhmanov, F. (2023). Purulent-Destructive Lung Diseases, Pathogenesis And Modern Principles And Treatment. Journal Of Education And Scientific Medicine, 2(1), 57-66. Retrieved from <https://journals.tma.uz/index.php/jesm/article/view/406>

10. Bobokulova Sh. A. (2023). New Approaches To Treating Lung Abscesses As Covid19 Sequels. World Bulletin of Public Health, 19, 101-107. Retrieved from

<https://www.scholarexpress.net/index.php/wbph/article/view/2281>

11. Khamdamov Sherali Abdikhamidovich. (2023). A Combination Of Diabetes Mellitus And Acute Purulent-Destructive Lung Diseases Solving The Problems Of Diagnosis And Treatment. World Bulletin of Public Health, 19, 127-135. Retrieved from <https://www.scholarexpress.net/index.php/wbph/article/view/2149>

12. Xamdamov Sh. A. (2023). Use of Vacuum in The Treatment of Acute Lung Abscess in Patients with Diabetes. Texas Journal of Medical Science, 26, 143–146. Retrieved from <https://zienjournals.com/index.php/tjms/article/view/4695>

13. Shadmanov, A., Bobokulova, S. (2023). A New Method Of Treating Pneumonia Complicated By An Abscess In Patients After Covid-19. Journal Of Education And Scientific Medicine, 1(2), 2-9. Retrieved from <https://journals.tma.uz/index.php/jesm/article/view/421>



**O'PKA O'TKIR YIRINGLI-DESTRUKTIV KASALLIK-LARINING NAMOYON BO'LISHI XUSUSIYATLARINING MORFOFUNKSIONAL BAHOLASH**

**OKHUNOV A.O.**

**TOSHKENT TIBBIYOT AKADEMIYASI**

**ABSTRAKT**

**Dolzarbligi.** Bugungi kunga qadar o'tkir yiringli-destruktiv o'pka kasalliklari bo'lgan bemorlarda mikrosikulyator to'shakni qayta qurish bilan bog'liq holda o'pkaning nafas olish qismini tarkibiy qayta qurish masalalari etarli darajada o'rganilmagan.

**Material va usullar.** Tadqiqot 175 nafar bemor, jumladan, o'tkir ichak xo'ppozi bilan og'rigan 129 nafar bemor, o'pka gangrenasi bilan og'rigan 22 nafar bemor va surunkali bronxit bilan og'rigan 24 nafar bemor to'g'risidagi ma'lumotlarga asoslangan. Morfometrik tadqiqotlar ImageJ grafik paketlari yordamida amalga oshirildi.

**Natijalar.** Ichakning o'tkir xo'ppozi va gangrenasi bo'lgan bemorlarda kataral va sklerotik bronxit turidagi katta bronxlardagi ma'lum bir o'zgarishlar, distrofik o'zgarishlarning asosiy qismi, bazal hujayralarning denudatsiyasi, hujayralararo bo'shliqlarning kengayishi va bronxial epiteliyning xotirjamligi bilan bog'liq bo'lib, bu goblet hujayralarining ko'pligi va epitelial qatlam hujayralarining funktsional faolligining ichki o'zgarishi bilan namoyon bo'ladi.

**Xulosa.** Morfologik va immunohistokimyoviy tadqiqotlar natijasida o'pkaning nafas olish qismi mikrosikulyator to'shagining strukturaviy qayta tashkil etilishining stereotipli variantlari aniqlandi.

**Kalit so'zlar:** o'tkir yiringli-destruktiv o'pka kasalliklari, o'pka gangrenasi, o'tkir va surunkali o'pka xo'ppozi, nafas olish mintaqasining morfologik diagnostikasi

**МОРФОФУНКЦИОНАЛЬНАЯ ОЦЕНКА ОСОБЕННОСТЕЙ ПРОЯВЛЕНИЙ ОСТРЫХ ГНОЙНО-ДЕСТРУКТИВНЫХ ЗАБОЛЕВАНИЙ ЛЕГКИХ**

**ОХУНОВ А.О.**

**ТАШКЕНТСКАЯ МЕДИЦИНСКАЯ АКАДЕМИЯ**

**АБСТРАКТ**

**Актуальность.** На сегодняшний день остаются недостаточно изученными вопросы структурной перестройки респираторного отдела легких в связи с перестройкой микроциркуляторного русла у больных с острыми гнойно-деструктивными заболеваниями легких.

**Материал и методы.** В основу работы положены данные о 175 больных, в том числе 129 пациентах с острыми абсцессами легких, 22 - с гангреной легких и 24 - с хроническим бронхитом. Морфометрические исследования проводили с использованием графических пакетов ImageJ.

**Результаты.** Наличие у больных острыми абсцессами и гангреной легких определенных ассоциированных изменения крупных бронхов по типу катарального и склеротического бронхита, с преобладанием дистрофических изменений, оголением базальных клеток, увеличением межклеточных пространств и нестабильностью бронхиального эпителия, которая проявляется пролиферацией бокаловидных клеток и гнездным изменением функциональной активности клеток эпителиального пласта.

**Заключение.** Морфологические и иммуногистохимические исследования выявили стереотипные варианты структурной перестройки микроциркуляторного русла респираторного отдела легких.

**Ключевые слова:** острые гнойно-деструктивные заболевания легких, гангрена легких, острых и хронический абсцесс легких, морфологическая диагностика респираторного отдела