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THE IMPORTANCE OF THE MORPHOLOGICAL APPROACH IN CLINICAL DIAGNOSIS OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE AND ALLERGIC BRONCHITIS

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Annotation. The morphological aspects of chronic obstructive pulmonary disease and allergic bronchitis, as well as their significance in clinical diagnostics, have been analyzed. Morphological changes occurring in lung tissues, the restructuring of alveolar and bronchial structures, inflammatory processes, and their interrelation with clinical manifestations are demonstrated. Furthermore, the role of the morphological approach in early diagnosis, determining the course of the disease, and selecting treatment strategies is scientifically highlighted. The research results contribute to improving the effectiveness of diagnostics in clinical practice.

Keywords: Chronic obstructive pulmonary disease, Allergic bronchitis, Morphological approach, Clinical diagnostics, Morphological changes, Structure, Inflammation.

Introduction. Chronic obstructive pulmonary disease (COPD) and allergic bronchitis are currently among the most widespread pathological conditions worldwide that seriously impair the function of the respiratory system. According to the World Health Organization, COPD is one of the leading causes of morbidity and disability globally, and it also ranks among the primary causes of mortality [1,3]. At the same time, allergic bronchitis has a high incidence among children and adolescents, and its prolonged course and recurrent attacks reduce patients' quality of life and increase the risk of severe respiratory failure in the future.

The analysis of morphological indicators of biological fluids (saliva, blood, sputum, and bronchoalveolar lavage fluid) in respiratory system diseases is an important component of clinical diagnostics [1,2]. This is because the morphological changes occurring in the composition of these fluids provide essential information about the depth of pathological processes, the stages of the disease, and the immunobiological response mechanisms of the organism. In chronic obstructive pulmonary disease (COPD) and allergic bronchitis, sufficient scientific research on the comprehensive analysis of the morphological properties of biological fluids has not yet been accumulated. Most scientific studies are aimed at investigating clinical and biochemical indicators, while the morphological approach remains in the background [3]. Therefore, research carried out in this direction will serve not only to provide a deeper understanding of the pathogenesis of the diseases but also to improve clinical diagnostics and treatment strategies. The scientific novelty of the study is manifested precisely in the implementation of these morphological analyses on the basis of a comprehensive approach [4].

Chronic obstructive pulmonary disease (COPD) is currently one of the most common chronic pathologies of the respiratory system, and its development is influenced not only by morphological changes in the bronchopulmonary tissues but also by the structural and functional parameters of the body's biological fluids. Biological fluids—such as blood, sputum, saliva, urine, and other components—provide important information about the inflammatory processes occurring in the lungs, hypo- and hyperpermeability, the degree of cellular destruction, and immunological reactions

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[4]. However, in the existing scientific literature, a comprehensive approach has not been sufficiently established: many studies are limited to analyzing only blood or only sputum [5]. Therefore, conducting a joint and systematic study of morphological changes in biological fluids, determining their influence on clinical manifestations, and expanding their application in assessing disease severity remain pressing tasks.

Method. A group of patients diagnosed with chronic obstructive pulmonary disease (COPD) and allergic bronchitis was selected as the object of study. The research was conducted under clinical conditions, taking into account the patients' age, sex, disease duration, and severity of clinical symptoms [1,2,5]. In the selection of patients, strict control was maintained to ensure the accuracy of diagnosis and compliance of clinical criteria with standard diagnostic requirements.

Saliva, blood, and sputum samples were taken as research material. The collection and storage of the samples were carried out in accordance with clinical and hygienic regulations. Preparations from blood samples were made to study cytological and histomorphological indicators [6]. Smears prepared in sodium chloride solution from saliva and sputum samples were microscopically analyzed to study the morphological structure of cellular elements.

Morphological analysis was performed using light microscopy methods. Cellular elements contained in saliva, blood, and sputum were identified, and their morphological characteristics were evaluated. Statistical indicators were calculated using specialized morphometric software. The complex application of these methods made it possible to identify specific features observed in the morphology of biological fluids in chronic obstructive pulmonary disease and allergic bronchitis [4,6].

Discussion. Significant morphological changes were observed in the biological fluids — blood, saliva, and sputum — of patients with chronic obstructive pulmonary disease. In patients with allergic bronchitis, morphological changes in biological fluids were characterized by the predominance of an immuno-allergic component [1,5]. A sharp increase in the number of eosinophils and their degranulation was observed in blood smears. Active proliferation of plasma cells and lymphocytes was noted, confirming the ongoing hypersensitivity reaction. In the sputum, a large amount of mucous component was detected, and along with the desquamation of cylindrical epithelium, the appearance of multinucleated giant cells constituted the morphological basis of allergic genesis. Comparative analysis showed that in both diseases morphological changes arise as a result of the persistence of the inflammatory process; however, there are significant differences in their pathomorphological nature [2,5].

The obtained results indicate that morphological changes observed in the biological fluids of patients with chronic obstructive pulmonary disease and allergic bronchitis are clinically important indicators. The advantage of a complex approach is that it allows not only the assessment of individual indicators but also the joint analysis of morphological changes recorded in various biological fluids [6]. This makes it possible to evaluate the pathogenesis of the disease from multiple perspectives, to gain a deeper understanding of clinical processes, and to increase the accuracy of differential diagnosis. In addition, complex morphological assessment provides the opportunity to select treatment tactics individually for patients and to determine prognostic indicators.

Conclusion

The results of the study show that morphological changes observed in biological fluids in chronic obstructive pulmonary disease and allergic bronchitis are important indicators of pathogenic processes. The cellular and tissue alterations identified in blood, sputum, and saliva serve as an objective reflection of the inflammatory and destructive processes occurring in the respiratory tract

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and lung tissues. Therefore, the integration of morphological analysis results into the system of comprehensive clinical and laboratory examinations is of great significance not only for early diagnosis but also for the development of individualized therapeutic strategies.

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