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NEW ASPECTS OF THE DIAGNOSIS OF ULCERATIVE COLITIS

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Abstract. The purpose of the study was to study the microbial composition of biopsy specimens in ulcerative colitis. Materials and research methods. Microscopy of preparations was carried out after staining with hematoxylin and eosin using a Leika ICC50 HD microscope. Results. A histological and microbiological study of intestinal wall biopsies was performed in 25 patients with ulcerative colitis (n=111). In 83.0% of cases (n=19) a full range of diagnostic features characteristic of ulcerative colitis was determined. In 50% of cases, a pronounced activity of the inflammatory process was observed (n=12), in 30% - moderate (n=7), in 20% - the minimum degree of inflammation activity (n=5). With severe inflammation, a polymorphic picture of changes in the intestinal mucosa was observed. Conclusions. The results obtained allow us to recommend microbiological examination of intestinal wall biopsies in patients with ulcerative colitis, which helps to optimize the choice of antibacterial drugs and monitor the effectiveness of disease therapy.

Keywords: inflammatory bowel disease, ulcerative colitis, microflora.

Introduction. Currently, one of the urgent problems for specialists in various fields is the diagnosis and treatment of inflammatory bowel diseases (IBD). This is due not only to an increase in the incidence of this pathology, the predominance of severe complicated forms with high mortality, but also to the difficulty of diagnosing and monitoring the effectiveness of therapy [11]. As is known, IBD develops as a result of a pathological immune response to antigens of the intestinal microflora in the presence of a hereditary predisposition and has a chronic relapsing course [12]. This group of diseases includes ulcerative colitis (UC), Crohn's disease (CD), unclassified colitis (UC) with a combination of clinical and morphological signs of UC and CD, "microscopic" colitis (lymphocytic, collagenous, cystic). Difficulties in identifying and making an accurate diagnosis are also due to the similarity of the clinical picture, the lack of specific laboratory criteria for differentiating some nosological forms of IBD, in particular

ness, UC and BC [4,6]. To date, the gold standard for the diagnosis of IBD is the morphological study of colonobiospy specimens. However, some studies indicate the relative nonspecificity of the majority of individual histological criteria for the diagnosis of UC and CD, differing only in the frequency of detection in different patients [1,5,7]. Great importance in the pathogenesis of UC and CD is given to antigens of the normal microflora, to which the immune system is losing tolerance, as well as opportunistic microorganisms that continuously stimulate the intestinal immune system, which underlies the launch and maintenance of the autoimmune process [1,2,6,8,10,12,13-22]. The consequence of this is high antibody titers in patients with IBD to various intestinal bacteria and their derivatives, which is used in clinical practice to verify the diagnosis, assess the activity of the process, predict the course of the disease and respond to therapy [3]. In this regard, the microbiological

study of biopsies of the intestinal wall of patients with IBD is relevant, which will complement the histological analysis, will allow to detail the cause of the development of the pathology, to select the method of treatment, and monitor the success of therapy.

The purpose of the study was to study the microbial composition of biopsy specimens in ulcerative colitis.

Research material and methods. 111 biopsies of 25 patients with a clinical diagnosis of "Ulcerative colitis, acute stage" were studied, of which 60% were men, 40% were women. The mean age of the patients was 35.6 ± 3.5 years. Informed consent was obtained from each patient to participate in the study. The inclusion criteria for patients in the study were: age over 18 years, any gender, absence of pregnancy, signed voluntary informed consent of the patient to participate in the study. The criteria for exclusion of patients from the study were: the patient's refusal to participate at any stage of treatment, the inability to cooperate with the patient, the presence of concomitant pathology in the stage of decompensation and the acute period, pregnancy, lactation. The diagnosis was made on the basis of standard patient examination protocols. All patients with ulcerative colitis received standard therapy.

Biopsy specimens were taken during endoscopic examination according to the standard method. Biological material was taken from the bottom of the ulcer surface from different parts of the large and small intestines after removal of fibrin plaque. Microscopy of preparations was carried out after staining with hematoxylin and eosin using a Leika ICC50 HD microscope. The biomaterial for microbiological research was immediately delivered to the microbiological laboratory in a dry sterile tube immediately after taking. Determination of the type of microorganisms was carried out using standard biochemical reactions and using a MALDI MASS-MICROFLEX chromato-mass spectrometer (Bruker Daltoniks). Statistical data processing was carried out using the computer program SPSS Statistics.20.0. The arithmetic mean (M) and standard error of the mean (m) were calculated. Differences between the analyzed parameters were considered significant at a significance level of $p < 0.05$.

Research results and their discussion. When analyzing the results of endoscopic examination, it was found that in 30 and 20% of patients, the damage to the intestinal mucosa was total and subtotal, respectively, in 50% of cases, different parts of the intestine were affected (left-sided lesion, proctitis, proctosigmoiditis, ileitis).

Histological examination revealed morphological signs of ulcerative colitis in 24 patients, histological signs of Crohn's disease were revealed in one case.

In patients with ulcerative colitis, in 50% of cases, a pronounced activity of the inflammatory process was observed, in 30% - moderate, in 20% - a minimal degree of inflammation activity.

With severe inflammation, a polymorphic picture of changes in the intestinal mucosa was observed. In most cases (67.0%), hemorrhages were detected in the lamina propria with accumulation of erythrocytes and plasma cells under the epithelium, perivascular edema, edema, or fibrosis of the intercellular substance of the connective tissue, focal infiltration of the subepithelial layer by bacteria.

In 33.0% of patients, deformity of the crypts was found, which is characterized by polymorphic changes: often there is a thickening of the epithelium, which may look like a multi-row, or even multi-layered. Many areas become non-epithelial, with lymphoid infiltration, accumulation of eosinophils, granulation tissue, or even slit-like ulcers. The muscular plate becomes edematous, disintegration of muscle cells is observed, leukocyte infiltration occurs between myocytes. In areas with destroyed epithelium, a violation of the relief of the crypts was revealed. Swelling of the stroma also occurs in the submucosal layer, focal accumulations of lymphocytes appear.

In two patients, in which the mucous membrane is colonized by bacteria, metaplasia of the integumentary epithelium into a stratified epithelium was detected. In both cases, this was accompanied by focal lymphocyte infiltration of the entire lamina propria and intestinal submucosa.

With a total lesion of the intestinal wall, pronounced inflammation was observed, characterized by swelling, infiltration of lymphocytes of the submucosal layer and the lamina propria of the walls of the small and large intestine, local endovasculitis, smoothing of the structure of the crypts, accumulation of bacteria in the mucous membrane of the small intestine, and the appearance of Paneth cells even in the crypts of the large intestine. The latter is probably a response to an increase in the number of microorganisms in the studied tissues, since these cells are able to produce lysozyme, which has a bactericidal effect.

A moderate degree of inflammation in 87.0% of cases is characterized by a violation of the structure of the surface epithelium, accompanied by an accumulation of eosinophils, neutrophils, plasma cells, macrophages under it and in the lamina propria, dilation of capillaries, stasis phenomena, vacuolar degeneration of cells, including myocytes in the muscular lamina, an accumulation of rod-shaped bacteria.

With minimal activity of the process in 41.0% of patients, an increase in the number of goblet cells in the crypts, branching of the crypts, goblet cells in the superficial epithelium are single or absent, the lamina propria is edematous, plasma cells predominate, vasodilation is noted, the release of erythrocytes into the surrounding tissues, accumulations bacteria were not found.

Thus, all observed patients have a polymorphic histological picture characteristic of ulcerative colitis, which characterizes the different severity of the inflammatory process. However, in different patients, individual diagnostic signs were identified, the full range of which was determined in 83.0% of cases. This fact is consistent with the literature data, according to which 10-15% of patients have a "crossover" of clinical and morphological signs of UC and CD [1,8]. In our study, in the clinical and endoscopic picture of ulcerative colitis, Crohn's disease was histologically detected in one patient. In this regard, the search for informative specific markers of clinical and morphological diagnosis of IBD and objective criteria for assessing their activity and effectiveness of therapy is relevant. Given that in 100% of cases with a moderate and severe degree of inflammation, bacteria were found in the intestinal wall, a microbiological study of biopsy specimens was carried out to determine the species of microorganisms. When analyzing the results obtained, it was revealed that representatives of the Enterobacteriaceae family were the

predominant species among the isolated microbes. *Escherichia coli* was determined in biopsy specimens in 70.9% of patients. *Klebsiella pneumonia* was found in 22.6% of cases, *Enterococcus cloacae* in 3.2%, *Aeromonas hydrophyles* in 3.2%.

It should be noted that in 16.2% of cases a combination of two types of microorganisms was observed. Interesting is the fact that this pattern was observed in patients with a pronounced degree of inflammation, one of them had signs of metaplasia of the intestinal epithelium. In most cases, a combination of *Escherichia coli* and *Klebsiella pneumonia* was detected. In 16.2% of cases, a combination of two types of microorganisms was observed. Interesting is the fact that this pattern was observed in patients with a pronounced degree of inflammation, one of them had signs of metaplasia of the intestinal epithelium. In most cases, a combination of *Escherichia coli* and *Klebsiella pneumonia* was detected.

Conclusion. Thus, as a result of the histological examination, ulcerative colitis was diagnosed in 24 cases out of 25. A polymorphic picture of inflammatory lesions of the intestinal wall was revealed, a full range of diagnostic signs was determined in 83.0% of cases. In 100% of patients with moderate and severe inflammation, the presence of microorganisms was detected in the lamina propria and the submucosal layer of the intestine. During the microbiological study, it was determined that the predominant species are *Escherichia coli* and *Klebsiella pneumonia*. In patients with a pronounced degree of inflammation in 16.2% of cases, their combination is observed. The results obtained allow us to recommend microbiological examination of intestinal wall biopsy specimens in patients with ulcerative colitis with histological signs of a moderate and severe inflammatory process. This approach, combined with tests for antibiotic resistance and sensitivity of isolated microbes, will allow optimizing the choice of antibacterial drugs and monitoring the effectiveness of disease therapy.

References

1. Abdullaeva U.K. Predicting the risk of atrophic transformation in gastritis associated with chronic *Helicobacter pylori* // abstract of PhD dissertation on medical sciences. Tashkent. 2021. 46-p. [in Uzbek]
2. Abdullaeva U.K. Predicting the risk of atrophic transformation in chronic gastritis using serum pepsinogen // World journal of pharmaceutical research, Faculty of Pharmacy Medical University, Bulgaria, Vol. 8, Iss. 13, 2019, P. 219-228.
3. Abdullaeva U.K., Sobirova G.N., Karimov M.M., Aslonova I.J. The prevalence and possibilities of prevention of noncardial gastric cancer in the Bukhara region // American journal of medicine and medical sciences, 2020, 10(9), P. 679-681.
4. Sobirova G.N., Abdullaeva U.K., Nosirova M.S., Aslonova I.J. Evaluation of the gastrointestinal mucosa by the OLGAsystem in chronic atrophic gastritis // Journal of critical reviews, Kuala Lumpur, Malaysia, Vol. 7, Iss. 2, 2020, P. 409-413.
5. Karimov M.M., Sobirova G.N., Abdullaeva U.K., Aslonova I.Zh., Tulyaganova F.M. Possibilities of serological diagnosis of atrophic processes of the

gastric mucosa // *European Journal of Molecular & Clinical Medicine* Vol. 7, Iss. 11, 2020, P. 2955-2960.

6. Karimov M.M., Sobirova G.N., Abdullaeva U.K. Chronic gastritis and carcinogenesis issues // *Herald of Pancreatic Club*, 2019. Iss. 45 (4). P. 65-70. [in Russian]

7. Sobirova G.N., Abdullaeva U.K. Immunopatogenesis of chronic gastritis and its role in carcinogenesis // *Journal of Biomedicine and Practice*, 1 (4). P. 40-44.

8. Karimov M.M., Sobirova G.N., Abdullaeva U.K., Aslonova I.Zh., Tulyaganova F.M. Possibilities of Serological Diagnosis of Atrophic Processes of the Gastric Mucosa // *Annals of the Romanian Society for Cell Biology*, , Vol. 25, Issue 1, 2021, Pages. 6168 – 6174.

9. Abdullaeva U.K., Shadjanova N.S. Using the OLGA system in chronic atrophic gastritis // *New day in medicine*, 2020, №2, P. 9-12.

10. Abdullaeva U.K. The value of interactive teaching methods in improving the level of clinical knowledge of students // *Medical education and professional development*. 2019, №1 (33), P. 29-32. [in Russian]

11. Sobirova G.N., Abdullaeva U.K. Chronic gastritis and carcinogenesis issues // *Central Asian Problems of Modern Science and Education*. 2019, Iss. 4, №2, P. 159-172

12. Orziev Z.M., Abdullaeva U.K., Nurkhanova N.O. Study of the effectiveness of cholelitholytic therapy in patients with cholelithiasis, taking into account the type of violation of the contractility of the gallbladder // *Science of the Young - Eruditio Juvenium*. 2015. №4. P. 50. [in Russian]

13. Karimov M.M., Sobirova G.N., Abdullaeva U.K., Aslonova I.Zh., Tulyaganova F.M. Serological Diagnosis of Atrophic Processes of the Gastric Mucosa // *The American Journal of Medical Sciences and Pharmaceutical Research*, Vol. 2, Issue 12, 2020, Pages. 118-124

14. Mirzaeva D.B., Abdullaeva U.K., Boboeva R.R. The importance of interactive teaching methods in improving the level of clinical knowledge of students // *Central Asian Problems of Modern Science and Education* Vol. 4, Issue 2, 2019, Pages. 159-166

15. Karimov M.M., Rustamova S.T., Ismailova Zh.A., Abdullaeva U.K., Saatov Z.Z. Diagnostic efficacy of C14 breath test in *Helicobacter pylori* // *Cardiovascular therapy and prevention*. 2019. Vol. 18, Issue S1, P. 85-86

16. Abdullaeva U.K., Jalolova V.Z. Study of the effectiveness of cholelitholytic therapy in patients with cholelithiasis, taking into account the type of violation of the contractility of the gallbladder // *Bulletin of the Council of Young Scientists and Specialists of the Chelyabinsk Region*. 2016. Vol. 5, Issue 4(15), P. 85-86 [in Russian]

17. Orziev Z.M., Abdullaeva U.K. Regional causes of extrahepatic "Subtransaminasemia" // *Biology and integrative medicine* 2016, №3. P. 28-40. [in Russian]

18. Abdullaeva U.K., Mirzaeva D.B. Regional prospects for metabolic therapy for stable senocardia Summary. // Bulletin of the South Kazakhstan Medical Academy. 2019. P. 74-76 [in Russian]

19. Orziev Z.M., Abdullaeva U.K., Yuldasheva D.H. Method for early prediction of the efficiency of cholelytic therapy based on dynamic control of bild pH indicators in patients with cholelystone disease // Innovative development of modern science. 2014. P.76-79 [in Russian]

20. Orziev Z.M., Abdullaeva U.K. Relationship between the effectiveness of cholelitholytic therapy and the state of contractility of the gallbladder // Bulletin of the Council of Young Scientists and Specialists of the Chelyabinsk Region. 2015. №3(10). P. 36-40. [in Russian]

21. Orziev Z.M., Abdullaeva U.K. The effectiveness of cholelitholytic therapy for cholelithiasis // Health is the basis of human potential: problems and ways to solve them. 2015. Iss. 10. №2. P. 610-612. [in Russian]

22. Shamsutdinov A.S., Abdullaeva U.K., Akhmedova N.S. Determination of the level of pepsinogens in patients with chronic h. pylori associated gastritis // ACADEMICIA: An international multidisciplinary research journal. Iss. 11. №2. P. 919-924.