ORIGINAL ARTICLE

MORPHOLOGICAL FEATURES OF CELLULAR INFILTRATION IN THE MUCOSA OF LARGE INTESTINE IN ULCERATIVE COLITIS AND IRRITABLE BOWEL SYNDROME

10.36740/WLek202101111

Olena O. Dyadyk, Pavlo P. Snisarevskyi, Tetiana P. Snisarevska
SHUPYK NATIONAL MEDICAL ACADEMY OF POSTGRADUATE EDUCATION, KYIV, UKRAINE

ABSTRACT

The aim is to improve morphological diagnostics, including differential, of UC and IBS, identifying morphological features of cellular infiltration in the mucous membrane of the large intestine.

Material and methods: Autopsy and biopsy material – fragments of the mucous membrane of the large intestine was used in this study. All the material was divided into 5 groups. Group 1 included autopsy material from 6 cases, in which no general pathological processes in the gastrointestinal tract were detected during autopsy and microscopic examination. Group 2 included biopsy material from 34 patients with diagnosed UC of the 1st activity degree. Group 3 included the biopsy material of 27 patients with UC of the 2nd degree of activity. Group 4 included biopsy material from 19 patients, diagnosed with UC of the 3rd degree of activity. Group 5 included biopsy material from 82 patients with clinically diagnosed IBS. Histological, morphometrical, immunohistochemical and statistical methods of investigation were used.

Results: The mucous membrane of the large intestine in patients with ulcerative colitis of varying degrees of activity, compared with the physiological norm, has pronounced infiltration by plasma cells, T-lymphocytes, B-lymphocytes, macrophages, mast cells, eosinophilic and neutrophilic leukocytes in the superficial parts of the epithelium, crypts, lamina propria. There is also an increase in the number and size of lymphoid follicles in the lamina propria. Predominant cellular elements in the infiltrate are plasma cells, T-lymphocytes, eosinophilic and neutrophilic leukocytes.

The growth of ulcerative colitis activity leads to an increase the inflammatory cell infiltration in the mucous membrane of the colon, as evidenced an increase the density of cellular infiltrate; the severity of inflammatory changes in crypts and an increase in the number of crypt abscesses; a decrease the number of cases with focal infiltration in the lamina propria and an increase the number of cases with diffuse infiltration; the spread of inflammatory cell infiltration from the superficial parts of the lamina propria to its deep parts with the subsequent involvement of its entire thickness; an increase the central trends of the indexes of the severity of all cellular infiltration, infiltration by plasma cells, T-lymphocytes, macrophages, neutrophilic leukocytes.

The mucous membrane of the large intestine in patients with irritable bowel syndrome has moderately pronounced cellular infiltration in the superficial epithelium and lamina propria, in comparison with the physiological norm. The number and size of lymphoid follicles increase. Inflammatory cell infiltration often spreads to the upper one third or two thirds of the thickness of the lamina propria, characterized by the presence of plasma cells, T-lymphocytes, B-lymphocytes, macrophages, mast cells, eosinophilic and neutrophilic leukocytes. In this case, plasma cells, T-lymphocytes, mast cells and macrophages dominate. The indexes of the severity of all cellular infiltration, as well as infiltration by plasma cells, T-lymphocytes, B-lymphocytes, macrophages, mast cells, eosinophilic and neutrophilic leukocytes, increases in the mucous membrane of the large intestine in irritable bowel syndrome in comparison with the norm.

In the mucous membrane of the large intestine in irritable bowel syndrome compared with ulcerative colitis of varying degrees of activity inflammatory cell infiltration is less pronounced. It often extends to one third or two thirds of the thickness of the lamina propria. There are fewer lymphoid follicles, cryptitis and crypt abscesses are not determined. The indexes of the severity of all cellular infiltration, as well as infiltration by plasma cells, T-lymphocytes, eosinophilic and neutrophilic leukocytes are lower.

Conclusions: The revealed features of cellular infiltration in the mucous membrane of the large intestine make it possible to improve morphological diagnostics, including differential, of ulcerative colitis of varying degrees of activity and irritable bowel syndrome.

KEY WORDS: ulcerative colitis, irritable bowel syndrome, large intestine mucosa, cellular infiltration, morphology

Wiad Lek. 2021;74(1):57-63

INTRODUCTION

Ulcerative colitis (UC), being one of the most serious and unsolved problems of modern medicine, is characterized by inflammation of the colon mucosa, involving rectum, and possible retrograde spread of the inflammatory process to the proximal part of the ileum [1].

The UC prevalence in the world is 50-230 cases per 100 thousand population, the annual increase in patients is 5-20 cases per 100 thousand population. The highest incidence is in North America, Northern Europe and Australia, less often this pathology is recorded in Asia, South America and Japan. Among the white population, this pathology occurs 3-5 times more often than among African Americans, among Jews – 3.5 times more often than among non-Jewish people [2].

To date, etiology and pathogenesis of UC are not sufficiently studied. UC is characterized by a long course and