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PATHOMORPHOLOGICAL DIFFERENTIAL DIAGNOSTIC OF INFLAMMATORY BOWEL DISEASE IN BIOPSY SPECIMENS

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Inflammatory bowel diseases (IBD) are lifelong disorders that are predominantly observed in developed countries and arise from an interaction between genetic and environmental factors, they include two specific diseases: ulcerative colitis (UC) and Crohn's disease (CD). The diagnostic value of architectural abnormalities and inflammatory features and the differences between UC and CD have been studied extensively. Diagnostic differential can be challenging in some cases. Features which can be used for a proper diagnosis should be clarified.

Material and methods. All specimens involved in this study were collected from 44 patients, who undergone endoscopy with subsequent colonic biopsies in university clinic of Zaporizhzhia State Medical University. In the samples we studied, 14 cases were represented by CD and 30 by UC. Two biopsies were taken from each colonic segment which always included biopsy of the rectum and the most affected segments. Routine histological sections 5-µm were cut from formalin fixed, paraffin embedded tissue and stained with hematoxylin and eosin (H&E). Histological evaluation was performed using the Geboes Score for UC.

The microscopic pattern of UC was characterized by an inflammatory reaction with special distribution and structural abnormalities of the mucosa. Active histologic disease as a Geboes score ≥ 3.1 was seen in 80% (24/30) of patients. The presence of neutrophils, indicating a change in the composition of the inflammatory infiltrate, was another important feature. Neutrophils were observed within epithelial structures, such as the crypt wall (cryptitis), or the crypt lumen and wall (crypt abscesses) or in association with crypt damage (crypt destruction).

The pattern of the various microscopic features varied in time and depended upon the severity of the disease. In the early, acute phase, crypts were often still regular in shape and size. The most characteristic feature was mucin depletion, associated with neutrophils infiltrating crypt and surface epithelium and inducing crypt abscesses and secondary crypt destruction. The cellular infiltrate in the lamina propria was homogeneously increased in intensity and mixed in composition. Crypt architectural abnormalities appeared only during the evolution of the disease. Inflammatory infiltrate included eosinophils in 43% (13/30) of biopsies. This is partly explained by the reduction of other inflammatory cells, induced by medical treatment. Accumulation of plasma cells near the mucosal base, in-between the crypt base and the muscularis mucosae (basal plasmacytosis), was common. Structural changes included an irregular surface or a villiform surface and disturbed crypt architecture. Overall, an irregular surface was present in approximately 60% (18/30) of cases with UC. Crypt alterations were more common and more widespread; they were observed in 76% (23/30) of cases. Low-power examination is important for the differential diagnosis with CD where similar architectural alterations are less common (27–71%) and less diffuse. Crypt distortion included shortened crypts that become widely separated from the underlying muscularis mucosae, crypt drop-out and especially prominent crypt budding (branching crypts, bifid crypts). Features that favor CD were epithelioid granulomas, relatively unchanged crypts or segmental distribution of crypt atrophy and crypt distortion together with discontinuous focal or patchy inflammation and mucin preservation in the epithelium at an ulcer edge, and the presence of a mixture of normal samples (skip lesions) and inflamed samples in a set of biopsies obtained in the same area. Although the degree of mimicry with UC can be high, the presence of aphthoid ulcers, fissure ulcers, transmural inflammation, fistulas, lymphangiectasia, fibrous structuring and neural hypertrophy was predominantly a feature of CD. In 14% (2/14) of cases with fistulas a lot of granulation tissue was observed in biopsy specimens. Ileal lesions is however another key lesion, which allows to discriminate between UC and CD, because ileum is often involved in CD. Among all patients included in the study only two of them were lacking involvement of terminal ileum. Granulomas in histological sections are a key feature of CD. The frequency of finding granulomas in CD varies between 15% and 85%, but is rarely higher than 50–60%. In our study only one patient (7%) manifested with granuloma.

Conclusions. 1. Chronic inflammation, both endoscopic and histological, in a contiguous and symmetrical distribution is believed to be important in distinguishing UC from CD. Discontinuous type of infiltration in stepwise biopsies from the colon has been considered a good criterion of CD. **2**. Crypt architectural abnormalities and crypt abscesses in the colon are more common in UC than in CD. **3.** Increased basal lamina propria cellularity and basal plasmacytosis are common in both UC and CD. **4.** Granulomas are characteristic for CD. It is, however, well known that granulomas are not consistently present. They tend to be more common in children and in the early phase of the disease.

ЗМІСТ