

INFLAMMATORY AND INFECTIOUS DISEASES IN ADULT ILEOCOLONIC BIOPSIES

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One of the advantages of flexible colonoscopy is that the terminal ileum can easily be reached and biopsied by an experienced colonoscopist during endoscopy. Thus, the pathologist will, with increasing frequency, receive ileal biopsies of patients whose ileum may or may not be diseased. Good knowledge of the normal ileal mucosal histology and pathology, of its normal function, and of pathological changes seen in different conditions is necessary for adequate reporting of these biopsies. In addition, it is also desirable to be aware of ileal diseases that occur less frequently.

The microscopic features of terminal ileal mucosa are related to its absorptive function on the one hand, and to non-specific and specific defense mechanisms of the gut against potential hazardous components on the other hand. As a consequence the mucosa is under constant physiological and controlled inflammation. A consistent proportion of the ileal mucosal structure is determined by the presence of the gut-associated lymphoid tissue (GALT) which plays a key role in discriminating harmless nutrients and harmful pathogens.

It is important to distinguish this normal situation from alterations seen in infectious or inflammatory pathology. Further on, because of the therapeutic implications, it is necessary to recognize acute infectious and chronic -idiopathic or infectious- inflammation. This will in general be possible by evaluating the composition of luminal components, the inflammatory infiltrate and the occurrence of epithelial and mucosal architectural changes.

Often, while the histological findings in ileal biopsies alone will not suffice for a definite diagnosis, they will allow the confirmation of existing pathology or point to possible etiology. The presence of focal active inflammation can indicate acute infectious ileitis, resolving infectious enteritis and early chronic inflammatory bowel disease - especially when eosinophilic cryptitis and crypt abscesses occur. It can also be related to the use of some drugs (e.g. NSAID's).

Small intestinal infections are, together with colonic infections, amongst the most frequent occurring diseases worldwide and they harass mankind. Especially among young children there are enormous numbers of deaths due to diarrheal disease. They can be caused by a great diversity of pathogens and their pathological and epidemiological features as well as their incidence can often differ in different areas of the world. Amongst the infective causes of ileitis, only some stages of *Yersinia* enteritis are distinctive, as can be the case with tuberculosis. The most common causes of small intestinal infections are reviewed and some characteristics of their clinical and histological aspects are described. Moreover, the different infectious diseases are classified into acute and chronic as the recognition of the type of inflammatory infiltrate may be helpful to make a correct diagnosis. Here we will focus on diseases that occur more or less frequently and that are most typical in their small intestinal localization and, they will be classified according to their clinical presentation, namely, whether they are generally accompanied by acute or persistent and chronic infections.

In patients suspected of having inflammatory bowel disease ileoscopy with biopsies is useful and the diagnosis can be made on histological grounds alone, even in the absence of macroscopic endoscopic lesions. One study in patients with inflammatory bowel disease found ileal disease without colonic involvement in 44/123 patients and microscopic lesions in 49% of patients with diarrhea. It was concluded that ileoscopy with biopsy is useful in selected patients with symptoms of inflammatory bowel disease. The main indications were the diagnosis of isolated ileal disease in the presence of a normal colon and the differential

diagnosis in patients with pancolitis and predominantly left-sided colitis. From that group of patients approximately half had pathology in their ileal biopsies.

For the diagnosis of Crohn's disease the presence of sarcoid-like granulomas and isolated giant cells are fairly specific but uncommon and moreover, these features may also be seen in infectious diseases like tuberculosis and Yersiniosis. Other structural alterations like crypt architectural changes, villous abnormalities and the occurrence of the ulcer-associated cell lineage are suggestive of Crohn's disease, but again are not specific. The ulcer-associated cell lineage is a sign of chronic ulceration and regeneration and architectural mucosal changes can be seen in the vicinity of tumours, adhesions and endometriosis, and after cancer surgery. The few available data from literature on the value of ileocoloscopy with biopsy in the clinical management of inflammation show convincingly that the examination of ileal biopsies may be of great help in the evaluation of small intestinal inflammatory processes, more particular in the working-out of inflammatory bowel diseases. Thorough knowledge of the normal histological spectrum and correct interpretation of ileal biopsies will allow to make a diagnosis of Crohn's disease rather than ulcerative colitis when features of chronic ileal inflammation are present. Likewise, in cases of chronic diarrhea and normal colonic findings, ileal biopsies will permit to distinguish between a variety of protracted acute infectious pathology and idiopathic inflammatory bowel disease.

References

P. Brandtzaeg, I.N. Farstad, G. Haraldsen. Regional specialization in the mucosal immune system: primed cells do not always home along the same track. *Immunol Today* 1999, 20: 267-277

M. Ciarlet, M.K. Estes. Rotavirus and calicivirus infections of the gastrointestinal tract. *Curr. Opin. Gastroenterol.* 2001, 17: 10-16

C.Cuvelier, P. Demetter, H. Mielants, E.M. Veys, M. De Vos. The interpretation of ileal biopsies: morphological features in normal and diseased mucosa. *Histopathology* 2001, 38: 1-12

A. Fasano. Bacterial infections: small intestine and colon. *Curr. Opin. Gastroenterol.* 2001, 17: 4-9

K. Geboes K, N. Ectors, G. D'Haens, P. Rutgeerts. Is ileoscopy with biopsy worthwhile in patients presenting with symptoms of inflammatory bowel disease? *Am J Gastroenterol* 1998, 93: 201-206.

C.D. Huston, W.A. Petri Jr. Emerging and reemerging intestinal protozoa *Curr. Opin. Gastroenterol.* 2001, 17: 17-23

T.T. MacDonald, M. Bajaj-Elliott, S.L.F. Pender. T cells orchestrate intestinal mucosal shape and integrity. *Immunol Today* 1999, 20: 505-510