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Histopathological and imunohistochemical features of dysplasia-associated lesions or masses in ulcerative colitis

KEYWORDS: Colitis, Ulcerative; Colonic Polyps; Cytodiagnosis; Immunohistochemistry; Ki-67 Antigen

INTRODUCTION

Dysplasia that arises in association with chronic ulcerative colitis is the most important marker of an increased risk of malignancy in patients with this disease. Dysplasia in ulcerative colitis may be classified as flat and elevated (dysplasia associated lesion or mass [DALM]) (1). DALMs are frequently associated with a high proportion of colorectal carcinoma and are an indication for colectomy (1). DALMs are subdivided into "adenoma-like" and "non-adenoma-like" lesions based on their endoscopic appearance (2)."Adenoma-like" lesions (defined as a polyp in which distinction from a sporadic adenoma was not possible) may be treated by polypectomy alone (2). However, molecular data suggest that the "adenoma-like" DALM may have different molecular genotype than adenoma (3,4).Patients with a "non-adenoma-like" DALM (irregular, broad bases, or structured lesion),regardless of the grade dysplasia, should be treated with colectomy because of the high probability of adenocarcinoma (2). The purpose of this study was to identify morphological characteristics of DALMs in chronic ulcerative colitis, and location and intensity of Ki-67 immunostaining, and to evaluate the prognostic significance of Ki-67 expression.

MATERIAL AND METHODS

Polypectomy specimens from 21 chronic ulcerative colitis patients with DALM were available. The formalin-fixed and paraffin-embedded tissue blocks were sectioned at 5 micrometer and were stained with hematoxylin and eosin for histological evaluation. Immunostaining with anti-Ki-67 antibody (Dako, Copenhagen) was used to evaluate proliferative activity. The immunohistochemical staining was visualized using LSAB (labeled streptavidin-biotin) method.

RESULTS

Lesions are tubulo-villous or villous and frequently show admixture of dysplastic and regular crypts toward the surface. In low-grade dysplasia, the epithelium is composed of basally oriented, slightly pseudostratified cells with pencil-shaped hyperchromatic nuclei, increased mitotic figures and a lack of surface maturation. High-grade dysplasia is characterized by extension of the elongated nuclei to the upper part of cells, increasing hyperchromatism and the appearance of loss polarity. In low-grade dysplasia,Ki-67 immunoreactivity is prominent in the cells in the superficial mucosa as well as in cells at the crypt bases. In high-grade dysplasia,Ki-67 is diffusely distributed throughout the crypts, suggesting complete deregulation of normal cell proliferation. The intensity of the staining and the percentage of cells staining positively with Ki-67 tend to be greater in areas of high-grade dysplasia.

CONCLUSION

We conclude that Ki-67 immunostaining can be an aid the diagnosis of dysplasia in ulcerative colitis. Additional studies such as flow cytometry and molecular techniques may help to secure the diagnosis DALM in the future. Colonoscopic surveillance of chronic ulcerative colitis may identify patients with DALMs and thereby prevent malignant transformation.

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