Chronic inflammation increases the risk of developing several gastrointestinal malignancies. Chemokines that are produced by colonic epithelial cells play significant roles in the maintenance and repair of the epithelial barrier. The present study aimed to clarify whether the expression of CCL20 and its receptor, CCR6, was correlated with the development of ulcerative colitis (UC)-associated neoplasia. A total of 93 patients with UC who underwent proctocolectomies were enrolled in the present study. Immunohistochemical analysis for CCL20 and CCR6 expression in the rectal mucosa was performed and the correlation between expression and the pathogenesis of UC-associated neoplasia was investigated. A total of 16 (17.2%) patients presented with UC-associated neoplasia. The immunohistochemistry (IHC) score for CCL20 was significantly increased in the patients with a mild form of the disease ($P=0.0363$). The IHC score for CCL20 expression in the patients with UC-associated neoplasia was higher compared with the patients without neoplasia ($P=0.0294$). In contrast, there was no significant correlation between CCR6 expression and the clinicopathological variables. The logistic regression analysis revealed that a high IHC score for CCL20 expression in the rectal mucosa and a disease duration of more than eight years were significantly correlated with the development of UC-associated neoplasia ($P<0.05$). The results suggest that an evaluation of CCL20 expression in the rectal mucosa may be useful to identify patients who are at a high risk for developing UC-associated neoplasia. However, a selection bias existed in the present study due to the fact that the patient population that was enrolled was not representative of a typical surveillance patient population.