Human Pathology (2015) **46**, 1548–1556

ELSEVIER

Human PATHOLOGY

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Original contribution

Clinical, pathologic, and outcome study of hyperplastic and sessile serrated polyps in inflammatory bowel disease☆

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Received 25 March 2015; revised 11 June 2015; accepted 17 June 2015

Keywords:
Hyperplastic polyp;
Sessile serrated polyp;
Sessile serrated adenoma;
Inflammatory bowel disease;
Ulcerative colitis;
Crohn disease

Summary There is evidence that some cancers in patients with inflammatory bowel disease (IBD) develop via the serrated pathway of carcinogenesis. This study examined the clinicopathological features and outcome of 115 IBD patients (65 with ulcerative colitis, 50 with Crohn disease), all with at least 1 serrated polyp at endoscopy or colon resection, including the presence of synchronous and metachronous conventional neoplastic lesions (dysplasia or adenocarcinoma), over an average follow-up period of 56.4 months. Conventional neoplasia was categorized as flat dysplasia (low or high grade), sporadic adenoma, adenoma-like dysplasia-associated lesion or mass, or adenocarcinoma. Overall, 97% of patients had at least 1 hyperplastic polyp (HP), 6% had a sessile serrated adenoma/polyp, and none had a traditional serrated adenoma. Eight patients (7%) had a synchronous conventional neoplastic lesion; only 1 had flat dysplasia (1%) and 2 had adenocarcinoma (2%). Thirteen patients developed a metachronous conventional neoplastic lesion, with 8 developing their conventional neoplasm within an area of previous or concurrent colitis; only 1 patient developed flat dysplasia (1%), and none developed adenocarcinoma. A higher proportion of patients with both an HP and a synchronous conventional neoplastic lesion at index developed a metachronous conventional neoplastic lesion, compared with those with an index HP only (25% versus 7%). These results suggest that IBD patients (both ulcerative colitis and Crohn disease patients) with HP have a very low risk of developing a conventional neoplastic lesion (flat dysplasia or adenocarcinoma) that would warrant surgical resection.

☆ Disclosures: None declared.

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http://dx.doi.org/10.1016/j.humpath.2015.06.019
0046-8177/

1. Introduction

Patients with inflammatory bowel disease (IBD) have a well-recognized increased risk of developing colorectal cancer via an inflammation-dysplasia-carcinoma sequence [1,2]. The goal of surveillance is to detect dysplasia, which is presently the best and most reproducible marker of malignancy risk in IBD [2]. Grossly, dysplasia is classified into 2 general categories: flat dysplasia, which is endoscopically undetectable, and elevated or raised dysplasia, referred to as dysplasia-associated lesions or masses (DALMs), which are endoscopically detectable [3]. DALMs are further subclassified into those that are adenoma-like (endoscopically resectable) and non–adenoma-like (endoscopically unresectable) [3–5]. Microscopically, dysplasia is graded as either low or high, based on a combination of architectural and cytologic features [2].

At this point in time, 3 morphologic subtypes of dysplasia in IBD have been described, all of which may exhibit flat or polypoid architecture: intestinal dysplasia, which cytologically resembles dysplasia seen in sporadic adenomas, hypermucinous/villous dysplasia, and serrated dysplasia [2,3,6–8]. Polypoid serrated dysplasia resembling sporadic serrated polyps has also been observed in IBD patients [6,8–10]. The biological properties and natural history of these lesions are poorly understood. However, there is evidence that some cancers in IBD patients may develop through the serrated neoplasia pathway [8,11–14]. Most serrated pathway cancers exhibit high-level microsatellite instability and arise from malignant transformation of serrated polyps [15–17]. Serrated polyps are classified as follows: hyperplastic polyp (HP), sessile serrated adenoma/polyp (SSA/P), either with or without dysplasia, and traditional serrated adenoma (TSA) [18]. The reported prevalence of serrated polyps in the general white adult population ranges from 25% to 50% based on autopsy studies, with lower and similarly variable prevalence rates from colonoscopy-based studies [19–21]. Their prevalence in the IBD patient population is unknown. Furthermore, little is known about the clinicopathological features, and outcome, of IBD patients with serrated polyps. Therefore, the aim of the current study was to evaluate the clinical, pathologic, and outcome features of IBD patients, all of whom had at least 1 serrated polyp detected at index colonoscopy or colon resection. The principal question was to determine if these patients are at increased risk for flat dysplasia or cancer.

2. Materials and methods

2.1. Study group

The study cohort consisted of 115 patients with IBD identified via a retrospective search of the pathology archives at 2 major hospitals (Brigham and Women's Hospital, and Boston Medical Center, Boston, MA) between the years 2002 and 2010. During this period, 1150 IBD patients were identified. Patients were included in the study if they had a clinically and pathologically established diagnosis of either ulcerative colitis (UC; 65 patients) or Crohn disease (CD; 50 patients), at least 1 serrated polyp detected in their colonoscopic biopsy (n = 111) or resection specimen (n = 4), and slides of their polyps available for review. The search terms used to find cases included UC, CD, or IBD, and HP, SSA/P, TSA, hyperplastic change or atypia, serrated change or atypia, and, finally, dysplasia and DALM. Of the 4 patients in whom at least 1 serrated polyp was detected in a colon resection specimen, none had polyps identified in their preresection surveillance biopsies. All of these patients had a colectomy for medically intractable disease. In total, 156 polyps from 115 IBD patients were detected and included in this study. The patients' medical records were reviewed, and the following clinical information was recorded: age, sex, race, duration (in years) and extent of colitis (rectum only, subtotal colitis, pancolitis, right colon only, and left colon only), and presence or absence of ileal involvement. The endoscopy reports of the patients' colonoscopies (or the gross pathologic descriptions, for patients who had a colonic resection) were also reviewed. The following endoscopic features were noted: polyp number, location (right or transverse colon versus left colon or rectum), size (in mm), and gross characteristics of the polyps (sessile or pedunculated).

All 115 patients with serrated polyps had follow-up colonoscopies or resections, which served as the source of follow-up information. The length of follow-up was calculated as the interval of time from the date of the patient's index colonoscopy or resection to the date of the patient's most recent colonoscopy or resection. Of the 115 patients, 91 had subsequent colonoscopies and 8 had subsequent colon resections available for review. The study was approved by the institutional review boards of both participating hospitals.

2.2. Histologic evaluation

Histologic evaluation of the index serrated polyps was performed by 2 of the authors of this study (H. K. and R. O.). Agreement between the 2 pathologists regarding the diagnosis of the polyp and the degree of dysplasia (if any) was nearly 100%. Any disagreements were resolved by reevaluation by both pathologists at a multiheaded microscope. All polyps were classified according to the most recently published consensus criteria [18] as either HP, SSA/P with or without dysplasia, or TSA. HPs were further subclassified as either microvesicular, goblet cell–rich, or mucin poor, according to previously published criteria [18]. All of the other colon biopsies (or tissue sections, for resection specimens) from each patient were evaluated to determine if they were histologically normal or contained evidence of chronic colitis, with or without activity. These