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# Introduction: What Are New Roles of Current Colonoscopy?

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The recent advances in endoscopic imaging technologies make great changes in the management of colorectal polyps. These changes include optical histologic diagnosis with high definition colonoscopy, new management strategies such as resect and discard or do not resect, and differentiation of depth of submucosal invasion. In this focused review series, these new paradigms in management of colorectal polyps are discussed by three, world famous authors. First, Amit Rastogi explained optical diagnosis of small colorectal polyp with high definition colonoscopy using narrow band imaging. Second, Cesare Hassan explained new paradigms for colonoscopic management of diminutive colorectal polyps: resect and discard or do not resect. In the last, Shinji Tanaka described, in detail, endoscopic assessment of invasive colorectal cancer: slight vs. deep submucosal invasion. These focused review series introduce the new roles of current colonoscopy to readers and will help the readers to know how to use the new imaging technologies and paradigms in clinical practices.

**Key Words:** High-definition colonoscopy; Narrow band imaging; Colorectal polyps; Optical diagnosis

## INTRODUCTION

Colorectal cancer (CRC) is a leading cause of cancer death worldwide. Colonoscopy has been effective in detection and removal of colorectal adenoma and colonoscopic polypectomy has prevented a good part of CRCs.<sup>1,2</sup> Because most CRCs arise from preexisting adenomatous polyps, all identified colorectal adenomas during colonoscopy are to be removed.

Recently, the demand for colonoscopy is increasing rapidly, together with the increasing interest on health promotion and CRC. In company with increased numbers of colonoscopy, employing high-definition colonoscopy facilitated the detection of colorectal polyps and, recently, colorectal polyps have become an extremely common disease. Most polyps detected with current colonoscopy are small or, mostly, diminutive.<sup>3,4</sup>

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## THE PROBLEMS OF CURRENT MANAGEMENT OF COLORECTAL POLYPS

Currently, diminutive colorectal polyps are resected endoscopically and submitted for pathologic assessment for precise diagnosis. The important background of current management is that it is difficult to differentiate between adenomatous and hyperplastic polyps by only standard white light colonoscopy. This handicap necessitates the indiscriminate removal of all polyps detected during colonoscopy, thus increasing the costs and risks associated with potentially avoidable polypectomies. However, most of these polyps are hyperplastic or adenomatous polyps without advanced features<sup>5-7</sup> and optical histologic diagnosis of these polyps has become available by great improvement of imaging techniques. So, current practice results in unnecessary costs, waste of medical resources and risks associated with unnecessary polypectomy. New clinical approaches for the management of colorectal polyps have appeared due to these backgrounds.

## THE NEW ROLES OF CURRENT COLONOSCOPY

Current colonoscopy produces a high definition image and

narrow band image (NBI; Olympus, Tokyo, Japan) allows enhancing the visualization of superficial mucosal and vascular pattern by only simple manipulation. The improved quality of endoscopic image can be helpful in predicting their histology; several studies have shown good predictive accuracy of high definition colonoscopy and NBI without magnification for polyp histology.<sup>8-11</sup>

The encouraging results about optical histologic diagnosis of diminutive colorectal polyps using new imaging technologies could change the current management of such polyps.<sup>12</sup> Recently, two new paradigms have been introduced by the American Society for Gastrointestinal Endoscopy. First, “resect and discard” strategy is an optical assessment of histology followed by resection and discarding of the diminutive polyp without pathologic assessment. Second, “do not resect” is to leave diminutive hyperplastic polyps in the distal colon in place without resection. These paradigms could resolve the problems of current management of colorectal polyps.

In addition, high definition colonoscopy with NBI can observe the microvessels and pit-like pattern of superficial mucosa of polyp and differentiate between adenoma and carcinoma based on these patterns. By using NBI magnifying observation to analyze microvessel visibility, vascular diameter and distribution heterogeneity, and the presence and irregularity of pit-like pattern, it becomes possible to discriminate submucosal carcinoma as slight versus deep invasion.<sup>13-15</sup>

## THE CONTENTS OF THIS FOCUSED REVIEW SERIES

The purpose of this review series is to help the readers to understand the new roles of current colonoscopy, especially new imaging technologies and new paradigms. First, Rastogi et al.<sup>9</sup> kindly explained unique images among histologic differences with high definition colonoscopy using narrow band imaging. Second, Cesare Hassan kindly explained the background and validity of the new paradigms for colonoscopic management of diminutive colorectal polyps. In the last, Shinji Tanaka described, in detail, the unique patterns in high definition and magnifying colonoscopy as well as morphologic characteristics of submucosal cancer.

### Conflicts of Interest

The author has no financial conflicts of interest.

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