Endoscopic identification of Peyer’s patches of the terminal ileum in a patient with Crohn’s disease

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INTRODUCTION

The gut-associated lymphoid tissue (GALT) is composed of Peyer’s patches, peripheral lymphoid tissues and appendix and plays an important role in the immune system of the gastrointestinal tract[1]. The importance of Peyer’s patches in the development of Crohn’s disease (CD) is generally accepted[1-8], but there have been only a few reports focusing on the endoscopic appearance of Peyer’s patches of the terminal ileum in CD[3-5].

We presented a patient with CD in whom specific CD lesions were found in the Peyer’s patches of the terminal ileum by magnifying endoscopy, histopathology and scanning electron microscopy. We also discussed the importance of endoscopic observation of the Peyer’s patches of the terminal ileum in the diagnosis and assessment of the pathogenesis of CD.

CASE REPORT

A 20-year-old man was admitted to our hospital with right lower abdominal pain, diarrhea and anal fistula for 4 wk. Physical examination revealed localized guarding with tenderness in the right lower quadrant of the abdomen as well as anal discharge. Laboratory analysis showed leukocytosis (10,700/µL), elevated C-reactive protein (27 mg/L) and slight hypoproteinemia, while other biochemical and serological data were within normal limits. Repeated stool cultures yielded no enteric pathogens including Yersinia and tubercle bacilli. Colonoscopy showed longitudinal ulcers in the terminal ileum (Figure 1A), ileocecal valve, hepatic flexure, and anal canal. A subsequent radiological examination of the small bowel disclosed three discrete longitudinal ulcers with cobblestone appearance in the ileum. After treatment with a total of 2,250 mg of mesalamine for 2 wk under total parenteral nutrition, repeat colonoscopy revealed improvement of the above lesions, leaving deformity of the ileocecal valve and anal stenosis. In addition to multiple aphthoid ulcers in the rectum, a granular elevated area was noted in the terminal ileum, which corresponded to the lymph follicle type of the Peyer’s patches according to a classification proposed by Fujikura (Figure 1B)[9]. On magnifying endoscopy, the surface of the Peyer’s patches appeared as an irregular dome-like elevation with irregularly arranged villi (Figure 1C). Histopathological examination of the biopsy specimens taken from the region and rectal aphthoid ulcers disclosed the presence of granularly elevated mucosa consistent with the lymphoid follicle type of the Peyer’s patches.

Abstract

We presented a 20-year-old patient with Crohn’s disease (CD). Colonoscopy revealed longitudinal ulceration in the terminal ileum and rectal aphthoid ulcers. After treatment with mesalamine and total parenteral nutrition, repeat colonoscopy revealed a granular elevated area in the terminal ileum, which appeared as an irregular dome-like elevation with irregularly arranged villi on magnifying endoscopy. Biopsy specimens taken from the region showed microgranulomas and lymphoid hyperplasia. Scanning electron microscopy revealed the presence of M cells, confirming that the area corresponded to Peyer’s patches. Peyer’s patches by magnifying endoscopy and electron microscopy may provide insights into the pathogenesis of CD.

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Figure 1 Endoscopic findings. A: Endoscopic view showing an ulceration of the terminal ileum. B: Endoscopic view showing granularly elevated mucosa consistent with the lymphoid follicle type of the Peyer’s patches. C: Magnifying endoscopy showing the irregular villi and the dome.
of microgranulomas and lymphoid hyperplasia (Figure 2). Scanning electron microscopy of the specimen taken from the Peyer’s patch revealed the presence of M cells (Figure 3).

**Figure 2** Histological finding of a biopsy specimen obtained from the Peyer’s patches in the terminal ileum disclosing the presence of a microgranuloma and lymphoid hyperplasia.

**Figure 3** Scanning electron microscopy of the Peyer’s patches demonstrating M cells with microfolds.

**DISCUSSION**

Major advances have been made in every aspect of CD and ulcerative colitis (UC), but several problems in the etiology and pathogenesis of inflammatory bowel diseases (IBD) remain unresolved[1-8]. It has been recognized that the disorder of GALT plays a crucial role in the development of IBD[9,10]. Peyer’s patches and related lymphoid follicles have specialized follicle-associated epithelia (FAE) which serve as the induction of mucosal immune responses[4-5]. In particular, it has been found that M epithelia (FAE) which serve as sites for the induction of mucosal and related lymphoid follicles have specialized follicle-associated epithelium (FAE). Scanning electron microscopy identified the presence of M cells, and lymphoid hyperplasia when examined histopathologically. In conclusion, we identified CD-specific lesions in the Peyer’s patch of the terminal ileum by endoscopy and histopathological examination. Although the pathogenic role of M cells in the development of IBD is still unknown, examination of the Peyer’s patches by magnifying endoscopy and electron microscopy may provide insights into the pathogenesis of CD.

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