Primary Small Intestinal Mucosa-associated Lymphoid Tissue Lymphoma Diagnosed by Balloon-assisted Enteroscopy

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Abstract

A 78-year-old Japanese woman presented with anemia. Oral double-balloon endoscopy (DBE) detected multiple ulcerative lesions covered with coagula extending up to approximately 20 cm from the mid-jejunum. Based on the histopathological findings, the patient’s condition was diagnosed as mucosa-associated lymphoid tissue (MALT) lymphoma of the small intestine. During the second DBE examination, a small intestinal perforation occurred in one of the ulcerative lesions, and an emergency segmental small intestinal resection was performed. The present case suggests that in MALT lymphoma, intestinal wall fragility may lead to perforation even though the lesion may appear to be a superficial ulcer on endoscopy.

Key words: small Intestine, MALT lymphoma


Introduction

Mucosa-associated lymphoid tissue (MALT) lymphoma is classified as an extranodal marginal zone B-cell lymphoma of the MALT type. MALT lymphoma commonly affects the gastrointestinal tract, with the stomach being the most common site of occurrence. Its occurrence in the small intestine is relatively uncommon. The recently developed technologies of video capsule endoscopy (VCE) and balloon-assisted enteroscopy, including double-balloon endoscopy (DBE), make it possible to visualize the entire small intestine and preoperatively diagnose MALT lymphoma of the small intestine. Few endoscopic findings of small intestinal MALT lymphoma have so far been reported, and the available data on the characteristics of small intestinal MALT lymphoma are insufficient. We herein describe a case of small intestinal marginal zone B-cell lymphoma of MALT, which was characterized by multiple ulcers with bleeding in the jejunum as detected by VCE and oral DBE examination.

Case Report

A 78-year-old Japanese woman who had no medical history other than laparoscopic cholecystectomy for chronic cholecystitis was admitted to a local hospital because of anemia and melena in June 2011 and February 2012, respectively. Esophagogastroduodenoscopy and colonoscopy were performed, and no bleeding source was identified. She was referred to our hospital for further investigation of the bleeding source in the small intestine.

A physical examination revealed severe anemia and edema of the lower limbs. No tenderness was observed on palpation of the abdomen. The patient’s complete blood count showed severe anemia (hemoglobin level, 6.6 g/dL). Besides a slightly elevated serum soluble interleukin 2 receptor level (630 U/mL), other laboratory examination data, including tumor marker levels, were within normal limits.
Her serum antibody for *Helicobacter pylori* was positive. VCE examination revealed ulcers at the mid-jejunum with neither bleeding nor visible vessels (Fig. 1a). Oral DBE detected multiple ulcerative lesions covered with coagula extending up to approximately 20 cm from the mid-jejunum (Fig. 1b). A histopathological examination of the biopsy specimens obtained from the ulcerative lesions showed a lymphoepithelial lesion that was immunohistochemically positive for CD20, CD21, CD79a, and Bcl-2 (Fig. 2d, e) and negative for CD5, CD10, and cyclin D1. t(11;18)/API2-MALT1 was not detected.

Abdominal contrast-enhanced computed tomography revealed thickness of the jejunal wall and the enlargement of several mesenteric lymph nodes (Fig. 1c).

Fluorodeoxyglucose positron emission tomography demonstrated no abnormal uptake and no evidence of disseminated lesions. On the basis of these findings, the patient was diagnosed with MALT lymphoma of the small intestine.

During a second DBE examination that was conducted to preoperatively mark these enteric lesions prior to surgery to allow accurate estimation of the extent of resection, a small intestinal perforation occurred in one of the ulcerative lesions (Fig. 1d). An emergency segmental small intestinal resection was performed for the multiple ulcerative lesions, in-
Figure 2. (a-e) The histologic analysis of the resected small intestine. We observed extensive infiltration of small monomorphic lymphoid cells without plasmacytoid differentiation throughout the affected intestinal wall and, occasionally, into the subserosa. b and c are higher magnifications of a. (d, e) Immunohistochemistry for CD20 (d) and Bcl-2 (e).

ecluding the perforated ulcer. The macroscopic examination of the resected jejunum revealed multiple ulcers with diffuse mucosal fold thickening and swollen mucosa (Fig. 1e). Histologically, extensive infiltration of small monomorphic lymphoid cells without plasmacytoid differentiation was observed throughout the corresponding intestinal wall and, occasionally, into the subserosa (Fig. 2a, b). The lamina muscularis mucosae was completely destroyed due to lymphoid cell penetration (Fig. 2c). Our examination of a mesenteric lymph node sample revealed metastasis of the MALT lymphoma to the nearby lymph nodes. We did not observe any evidence of MALT lymphoma in the distal lymph node, and we therefore determined that there was no need to perform additional operations. The final diagnosis was small intestinal MALT lymphoma stage II1, according to the Lugano staging system (1).

The patient was discharged 23 days after the successful surgical resection of the lesion. No recurrence of MALT lymphoma was observed at her annual follow-up. In the near future, we are planning for her to undergo eradication therapy for *H. pylori*.

**Discussion**

Small intestinal MALT lymphoma is extremely rare (2) and difficult to diagnose without surgery. Thus far, few cases of small intestinal MALT lymphoma diagnosed by DBE have been reported in the literature (3, 4). Balloon-assisted enteroscopy is a useful modality for diagnosing small intestinal diseases owing to its ability to obtain histopathological samples.

The risk of perforation during DBE examination may be high in patients with ulcerative disease in the small intestine. Moreover, intestinal perforation, which commonly occurs in lesions involving lymphoma cells, is a major severe complication of small intestinal lymphoma, especially during chemotherapy using rituximab combined with cyclophosphamide, adriamycin, vincristine, and prednisolone (5).
Nakamura et al. reported that the incidence of small intestinal perforation in patients with lymphoma was 8.7% (6). DBE for patients with MALT lymphoma in the small intestine should be performed with great care to avoid perforation.

The treatment for gastric MALT lymphomas generally includes H. pylori eradication therapy (7), radiation therapy (8), chemotherapy (9), and surgery. In contrast, there is no consensus regarding treatment of small intestinal MALT lymphomas. We selected surgical treatment for our patient for several reasons. First, continuous uncontrolled bleeding is an absolute indication for surgical treatment in general, and other therapies are too time-consuming to control small intestinal bleeding and severe anemia. Second, surgery alone can be curative in most patients with lymphoma limited to the small intestine or the peri-intestinal lymph nodes. Although radiation therapy is also effective and less invasive than surgical therapy for MALT lymphoma limited to a focal area of the gastrointestinal tract, precise targeting of radiation to the small intestine is difficult because it is not fixed in the abdominal cavity. Lastly, clinical evidence of the therapeutic effect of H. pylori eradication on small intestinal MALT lymphoma is currently insufficient (10), although H. pylori eradication is the first treatment choice for gastric MALT lymphoma (7).

There are several options to treat small intestinal perforations, depending on their macroscopic condition. We selected surgery in the present case, although clipping by DBE was another option. The main reason for our choice was that the site of the small intestinal perforation seemed too long and deep to be treated by clipping during DBE. Additionally, because there were numerous scars near the lesion, we could not accurately determine which scar was perforated. We therefore considered that clipping could result in more severe damage in this case.

In conclusion, we herein described a case of small intestinal MALT lymphoma diagnosed by DBE. Endoscopic examination of MALT lymphoma in the small intestine should be performed with great care because extensive infiltration of lymphoma cells to all layers of the small intestine may render the intestinal wall fragile to perforation.

Author’s disclosure of potential Conflicts of Interest (COI).

References