Regression of Cecal MALT Lymphoma after Antibiotic Treatment in a Patient with *Helicobacter pylori* Infection

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**Abstract**

A 63-year-old man with abdominal discomfort was referred to our hospital. Colonoscopy revealed a hemispherical-shaped protruding cecal mass of approximately 10 mm in size with a normal mucosal surface. Biopsy specimens showed nodules consisting of the proliferation of atypical lymphoid cells. Mucosa-associated lymphoid tissue (MALT) lymphoma was diagnosed based on the histological and immunohistochemical findings. Since upper gastrointestinal endoscopy demonstrated *Helicobacter pylori*-associated atrophic gastritis, eradication therapy was administered. The cecal mass disappeared completely within three months after triple therapy. Therefore, *H. pylori* eradication therapy may be a useful treatment option for cecal MALT lymphoma.

**Key words:** MALT, *Helicobacter pylori*

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**Introduction**

Mucosa-associated lymphoid tissue (MALT) lymphoma was first described by Isaacson and Wright as a distinct type of lymphoma (1). Extranodal marginal zone lymphoma of MALT is frequently found in the gastrointestinal tract, mainly occurring in the stomach and small intestine and rarely in the colon (2). Diffuse large B cell lymphoma is the most common type of colonic lymphoma, whereas MALT type lymphoma accounts for less than 20% of colonic lymphoma cases (3). Primary cecal MALT lymphoma is extremely rare, and most patients require surgical resection. Gastric MALT lymphoma is often associated with *H. pylori* infection. Therefore, the efficacy of *H. pylori* eradication therapy has been investigated as a first-line treatment for gastric MALT lymphoma, and this treatment has been found to be highly effective for localized low-grade disease (4-8). In contrast, no treatment for colonic MALT lymphoma has been established. We herein describe a case in which complete remission of cecal MALT lymphoma was achieved with triple therapy in a *H. pylori*-positive patient.

**Case Report**

A 63-year-old man with a history of abdominal discomfort was admitted to another hospital in November 2013. Colonoscopy detected a polyoid lesion in the cecum. He was referred to our hospital for a further detailed evaluation. A physical examination performed on admission revealed no abnormalities, whereas colonoscopy disclosed a smooth, elevated, hemispherical-shaped, protruding cecal mass of approximately 10 mm in size with a normal mucosal surface (Fig. 1a, b). Magnified chromoendoscopy and narrow band imaging showed partial disappearance of the normal pit pattern and an irregular vascular pattern with ectasia on the mass surface (Fig. 1c, d). The top portion of the mass was slightly depressed, thought to be due to the previous biopsy. Endoscopic ultrasonography, performed with a 20-MHz probe, showed thickening of the submucosa and muscularis propria. Additionally, the lesion was easily transformed by the probe (Fig. 2). The pathological findings of the biopsy
sample obtained from the cecal lesion showed nodules consisting of the proliferation of small atypical lymphoid cells. These nodules were located in the mucosal and submucosal layers (Fig. 3a) and invaded and destroyed the epithelium to form lymphoepithelial lesions (Fig. 3b). Immunohistochemistry indicated that the atypical lymphoid cells were positive for B cell markers (CD20) (Fig. 3c) but negative for T cell markers (CD3, CD5, CD45RO) (not shown), CD10 (not shown) and cyclin D1 (not shown). The proliferation rate, as assessed on Ki-67 staining, was approximately 10% (not shown). A polymerase chain reaction (PCR) analysis of the biopsy tissue samples revealed immunoglobulin heavy chain gene rearrangement (VH(FR1)/JH), strongly suggesting the presence of the same monoclonal B cell rearrangement. However, the API2-MALT1 chimeric transcript was not detected on reverse transcriptase PCR of the frozen specimens. Based on the histopathological and phenotypic features of the mass, the patient was diagnosed with low-grade B cell MALT-type lymphoma. Upper gastrointestinal endoscopy revealed atrophic changes in the corpus, and H. pylori infection was diagnosed based on the results of anti-H. pylori IgG antibody serology and a urea breath test. Abdominal computed tomography, a bone marrow biopsy and gallium scintigraphy each indicated the absence of metastatic lesions. The MALT lymphoma was classified as stage I according to the Lugano staging system. Because MALT lymphoma is slow to spread and H. pylori eradication therapy has few side effects, H. pylori eradication therapy was selected as the first-line treatment. Hence, triple therapy consisting of oral rabeprazole (20 mg/day), amoxicillin (1,500
mg/day) and clarithromycin (400 mg/day) was administered for seven days. Two months later, successful *H. pylori* eradication was confirmed on a urea breath test. The colonoscopy findings obtained three months after the completion of antibiotic therapy showed tumor regression (Fig. 1e, f), and a biopsy examination disclosed no abnormal findings (Fig. 3d). During the 12-month follow-up period, endoscopy and a biopsy of the cecum showed no evidence of recurrence.

**Discussion**

The etiology of gastric MALT-type lymphoma is attributed to chronic infection, especially *H. pylori* infection (9).
**Table. Reported Cases of Primary Cecal MALT Lymphoma.**

<table>
<thead>
<tr>
<th>Reference</th>
<th>Age/Sex</th>
<th>Location</th>
<th>Size (cm)</th>
<th>Symptoms</th>
<th>H. pylori</th>
<th>Treatment</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>80/F</td>
<td>C, S, R</td>
<td>ND</td>
<td>Anal bleeding</td>
<td>-</td>
<td>Eradication</td>
<td>PR</td>
</tr>
<tr>
<td>17</td>
<td>76/M</td>
<td>C</td>
<td>3.0×1.5</td>
<td>Fecal occult blood</td>
<td>ND</td>
<td>Partial resection</td>
<td>ND</td>
</tr>
<tr>
<td>18</td>
<td>44/M</td>
<td>C</td>
<td>1.1×0.9</td>
<td>Fecal occult blood</td>
<td>-</td>
<td>Partial resection</td>
<td>ND</td>
</tr>
<tr>
<td>19</td>
<td>59/M</td>
<td>C</td>
<td>1.2</td>
<td>ND</td>
<td>ND</td>
<td>Partial resection and chemotherapy</td>
<td>ND</td>
</tr>
<tr>
<td>20</td>
<td>64/F</td>
<td>C</td>
<td>0.5</td>
<td>constipation</td>
<td>ND</td>
<td>Polypectomy</td>
<td>NED for 6 years</td>
</tr>
<tr>
<td>21</td>
<td>55/M</td>
<td>C</td>
<td>10×5</td>
<td>Abdominal pain</td>
<td>-</td>
<td>Partial resection</td>
<td>NED for 3 months</td>
</tr>
<tr>
<td>Present study</td>
<td>63/M</td>
<td>C</td>
<td>1.0×1.0</td>
<td>Abdominal discomfort</td>
<td>+</td>
<td>Eradication</td>
<td>NED for 6 months</td>
</tr>
</tbody>
</table>

C: cecum, R: rectum, S: sigmoid colon, ND: not determined, PR: partial regression, NED: No evidence of disease

*H. pylori* eradication therapy is widely recognized as an effective initial therapy for localized gastric MALT lymphoma (10-12). On the other hand, a standard treatment protocol for colonic MALT lymphoma has yet to be established because of the rarity of the disease and lack of an established etiological cause. Treatments for colonic MALT lymphoma include surgery, chemotherapy, radiotherapy and endoscopic resection (13). In 1997, Matsumoto et al. reported the first case of rectal MALT lymphoma regression after *H. pylori* eradication therapy (14). This initial report was followed by other case reports of rectal MALT lymphoma regression after antibiotic therapy. Some studies have reported that *H. pylori* eradication therapy is an effective treatment for colonic MALT lymphoma, even in *H. pylori*-negative patients (15), and regression of rectal MALT lymphoma after the administration of quinolones has been reported (16). These results suggest that, unlike gastric MALT lymphoma, colorectal MALT lymphoma is not directly related to *H. pylori* infection. Other antibiotic-sensitive pathogenic bacteria have been speculated to contribute to the development of MALT lymphoma in the colon and rectum. Therefore, intestinal MALT lymphoma lesions may regress even after the failure of *H. pylori* eradication. Hence, an endoscopic examination should be conducted regardless of the outcome of eradication therapy.

We performed a MEDLINE search of English language articles pertaining to cecal MALT lymphoma. To the best of our knowledge, only six cases of primary cecal MALT lymphoma have been published in the English language literature. The reported cases are summarized in Table (15, 17-21). Surgical or endoscopic resection was performed in most reported cases. Only one case was treated with *H. pylori* eradication therapy; however, residual disease was present in the rectum after *H. pylori* eradication. Nakazawa et al. reviewed the cases of 15 Japanese patients with cecal MALT lymphoma. All 15 patients underwent surgical or endoscopic resection (22).

Although surgical resection may be effective for localized colorectal MALT lymphoma, it is a highly invasive treatment. The optimal therapeutic guidelines for the treatment of colonic MALT lymphoma have yet to be established. Nevertheless, antibiotic therapy should be considered as a first-line treatment for patients with colonic MALT lymphoma regardless of their *H. pylori* status because of the minimal side effects and noninvasiveness.

In conclusion, we herein reported a case of cecal MALT lymphoma that regressed after *H. pylori* eradication therapy. Further studies are needed to clarify the mechanisms by which antibiotic therapy induces tumor regression. Such studies will be essential in establishing a standard treatment protocol for cecal MALT lymphoma.

The authors state that they have no Conflict of Interest (COI).

**References**


