Gastrointestinal tracts are the most frequently involved sites of mucosa-associated lymphoid tissue (MALT) lymphoma. Stomach is the most common site of involvement among the gastrointestinal tract. Simultaneous occurrence of primary gastric and colonic MALT lymphoma is rarely reported. We report a case of synchronous double primary MALT lymphoma of the colon and stomach in a healthy subject. A 62-year-old male underwent an esophagogastroduodenoscopy and colonoscopy for medical checkup. An endoscopic examination of the stomach showed an erythematous mucosa in the great curvature of the lower body. The endoscopic finding of the colon was a flat elevated lesion in the sigmoid colon. Microscopic examinations revealed MALT lymphoma and gastric Helicobacter pylori infection. We performed imaging studies to evaluate distant metastasis and confirmed that there is no other metastasis. The patient was treated with H. pylori eradication therapy and CHOP (cyclophosphamide, doxorubicin, vincristine, prednisone) chemotherapy. He had not experienced any recurrence since the treatments, and reached a complete remission state after six months. (Intest Res 2013;11:204-207)

Key Words: Lymphoma, B-cell, marginal zone; Colon; Stomach
infection and diffuse lymphocytic infiltration of the centrocyte-like cells with a prominent lymphoepithelial lesion (Fig. 2A) and cytokeratin positiveness by immunohistochemistry (IHC), suggestive of MALT lymphoma (Fig. 2B). Also, colonoscopy was performed. At the sigmoid colon we found a flat elevated lesion, which had a loss of vascularity, and the color
of mucosa of that lesion was changed to milk-white (Fig. 3A). Histological examination of the colonic samples showed diffuse lymphocytic infiltration and a prominent lymphoepithelial lesion as one of the stomach (Fig. 2C). Immunohistochemical stains demonstrated that the lymphocytes are CD3, CD20, CD5 and cytokeratin positive, and cyclin D1 negative (Fig. 2D). Ki-67 labelling index was 10%. At first, we considered a diagnosis of this endoscopic finding as gastritis and a nonspecific colonic lesion. However, after we confirmed the histological result, we diagnosed the case as simultaneous primary low grade MALT lymphoma of the stomach and colon. Then, we performed a CT of the abdomen and chest, positron emission tomography-CT and bone marrow biopsy for staging a work up. There were no other abnormal findings. The stage of this case was IV according to Ann Arbor classification. As there was so much persuasive evidence that gastric MALT lymphoma was related to H. pylori, eradication of H. pylori was recommended as the primary choice in the treatment of primary low grade gastric MALT lymphoma. The patient was treated with a 7-day course of lansoprazole, amoxicillin and clarithromycin. Eradication of H. pylori was proved successful by a follow up 14C-urea breath test. Following four cycles of CHOP (cyclophosphamide 750 mg/m², day 1; doxorubicin 50 mg/m², day 1; vincristine 1.4 mg/m², day 1; prednisone 100 mg, days 1-5) were performed, and these four cycles were repeated every 21 days. The patient was followed up closely with endoscopies, CT scans and complete blood count, as well as biochemistry in addition to biopsies after six months, but no evidence of tumor deterioration was detected. We found a scar of the former lesion, which had healed at a follow up endoscopy after six months (Fig. 1B, 3B). The patient reached a complete remission state after six months.

**DISCUSSION**

Primary extranodal MALT lymphoma, which was first introduced by Isaacson and Wright can arise in a variety of anatomical sites, such as the gastrointestinal tract, salivary gland, thyroid gland, lung, breast, bladder, and skin. Most MALT lymphomas arise from gastrointestinal organs and the stomach is the most common site involved, accounting for about 50-60% of gastrointestinal tract lymphomas. The most frequently observed non-gastric intestinal MALT lymphoma involvement site was the ileocecal region (40.7%). The rectal (15%) MALT lymphoma was observed more frequently than MALT lymphoma of the colon (4%).

A clinical manifestation of the gastric MALT lymphoma is nonspecific. Symptoms are varied and include asymptom, dyspepsia and epigastric pain. Primary colonic MALT lymphoma is a very rare disease, and most symptoms are also nonspecific, and include asymptom, abdominal bloating and abdominal pain. Endoscopic examinations of the gastric MALT lymphoma revealed various findings, such as geographic superficial ulcer, mucosal depressions or elevation, mucosal atrophy, erosion, and etc. Endoscopic findings of the colon MALT lymphoma were obtained from a configuration of a single polyp, or a flat elevated mucosal lesion. It has been reported that low-grade MALT lymphoma is a neoplasm with a favorable clinical behavior and an excellent prognosis. However, the early diagnosis of MALT lymphoma is unsatisfactory, because of the very indolent course and various endoscopic patterns as already mentioned. When certain findings are disclosed by endoscopy, we should take lymphoma into consideration and biopsies at not only the abnormal mucosa, but also the normal mucosa, repeatedly. Moreover, it is necessary to try a biopsy of the submucosal layer. Histological features of the MALT lymphoma is a lymphoepithelial lesion caused by atypical lymphocytic infiltration, centrocyte-like cell and differentiation of the plasma cell. However, diagnosis cannot be made by only these features. Histologic evaluation, including IHC, represents the diagnostic procedure more reliably to detect the tumor. IHC finding shows CD 19, CD 20, CD 22 and Bcl-2 positive, and CD 3, CD 5, CD 10 and Bcl-1/cyclin D1 negative. MALT lymphoma can be differentially diagnosed with other lymphoma by these findings.

The acquisition of MALT lymphoma is induced by autoimmune disease or chronic inflammation. The relation between H. pylori infection and gastric MALT lymphoma is well established. Morgner et al. reported that eradication of H. pylori infection is associated with complete remission in approximately
80% of patients with low-grade MALT lymphoma in the early stage. Therefore, for low-grade gastric MALT lymphoma, the ideal treatment option should be an eradication of H. pylori. The role of H. pylori in colonic MALT lymphoma is unclear. However, in individual cases of lymphomas of the small intestine, rectum and salivary glands, eradication of H. pylori can lead to complete remission of the tumor. Although treatment of colonic MALT lymphoma is not established, various treatment options, such as operation, chemotherapy, radiotherapy, eradication of H. pylori and endoscopic resection, have been reported with no consensus established on the most effective therapy. Therefore, individual treatment is needed according to the stage of disease, age of patient, comorbidities, and etc. Gastrointestinal MALT lymphoma is a highly chemo-sensitive disease. Many recent studies show that chemotherapy alone can be effective for primary gastrointestinal MALT lymphomas. Moreover, chemotherapy has the advantage of organ preservation and is effective for micro-metastases. It is well-known that the CHOP chemotherapeutic regimen (cyclophosphamide, doxorubicin, vincristine and prednisone) remains the first line therapy for primary colorectal lymphomas. Nowadays, new active drugs such as monoclonal antibodies like rituximab have been introduced and are used as part of chemotherapy treatment. Several studies have shown that adding rituximab to the CHOP regimen resulted in higher response rates and better survival for some cancers, but there is little information about its effect in primary colorectal lymphoma. Localized gastrointestinal MALT lymphoma can also be controlled with local modalities, such as surgery. However, surgical resection is disputed, because the incidence of late morbidity, such as malnutrition and dumping, is more common in patients treated with surgical resection. In some cases, such as localized low-grade lymphomas, surgery alone with or without radiotherapy cannot be used, especially in patients at risk of complications such as hemorrhage, obstruction, and perforation. Therefore, in these cases, chemotherapy, with or without surgical excision, remains the basis of treatment.

In conclusion, this report found a rare case of synchronous primary gastric and colonic MALT lymphoma in a healthy subject. Eradication of H. pylori was the first treatment given to the patient. Although the optimal management of primary lymphoma of the colon is not established, we treated the patient with chemotherapy and four cycles of CHOP for organ preservation and prevention of micro-metastases as mentioned above. He responded rapidly to the treatment and no evidence of tumor growth was detected after 6 months. In the future, adding new immunochemotherapies to the CHOP regimen may have an impact on primary colon lymphoma survival.

REFERENCES