Regression of idiopathic thrombocytopenic purpura after endoscopic mucosal resection of gastric mucosa associated lymphoid tissue lymphoma

M Noda, N Mori, K Nomura, K Kojima, S Mitsufuji, I Yamane, S Misawa, T Okanoue

On admission, physical examination was unremarkable except for mild epigastric tenderness; the liver, spleen, and superficial lymph nodes were not palpable. His blood cell count however showed a platelet level of 27 000/mm³. Other routine blood chemistry, liver function tests, chest radiography, and urinalysis were normal. Although we stopped administering diltiazem, famotidine, and atrovastatin to eliminate drug induced thrombocytopenia, his platelet level did not recover. A bone marrow smear showed normal cellularity and an increased number of megakaryocytes. Antiplatelet antibody titres (IgG), as tested by indirect immunofluorescence, were increased. No abnormalities in blood coagulation or in levels of autoimmune antibodies were observed.

When his platelet count was 40 000–50 000/mm³, we obtained informed consent and performed EMR using a two channel scope (GIF-2T200; Olympus, Tokyo, Japan) to make an accurate histological diagnosis. Five days after EMR, his platelet count increased dramatically to 173 000/mm³ (fig 2). Specimens were fixed in 10% formalin, embedded in paraffin, and routinely stained with haematoxylin and eosin (H&E). They were also sectioned for immunohistochemical study and for tissue fluorescence in situ hybridisation (T-FISH). The lesion was composed of diffuse small atypical lymphoid cells with centrocyte-like appearance (cleaved nucleus and relatively wide clear cytoplasm) that had invaded the lamina propria. The atypical lymphoid cells produced characteristic lymphoepithelial lesions, and immunohistochemically they were diffusely positive for CD20, CD79α, and CD21 but negative for trisomy 3, 7, 12, and 18 (fig 3).

Ultrasonography and computed tomography showed no hepatosplenomegaly or swelling of the para-aortic lymph nodes. The tumour was diagnosed as a stage 1 extranodal marginal zone MALT B cell lymphoma. Because the rapid urease test and biopsy specimens from the gastric body and antrum were positive for H pylori, the patient was treated with a seven day course of lansoprazol 60 mg twice a day, amoxicillin 1500 mg twice a day, and clarithromycin 400 mg twice a day, one month after EMR. He did not receive antibiotics at any time except for this period. Three months after treatment, gastric biopsy specimens were negative for lymphoma infiltration and H pylori, by histology and the rapid urease test, and the patient tested negative after a urea breath test. No additional therapy, such as chemotherapy or radiation, was performed. There is no evidence of recurrence.
and his platelet count is within normal limits after 24 months of follow up after endoscopic removal.

**MATERIALS AND METHODS**

Lymphoma specimens were fixed in 10% formalin, embedded in paraffin, and stored at room temperature. Sections (4 μm thick) were cut from paraffin embedded tissue and used for histopathological observation and T-FISH. The former was performed according to routine procedures for H&E and Giemsa stainings and the latter was performed as described previously. For detection of t(11;18)(q21;q21), we used yeast artificial chromosome clones y943b8 (specific for 18q21) and y966e4 (specific for 11q21) (obtained from MIT Center for Genome Research, Cambridge, Massachusetts, USA). Polymerase chain reaction products were labelled with either SpectrumGreen (Vysis Inc., Illinois, USA) or SpectrumOrange (Vysis Inc.) with a nick translation kit (Vysis Inc.). For detection of trisomy 3, 7, 12, and 18, we used CEP Probes CEP3 (D3Z1), CEP7 (D7Z1), CEP12 (D12Z3), and CEP18 (D18Z1) SpectrumOrange (Vysis Inc.), respectively.

Each nucleus was identified on the basis of 6-diaminido-2-phenylindole dihydrochloride staining. Images were captured with a CCD camera. Signals from at least 200 non-overlapping nuclei were evaluated per slide. For T-FISH analysis, we assessed only colocalised signals. To evaluate colocalised overlapping nuclei were evaluated per slide. For T-FISH analysis, we assessed only colocalised signals. To evaluate colocalised overlapping nuclei were evaluated per slide. For T-FISH analysis, we assessed only colocalised signals.

**DISCUSSION**

MALT lymphomas are considerably mature B cell lymphomas of low malignancy that were first described by Isaacson and Wright in 1983. They were classified as marginal zone peripheral B cell lymphomas deriving from marginal zone

![Figure 1](image-url)  
**Figure 1** (A) Endoscopic observation of the stomach showed a slightly elevated irregular erosion at the greater curvature of the fornix. (B) Endoscopic observation after two months revealed a 12 mm submucosal tumour-like lesion with a shallow ulcer on the surface.

Regression of ITP after EMR of MALT lymphoma 1699

**Figure 2**  
**Figure 2** Dramatic increase in platelet count after endoscopic mucosal resection (EMR). Suspension or re-administration of diltiazem, famotidine, and atrovastatin did not affect the platelet level.
MALT lymphomas regress in response to H pylori eradication therapy. In this case, however, molecular biology confirmed t(11;18)(q21;q21) of the lesion, as detected by the T-FISH method, indicating a more likely resistance to H pylori eradication therapy. To date, radiation therapy, surgical resection, or chemotherapy have often been recommended for such cases but we were able to treat the MALT lymphoma with EMT and there was no evidence of recurrence after 24 months of follow up. Furthermore, ITP also regressed after endoscopic removal of the MALT lymphoma. In conclusion, this is the first case report on regression of thrombocytopenic purpura after mucosal resection of a gastric MALT lymphoma. The mechanisms of regression of ITP remain to be clarified but it appears that ITP may not be directly induced by H pylori infection in some cases but by an antibody produced by MALT lymphoma B cells or proliferated B cells in response to H pylori infection via T cell help.

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Authors’ affiliations
M Noda, K Kojima, I Yamane, Department of Gastroenterology, Kyoto Prefectural Yosanoumi Hospital, Kyoto, Japan, and Molecular Gastroenterology and Hepatology, Kyoto Prefectural University of Medicine Graduate School of Medical Science, Kyoto, Japan
N Mori, Department of Gastroenterology, Kyoto Prefectural Yosanoumi Hospital, Kyoto, Japan
K Nomura, Molecular Haematology and Oncology, Kyoto Prefectural University of Medicine Graduate School of Medical Science, Kyoto, Japan
S Mitsufuji, Molecular Gastroenterology and Hepatology, Kyoto Prefectural University of Medicine Graduate School of Medical Science, Kyoto, Japan
S Misawa, Department of Gastroenterology, Kyoto Prefectural Yosanoumi Hospital, Kyoto, Japan, and Molecular Haematology and Oncology, Kyoto Prefectural University of Medicine Graduate School of Medical Science, Kyoto, Japan
T Okanoue, Molecular Gastroenterology and Hepatology, and Molecular Haematology and Oncology, Kyoto Prefectural University of Medicine Graduate School of Medical Science, Kyoto, Japan

Correspondence to: Dr M Noda, Department of Gastroenterology, Kyoto Prefectural Yosanoumi Hospital, Otokoyama 481, Iwataki-cho, Yosa-gun, Kyoto 629-2261, Japan; mnoda@mbox.kyoto-inet.or.jp

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