BRIEF COMMUNICATION

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Magnifying Endoscopy for Intestinal Follicular Lymphoma Is Helpful for Prompt Diagnosis

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The representative endoscopic features of primary intestinal follicular lymphoma are well known as small whitish polypoid nodules, but a magnified view has only been described in a few case reports. Herein, we report a case with intestinal follicular lymphoma in which magnifying endoscopy with narrow band imaging was helpful for prompt diagnosis. A 57-year-old Japanese woman underwent surveillance esophagogastroduodenoscopy. The endoscopic examination revealed confluent whitish granules in the duodenum, distinct from the nodules or polyps that are typical findings of intestinal follicular lymphoma. Magnifying endoscopy visualized whitish enlarged villi, and narrow band imaging emphasized an elongated and coiled vascular pattern. Based on these features, intestinal follicular lymphoma was highly suspected, and subsequent histological study confirmed the diagnosis. This case demonstrates that magnifying endoscopy with narrow band imaging was useful for the detection and prompt diagnosis of intestinal follicular lymphoma. The pathological features of intestinal follicular lymphoma are also discussed. **(Gut Liver 2013;7:258-261)**

Key Words: Follicular lymphoma; Gastrointestinal endoscopes; Duodenal neoplasms

INTRODUCTION

The recent development of magnifying endoscopy has enabled endoscopists to visualize the mucosal surface in greater detail. In addition, narrow band imaging technology has allowed the visualization of microvessel structure. The combination of these innovative optical technologies contributes to superior detection and correct diagnosis of esophageal, gastric, colorectal cancers, and other malignancies.[1-3]

Herein, we report a case with primary intestinal follicular lymphoma (FL) in whom magnifying endoscopy with narrow band imaging was especially helpful for prompt diagnosis because of the lesions' atypical gross appearance. The magnified endoscopic features of intestinal FL and the pathological structure are discussed.

CASE REPORT

A 57-year-old Japanese woman underwent postoperative surveillance esophagogastroduodenoscopy. She had a prior history of partial gastrectomy at the age of 54 due to advanced gastric cancer. Physical examination revealed no abnormalities, and there was no evidence of hepatosplenomegaly or peripheral lymphadenopathy. The patient had no abnormality on laboratory examinations including complete blood count, lactate dehydrogenase levels, and soluble interleukin-2 receptor levels. Endoscopic examination showed no recurrence of the gastric cancer but revealed two lesions in the duodenum (Fig. 1A and B); these areas were composed of confluent whitish granules, rather than nodules or polyps, which are the typical findings of intestinal FL. Magnifying endoscopy (Fig. 1C) and endoscopy with indigo carmine contrast (Fig. 1D) revealed whitish enlarged villi. An elongated and coiled vascular pattern in the swollen villi was emphasized by magnifying narrow band imaging (Fig. 1E). Based on these features, intestinal FL was highly suspected. In the biopsy specimens, small to medium-sized neoplastic

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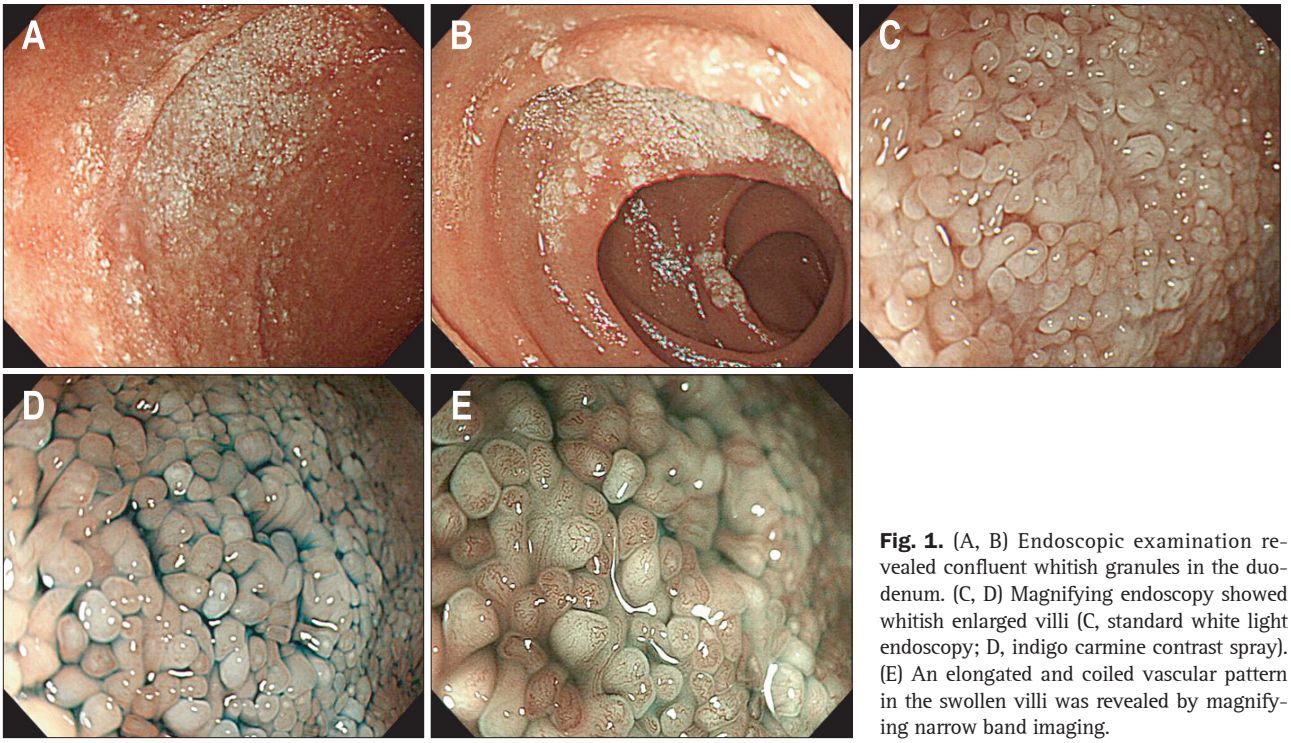

Fig. 1. (A, B) Endoscopic examination revealed confluent whitish granules in the duodenum. (C, D) Magnifying endoscopy showed whitish enlarged villi (C, standard white light endoscopy; D, indigo carmine contrast spray). (E) An elongated and coiled vascular pattern in the swollen villi was revealed by magnifying narrow band imaging.

lymphoid cells were shown to have formed lymphoid structures and infiltrated the villi (Fig. 2A). Immunohistochemical study reinforced the diagnosis, with positivity for CD20, CD10 (Fig. 2B), and B-cell lymphoma (BCL)-2 (Fig. 2C). Dilated capillary vessels in the villi were also demonstrated by CD31 staining (Fig. 2D). Computed tomography scanning of the neck, chest, abdomen, and pelvis showed neither remarkable lymphadenopathy nor gastrointestinal wall thickening including the duodenum. Consequently, we diagnosed the case as primary FL of the duodenum. The clinical stage was considered as stage I. The patient was referred to a tertiary referral center for further investigation and treatment.

DISCUSSION

Primary intestinal FL is a distinct category established in the last decade.[4,5] This entity is widely noticed among endoscopists, and its incidence is increasing. The duodenum is the most frequently involved site of intestinal FL, and the representative endoscopic feature is well known to be small whitish polypoid nodules up to 2 mm in diameter.[6,7] In the presented patient, the duodenal lesions were visualized as confluent whitish granules, rather than nodules or polyps.

There are a few articles reporting the magnified view of intestinal FL.[8-13] All cases undergoing magnifying endoscopy have shown enlarged villi. In addition, Chowdhury *et al*.[11] described a coiled, elongated vascular pattern within the villi. Similarly, Norimura *et al*.[13] found dilatation of microvessels in all of the six patients enrolled in their case series. These irregular patterns of microvasculature were found in our present case, too. These characteristics appear to reflect the pathological structure of intestinal FLs; in our case, neoplastic cells infiltrated the villi and formed lymphoid structures. Enlarged whitish villi may be formed by deposition of lymphoid cells in the villi. Dilated capillary vessels in the villi were also pathologically confirmed. We speculate that the infiltrating neoplastic cells disturbed the perfusion of microvessels in the villi and resulted in the dilatation of vessels, as observed by narrow band imaging.

Extranodal marginal zone lymphomas of mucosa-associated lymphoid tissue and mantle cell lymphomas are classified as small B-cell neoplasms as well as FL, and they can affect the duodenum. Pathologically, differential diagnosis of these B-cell neoplasms by hematoxylin and eosin staining is sometimes difficult; in such cases, immunostaining for CD5, CD10, cyclin D1, and BCL-2 is required.[12] Additionally, white spots in the duodenum may be caused by various other etiologies, such as normal lymph follicles, intestinal lymphangiectasia, chronic nonspecific duodenitis, and giardiasis.[13] Particularly intestinal lymphangiectasia and FL may present with whitish and swollen villi in the duodenum.[14-16] Therefore, biopsy and histological examination are necessary to confirm the diagnosis of intestinal FL.

In conclusion, in the presented case, we could make a prompt diagnosis by magnifying endoscopy with narrow band imaging that revealed enlarged villi with a coiled and elongated vascular pattern. The sensitivity and specificity of these features for the diagnosis of intestinal FLs should be investigated hereafter. Regardless, biopsy and histological evaluation with immunostaining should be done to confirm the diagnosis when endoscopists

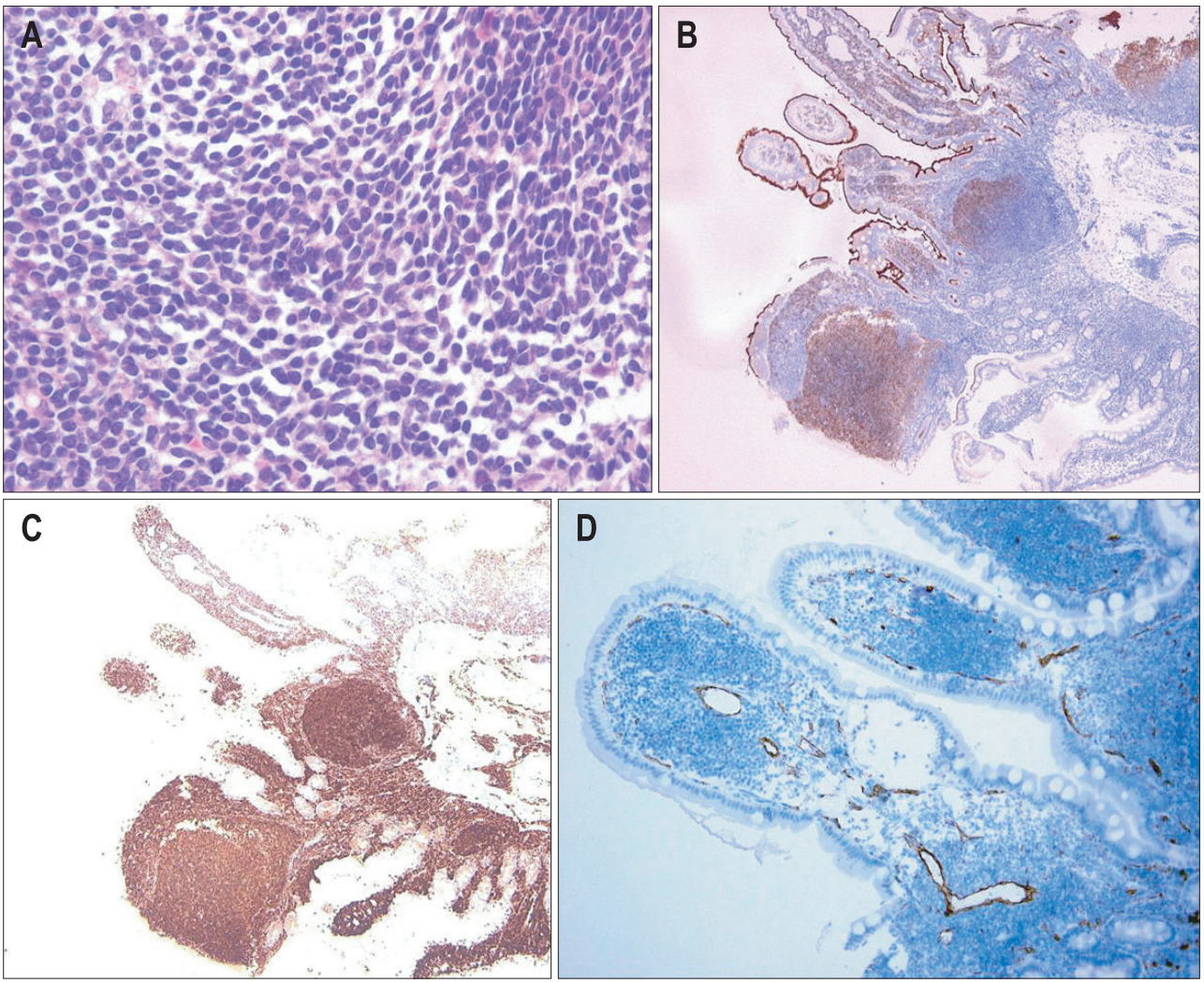

Fig. 2. Histological examination confirmed the diagnosis as follicular lymphoma. (A) Small to medium-sized neoplastic lymphoid cells infiltrated the villi (H&E stain, ×400). Lymphoid cells are positive for CD10 (B, ×40) and BCL-2 (C, ×40). (D) Dilated capillary vessels in the villi were also demonstrated by CD31 staining (×40).

observe these features.

CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

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