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CASE REPORT

# Typical gastroduodenal endoscopic findings in a Crohn's disease patient in remission stage

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## Abstract

A 39-year-old patient with Crohn's disease (CD) was referred to our hospital for maintenance treatment of CD. He was diagnosed as having CD of the small and large intestines at 32 years old. He underwent partial resection of the ileum at 35 years old because of ileal perforation. He had received enteral nutritional supplement (1200 kcal/d) and metronidazole preparation (500 mg/d), and was in remission Crohn's disease activity index 73. We performed a routine gastroduodenal endoscopic examination, which revealed the representative endoscopic findings of gastroduodenal lesions in CD, namely, bamboo-joint-like appearance of the gastric body and cardia and a notched sign in the duodenum. These findings were clearly observed by using indigo carmine dye spraying. In our patient, typical gastroduodenal findings were observed even in the remission stage, suggesting that these findings would contribute to the early diagnosis of CD not only in the active stage but also during remission.



**Key words:** Crohn's disease; Gastroduodenal findings; Bamboo-joint-like appearance; Notched sign

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## INTRODUCTION

Crohn's disease (CD) is an intractable chronic inflammatory bowel disease with unknown etiology that can affect any part of gastrointestinal tract. Typical endoscopic findings of CD in the small intestine and colon have been shown as follows, longitudinal ulcers, nodular (cobblestone) mucosa, aphthous ulcers, and strictures. With regard to the gastroduodenal findings of CD, previous reports showed that the lesions were usually located in the antrum and mainly nonspecific redness or erosion[1-5]. However, such erosive gastritis lesions of the antrum were also commonly observed in non-CD patients, and thus, these gastric lesions can not be specific for CD[5,6]. Thereafter, recent studies have revealed representative endoscopic findings of gastroduodenal lesions in CD, namely, bamboo-joint-like appearance[6], which is characterized by swollen longitudinal folds transversed by erosive fissures or linear furrows and is most frequently found at cardiac area in the stomach[6,7], and notches in the Kerckring's folds in the duodenum[8,9]. It has been thought that these representative endoscopic findings of gastroduodenal lesions in CD would contribute to the early diagnosis of CD. However, it is unclear

whether these representative gastroduodenal findings are observed in remission stage of CD as well as in active stage. In this case report, we have shown a CD patient having representative gastroduodenal endoscopic findings even in remission stage.

## CASE REPORT

A 39-year-old patient with CD was referred to our hospital for maintenance treatment of CD in May 2009. He was diagnosed as having CD of the small and large intestines at 32 years old. He underwent partial resection of the ileum at 35 years old because of ileal perforation. He had received enteral nutritional supplement (1200 kcal/d) and metronidazole preparation (500 mg/d), and was in remission [Crohn's disease activity index (CDAI[10]) 73]. On physical examinations, only a slight tenderness was observed in the upper abdomen. Laboratory data of the patient were as follows, hemoglobin 13.7 g/dL, hematocrit 42.1%, white blood cell count (WBC) 7600 /μL, C-reactive protein 0.72 mg/dL, total protein 7.5 g/dL, albumin 3.3 g/dL, L-aspartate: 2-oxoglutarate aminotransferase 20 IU/l, L-alanine: 2-oxoglutarate aminotransferase (ALT) 16 IU/L, alkaline phosphatase 184 IU/L, blood urea nitrogen 13.5 mg/dL, creatinine 0.97 mg/dL. Although he complained very slight abdominal discomfort, we performed a routine gastroduodenal endoscopic examination to check gastroduodenal lesions of CD. As a result, we found representative endoscopic findings of gastroduodenal lesions in CD, namely, a bamboo-joint-like appearance of the gastric body and cardia (Figure 1A and B), and a notched sign in the duodenum (Figure 1C and D). These findings were clearly observed by using indigo carmine dye spraying (Figure 1B and D). The bamboo-joint-like appearance was localized in the lesser curvature of the upper gastric body and cardia (Figure 1E). Thus, typical endoscopic gastroduodenal findings of CD were clearly found in our patient even in the remission stage. Thereafter, he has continued enteral nutritional supplement and has been in remission approximately for 2 years.

## DISCUSSION

A bamboo-joint-like (BJA) appearance is thought be the most representative gastroduodenal endoscopic finding of CD and was first reported by Yokota *et al*[6]. They showed that BJA was found in the gastric body and cardia in 54% of CD patients[6]. They also showed that the occurrence of BJA did not correlate with sex, age, age at onset of CD, the site of CD in the small and/or large bowel, or the medications being taken at the time of gastroscopy. Concerning the specificity of BJA in CD, Kuriyama *et al*[11] showed that BJA was found in 44% of CD patients, 5% in ulcerative colitis patients, and 0% in gastroesophageal reflux disease, and thus, they suggested that BJA could be a unique marker of CD. Hirokawa *et al*[7] also showed that BJA was found in 65.2% of CD patients and in 1.1% of non-CD patients. With regard to the histopathological findings of BJA, Hirokawa *et al*[7] showed sharp, fissure-like erosion or mucosal cleft in 50% of 14 CD patients. They also showed that all cases with fissure-like erosion or mucosal cleft revealed lymphoid aggregates, eosinophilic infiltration and edema in the superficial portion of the surrounding lamina propria. Epitheloid granuloma is known as a specific histopathological finding in CD. Yokota *et al*[6] showed that the detection rate for glanulomas tended to be higher for the lesions with a bamboo joint-like appearance (45%) than in those from longitudinally aligned furrows (0%). On the other hand, Hirokawa *et al*[7] showed that epitheloid granuloma was found at the base of the fissure-like erosion in two cases out of 14 CD patients. In addition, Yokota *et al*[6] showed that *Helicobacter pylori* was histologically detected only 9% of CD patients with BJA. They suggested that *Helicobacter pylori* infection did not correlate with the presence of BJA.

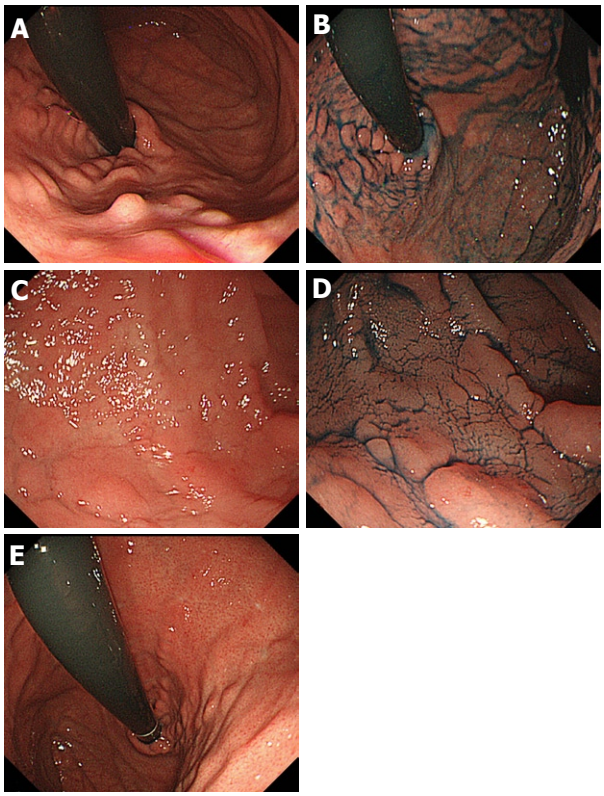


**Figure 1 Gastroduodenal endoscopic findings of the patient.** A: Endoscopic view of bamboo-joint-like appearance on the lesser curvature of the gastric body and cardia; B: Bamboo-joint-like appearance was more clearly observed by spraying with indigo carmine dye; C: Endoscopic view of notches on the Kerckring's folds of the duodenum; D: Notch sign was more clearly observed by spraying with indigo carmine dye; E: The bamboo-joint-like appearance was localized in the lesser curvature of the upper gastric body and cardia.

The presence of BJA in the stomach and notches in the Kerckring's folds in the duodenum are thought to be a useful tool for early diagnosis of CD. These findings would be more powerful tools for early diagnosis of CD if they are observed in CD patients in remission as well as in active stage. However, in this point detailed analy-

sis has not been done, and only a few case studies have been reported[9,12]. Hokama *et al*[9] showed that notched sign and BJA in the duodenum were found in an asymptomatic CD patient. Kuwaki *et al*[12] showed that BJA in the stomach of a CD patient was not changed in both remission and active stages. In this context, our case report supports these case studies and suggests that the representative gastroduodenal findings are present even in remission stage of CD.

CD is an intractable chronic inflammatory bowel disease, and the numbers of CD patients are increasing in Asian countries as well as in Japan[13]. On the other hand, recent studies have shown that biologic therapy has changed the way to treat CD and that early induction with infliximab was effective for reducing the relapse rate compared to conventional therapies[14,15], suggesting that biologic therapy in early stage of CD might change the natural history of CD. Thus, the typical gastroduodenal findings of CD can contribute to early diagnosis of CD and better prognosis of CD patients.

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