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Endoscopic submucosal dissection for the diagnosis and therapy of pedunculated gastric cancer with prolapse into the duodenal bulb: A case report

Norihiko Suzuki [a], Masashi Yoshida [a,*], Hironori Ohdaira [a], Tomonori Imakita [a], Nobuhiro Tsutsui [a], Yasunobu Kobayashi [a], Junji Takahashi [a], Shinya Okada [b], Masaki Kitajima [a], Yutaka Suzuki [a]

[a] Department of Surgery, International University of Health and Welfare Hospital, 537-3, Iguchi, Nasushiobara-city, Tochigi, 329-2763, Japan
[b] Department of Pathology, International University of Health and Welfare Hospital, 537-3, Iguchi, Nasushiobara-city, Tochigi, 329-2763, Japan

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ABSTRACT

INTRODUCTION: Preoperative diagnosis of gastric cancer invasion is not always sufficiently accurate. Diagnostic endoscopic submucosal dissection (ESD) can be performed for the purpose of accurate decision making and to avoid partial treatment vs aggressive over-treatment. We present a patient with the gastric cancer with indeterminate pre-operative diagnosis for depth of the invasion.

CASE PRESENTATION: A 70-year-old man presented at our hospital because both anti-*Helicobacter pylori* (Hp) IGG antibody and serum pepsinogen (PG) levels were classified as positive. Upper gastrointestinal endoscopy was performed, and a large (3.5 cm) pedunculated polyp-shaped gastric cancer with prolapse into the duodenal bulb was found. [fluorine-18]-fluorodeoxy-glucose (18F-FDG)-positron emission tomography (PET)/computed tomography (CT) imaging showed high 18F-FDG uptake, suggesting the possibility of advanced gastric cancer. Since the pre-operative diagnosis of the cancer invasion was indeterminable, diagnostic ESD was performed. The pathohistological diagnosis was early gastric cancer ($33 \times 35 \times 20$ mm, well differentiated tubular adenocarcinoma [tub1], pT1a[M], ly[−−], v[−−], UL[−−], pHM0, pVM0) according to the Japanese classification of gastric carcinoma.

DISCUSSION AND CONCLUSION: It was reported that ESD for early gastric cancers that met the expanded criteria was acceptable and should be the standard treatment instead of gastrectomy. The expanded criteria included cancer confined to the mucosa (cT1a), a single primary intestinal-type gastric adenocarcinoma, an ulcer-negative lesion of any size. We reported a case of pedunculated gastric cancer with prolapse into the duodenal bulb that could be treated by ESD. The present case is a good example of diagnostic ESD being used to minimize the damage of gastric cancer treatment.

1. Introduction

Preoperative diagnosis of gastric cancer invasion is not always sufficiently accurate: pre- and post-ESD discrepancies were reported to be 20.1% [1]. Using high-frequency ultrasound probe sonography, it was found that the depth of early gastric cancer was also not accurately determined in 10% of cases [2]. Diagnostic endoscopic submucosal dissection (ESD) can be performed for the purpose of minimizing the treatment or avoiding over-treatment. We encountered a patient with large (3.5 cm) pedunculated polyp-shaped gastric cancer with prolapse into the duodenal bulb. In order to determine the depth of invasion, diagnostic ESD was performed. This paper has been reported in line with the SCARE criteria [3].

2. Case presentation

A 70-year-old man underwent gastric cancer screening by combined assay for serum anti-*Helicobacter pylori* (Hp) IGG antibody and serum pepsinogen (PG) levels [4]. He presented at our institute because both anti-Hp IGG antibody and PG were classified as positive: individuals with PG I levels of ≤70 μg/l and a PG I/II ratio of < 3 were classified as PG-positive, and those with a serum Hp antibody titer of > 10 U/ml were classified as anti-Hp IGG antibody positive. Upper gastrointestinal endoscopy was performed, and a large (3.5 cm) pedunculated polyp with prolapse into the duodenal bulb was found (Fig. 1). The prolapse was easily corrected, and

* Corresponding author.
E-mail address: masashi@iuhw.ac.jp (M. Yoshida).

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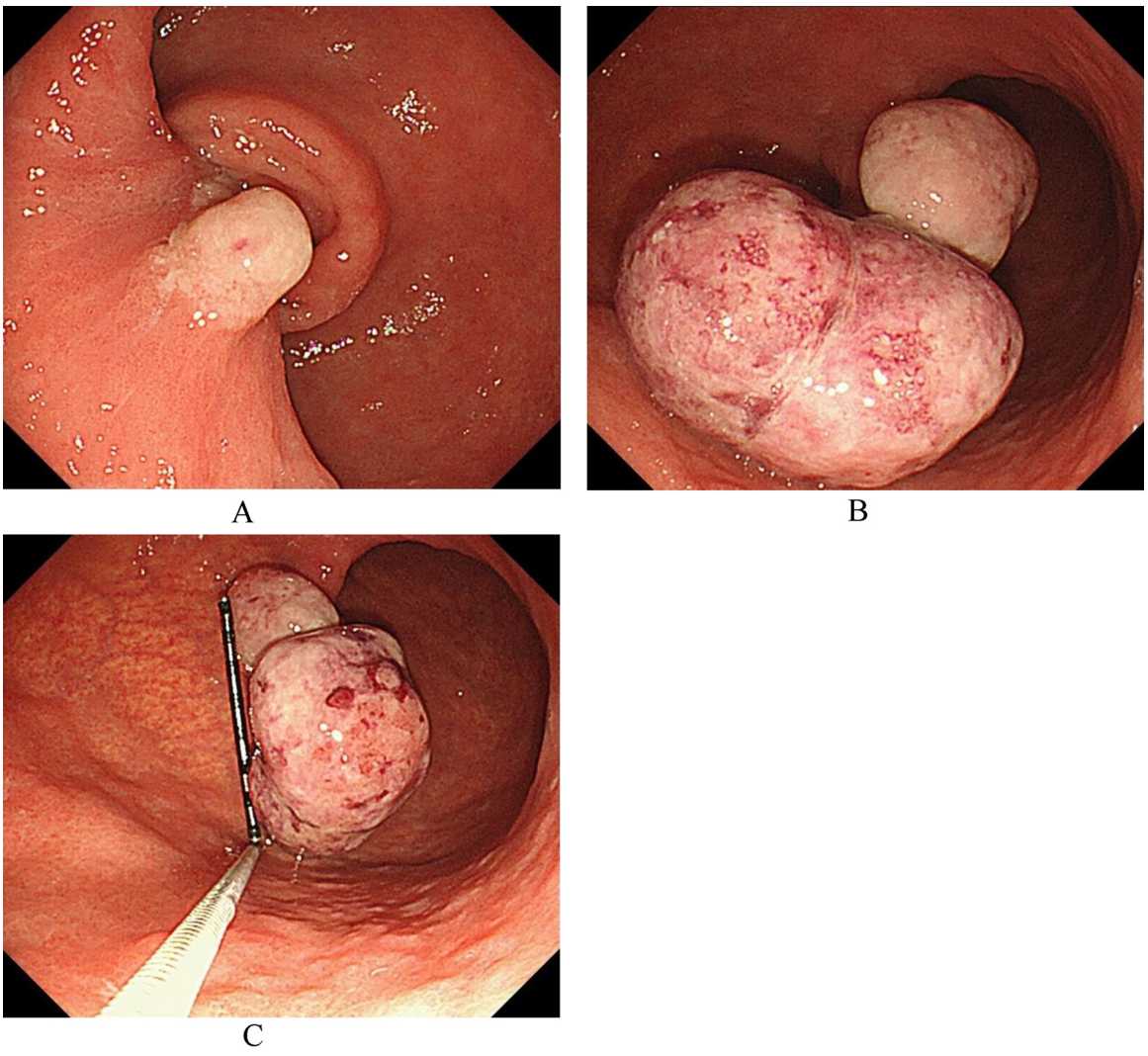

Fig. 1. Endoscopic Findings.
1A: A large pedunculated polyp with prolapse into the duodenal bulb was found.
1B: The prolapse was easily corrected.
1C: The tumor size was about 3.5 cm.

it was located at the anterior wall of the antrum. At biopsy, the tumor was histologically diagnosed as a well differentiated tubular adenocarcinoma.

Abdominopelvic computed tomography (CT) showed the pedunculated polyp with prolapse into the duodenal bulb without evidence of distant metastasis or lymph node metastasis (Fig. 2). [fluorine-18]-fluorodeoxy-glucose (18F-FDG)-positron emission tomography (PET)/computed tomography (CT) imaging showed high 18F-FDG uptake, suggesting the possibility of advanced gastric cancer (Fig. 3). Since the pre-operative diagnosis of the cancer invasion was indeterminable, diagnostic ESD was performed. A dual knife (Electrosurgical Knife [KD-650L]; Olympus) was used for marking, mucosal incision, and submucosal dissection, and hyaluronic-acid containing solution was used as a submucosal fluid cushion. ESD was completed without complications, and the tumor was resected in an en bloc fashion (Fig. 4). The post-ESD course was uneventful. The pathohistological diagnosis was early gastric cancer ($33 \times 35 \times 20$ mm, well differentiated tubular adenocarcinoma [tub1], pT1a[M], ly[−−], v[−−], UL[−−], pHM0, pVM0 [Fig. 5]) according to the Japanese classification of gastric carcinoma [5].

After the patient discharged from our hospital, upper gastrointestinal endoscopy (9 month after the ESD: Fig. 6) and abdominopelvic CT (12 month after the ESD) was performed and revealed no recurrence. The latest visit to our hospital was 14 month after the ESD and no sign of recurrence was observed.

3. Discussion

The present case is a good example of diagnostic ESD possibly minimizing the damage of gastric cancer treatment. It was reported that ESD for early gastric cancers that met the expanded criteria [6] for intestinal-type gastric cancer (cT1a) was acceptable and should be the standard treatment instead of gastrectomy [7]. The expanded criteria included cancer confined to the mucosa (cT1a), a single primary intestinal-type gastric adenocarcinoma, an ulcer-negative lesion of any size, or a $\leq$3 cm ulcer-positive lesion, cN0M0, and no prior treatment. Preoperative diagnosis of the depth of cancer invasion in the present case was uncertain because the size, especially the height of the tumor, was large. However, it was speculated that the cancer invasion was, at most, confined to the submucosa because the cancer had a pedunculated shape. Therefore, diagnostic ESD was performed. Pathohistological diagnosis revealed that the resection was curative and met the expanded criteria, so gastrectomy was not required.