Gastric Cancer Concomitant with Inflammatory Fibroid Polyp Treated with Endoscopic Mucosal Resection Using an Insulation-tip Diathermic Knife

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Abstract

The endoscopic examination of a 66-year-old male patient revealed a protruding lesion close to a reddish IIc area in the antrum of the stomach. The protruding lesion and reddish area were resected completely with endoscopic mucosal resection using an insulation-tip diathermic knife (IT-EMR). Histological examination of the protruding lesion revealed proliferation of fibroblasts and infiltration of inflammatory cells, and it was diagnosed as an inflammatory fibroid polyp (IFP). Adenocarcinoma in the IIc area was present adjacent to the IFP. This may be the first report of gastric cancer concomitant with gastric IFP treated by endoscopic mucosal resection.

Key words: gastric carcinoma, inflammatory polyp, neoplasm, stomach

Introduction

Inflammatory fibroid polyp (IFP) is a relatively rare disorder, which is thought to be clinically and histologically benign, and was first described as "polypoid fibroma" in 1920 by Konjetzny (1). It can appear in many different locations throughout the gastrointestinal tract. The most common site is the gastric antrum (about 70% of cases), followed by the small bowel (about 20% of cases) (2). Gastric IFP often appears as an incidental finding on an examination of the upper digestive tract, and this tumor might sometimes be accompanied by a carcinoma of the stomach. However, there are few reports describing a gastric carcinoma adjacent to gastric IFP (3–5).

The insulation-tip diathermic knife (IT knife) is a new instrument, which has a ceramic ball at the top of the incising needle to prevent electric leakage toward the deeper layer of the stomach (6). It is easier to remove tumors larger than 10 mm in diameter with the IT knife than with the usual strip biopsy method. Herein, we report a case of gastric cancer adjacent to a gastric IFP treated by endoscopic mucosal resection using an IT knife (IT-EMR).

Case Report

A 66-year-old man visited our hospital for the treatment of gastric cancer on September 13, 2001. No specific family or past medical history was identified. Routine hematological and biochemical tests were within normal limits. Serum anti-Helicobacter pylori (H. pylori) immunoglobulin G (IgG) antibody was positive. Endoscopic examination of the upper digestive tract revealed a protruding lesion close to a reddish area, about 10 mm in diameter, in the pyloric gland area, in the lesser curvature of the antrum (Fig. 1). The protruding lesion in addition to the reddish lie lesion was about 20 mm or more. The biopsy specimen obtained from the reddish IIc lesion revealed well-differentiated adenocarcinoma. This IIc lesion and the protruding lesion was surrounded by intestinal metaplastic mucosa with slight redness. There were some red patches with erosions in the antrum. The giant folds were seen in the corpus, however, there was not any diffuse red area in the fundic area. According to Kimura and Takemoto (7), the endoscopic atrophic border of this patient was classified as closed type, C-III. The culture of gastric mucosa propagated the microaerophilic bacteria, H. pylori. The patient underwent an IT-EMR for treatment.

IT-EMR was carried out as follows; 1) a mark was made...
Figure 1. Endoscopic appearance of the gastric elevated lesion in the lesser curvature of the antrum. A reddish IIc area (arrows) was adjacent to the protruding lesion.

at several points along the outline of the protruding lesion with reddish IIc lesion with a coagulation current, using a marking tip (Type KD-1L; Olympus). 2) Injection of 20 ml of saline containing 0.0025% epinephrine was carried out to prevent perforation, just outside the marks, until the mucosa around the lesion was raised. 3) A hole (about 2 mm) for insertion of the ceramic ball of IT-knife into the submucosal layer was made with hot biopsy forceps on the raised mucosa (Fig. 2A). 4) Starting from the hole made by hot biopsy forceps, we incised the mucosa just outside the marks with the IT-knife (Fig. 2A). 5) Incision of mucosa around the lesion using the IT-knife was done with injection of additional saline with epinephrine. 6) After completion of IT-knife cutting around the lesion with a safe lateral margin (Fig. 2B), we abraded the submucosal tissue under the circumcised area with IT-knife, as a relatively wide range had to be excised. 7) As the abrasion made progress, the circumcised area was shrinking gradually. 8) Injection of saline with epinephrine was carried out, to prevent perforation, until the circumcised area was sufficiently raised to snare the lesion. 9) Mucosal resection in the same way as with snare polypectomy was performed and the lesion was resected completely (Fig. 2C).

The protruding lesion with reddish area was resected completely with a safe lateral and vertical margin, and was 45×35 mm in size (Fig. 3). Histological examination of the protruding lesion revealed that the tumor was located in the mucosal layer (Fig. 4A). The proliferation of fibroblasts and the infiltration of inflammatory cells such as plasma cells and eosinophils were seen (Fig. 4B). The fibroblasts presented whorling patterns around the small vessels, the so-called onionskin-like arrangement (Fig. 4C). This protruding lesion was diagnosed as gastric IFP. The IIc lesion consisting of well-differentiated adenocarcinoma (13×5 mm in size) was adjacent to the IFP (9×6 mm in size) (Fig. 4D). H. pylori was seen in the non-tumor mucosa of the resected specimen. Histologically, the gastric cancer was surrounded by intestinal metaplastic mucosa. He has been under close periodic observation, and there is no evidence of disease 11 months after IT-EMR.

**Discussion**

IFP is a rare mucosal or submucosal lesion of the gastrointestinal tract that follows a benign course. Most of the fibroids reported were located in the mucosa and submucosa, although Ishikura et al reported six lesions limited to the mucosa (8). The pathogenesis of IFP remains unknown. Endoscopic findings of IFPs are smooth sessile or pedunculated polyps. The final diagnosis of IFP depends on the pathological findings, however the histological findings of the biopsy specimen are often difficult to diagnose. In the present case, the tumor was completely resected by IT-EMR and the diagnosis of gastric adenocarcinoma concomitant with IFP was made. This may be the first report of gastric cancer concomitant with gastric IFP treated with EMR, although some cases treated with surgery have been reported (3–5).

We should be aware of complications of adenocarcinoma or adenoma with gastric IFP. Mori et al described that 8% of their 50 patients with gastric IFP were accompanied by an adenocarcinoma or adenoma, in the same area (3). They also analyzed 6 cases with gastric IFP of which 4 were concomitant with an adenocarcinoma and 2 were concomitant with adenoma. The neoplasms of their 6 cases were present in or adjacent to the IFP. Kolodziejczyk et al (5) also reported 3 cases with gastric IFP in which a carcinoma was overlying or immediately adjacent to the IFP. Mori et al (3) pointed out possible pathogenetic relationships of IFP with adenocarcinoma as follows: 1) IFP represents a reaction against adenocarcinoma, 2) adenocarcinoma occurs via stimulation of IFP and 3) IFP and adenocarcinoma arise independently. These case reports of gastric IFP adjacent to gastric cancer or adenoma may indicate that some common factors are involved in the etiology of gastric neoplasm and IFP, though there is no direct evidence at present. Further studies on the relationship between IFP and gastric cancer are certainly required.

The IT knife has a ceramic ball at the top of the incising needle to prevent perforation of the gastric wall. It is difficult to remove a complete tumor larger than 10 mm in diameter in one piece by the usual strip biopsy method. However Ohkuwa et al (6) reported a one-piece resection rate of IT-EMR of 75% in 16 patients with adenocarcinoma or adenoma, of between 11 and 20 mm. Although the size of the IIc lesion in this case was 13 mm, the protruding lesion in addition to reddish IIc area was over 20 mm. It was necessary to excise about 30 mm in diameter to remove the lesion with a safe lateral margin. In the lesser curvature of the
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Figure 2. Endoscopic mucosal resection using insulation-tip diathermic knife (IT-EMR) was performed. (A) A hole about 2 mm in size for insertion of the ceramic ball of insulation-tip diathermic knife (IT-knife) into the submucosal layer was made with a hot biopsy forceps (white arrow). Incision of mucosa around the tumor with IT-knife (black arrow). (B) Completion of IT-knife cutting with a safe lateral margin. (C) The tumor was completely resected using IT-EMR.

In conclusion, we report the first case of gastric cancer adjacent to IFP treated with EMR. The IT-EMR was a useful treatment method for gastric cancer concomitant with gastric IFP, because it was easier to remove a tumor larger than 10 mm in diameter with the IT knife than by the usual strip biopsy method. This case emphasizes that we should keep in mind that gastric IFP might sometimes be accompanied by a carcinoma of the stomach though gastric cancer adjacent to gastric IFP is relatively rare.
Macroscopic findings of the resected tumor. The thick white bands indicate the areas of inflammatory fibroid polyp, and the thick black bands indicate the carcinomatous areas.

Microscopic findings of the resected tumor. Histological examination of the protruding lesion revealed that the tumor was limited to the mucosal layer (arrows) (A) (HE stain, x10); proliferation of fibroblasts, and infiltration of inflammatory cells such as plasma cells and eosinophils were seen (B) (HE stain, x50). (C) The fibroblasts presented whorling patterns around the small vessels, the so-called “onion skin-like arrangement” (HE stain, x50). (D) The lesion consisting of well-differentiated adenocarcinoma (arrows) was adjacent to the IFP (HE stain, x25).

References