Surgery for Advanced Gastric Cancer After Coronary Artery Bypass Grafting Using the Right Gastroepiploic Artery: Report of a Case

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Abstract

Ischemic heart disorders are often treated by coronary artery bypass grafting (CABG) using the right gastroepiploic artery (RGEA). We report the case of a 57-year-old man with a history of CABG using the RGEA, who underwent D2 radical total gastrectomy followed by Roux-en-Y anastomosis, with successful dissection of the #6 lymph nodes, while preserving the RGEA. The patient had a 9-month history of gastric cancer, during which time the Maruyama Vaccine (Specific Substance Maruyama, or SSM) was given as alternative therapy. This case report serves to demonstrate that radical gastrectomy can be safely performed after CABG using the RGEA, and that gastric cancer will progress in spite of SSM therapy.

Key words Coronary artery bypass graft · Gastric cancer · Gastroepiploic artery

Introduction

With the rising incidence of cardiac disease, the number of the patients with gastric cancer combined with cardiac disorders is also increasing. We report the case of a patient operated on for advanced cancer after coronary artery bypass grafting (CABG) using the right gastroepiploic artery (RGEA).

Case Report

A 56-year-old Japanese man presented to hospital “A” with chest pain, where a diagnosis of myocardial infarction was made by the electrocardiography (ECG) finding of a depressed ST wave at V1–V3, and an elevated Yp ST wave at II and III. He also had elevated creatine phosphokinase (CK) (1203 IU) and CK-MB (128) levels. He was transferred to the cardiac department of hospital “B,” where an emergency cardioangiography confirmed severe myocardial infarction, and CABG (left internal thoracic artery-LAD #8, RGEA #4PD, saphenous vein graft #12) was performed, followed by an uneventful postoperative course.

He visited hospital “A” again 6 months later after vomiting blood, and was diagnosed to have gastric cancer by a gastroendoscopy. He was transferred to hospital “B” again, where gastric surgery was recommended. He insisted on taking the advice of a book he had read, which stated that “early gastric cancer does not grow to advanced cancer,” and refused surgery. He started taking the alternative medicine known as Maruyama Vaccine, or Specific Substance Maruyama (SSM), thereafter.

He was readmitted to hospital “A” after passing tarry stools 8 months later, and was diagnosed to have advanced gastric cancer. He presented to our hospital again a few weeks after this, where he was admitted for surgery. By this time, he was 57 years old, and on physical examination, he was 169 cm tall and weighed 74 kg. No abnormal laboratory data were found, including complete blood count, serum chemistry, electrolytes, and liver and renal function tests. Chest X-ray findings were unremarkable, but upper gastrointestinal X-rays showed a deep and irregular open ulcer in the lesser curvature and posterior wall of the middle and lower gastric body with fold convergence (Fig. 1). He was diagnosed to have advanced gastric cancer, 7 cm in size, and located 5 cm from the esophagogastric junction, with positive serosal invasion. Gastroendoscopy was done and a histological diagnosis of adenocarcinoma with poor and moderate differentiation was confirmed. Ultrasonography, computed tomography, and magnetic resonance imaging showed a swollen
lymph node, 2 cm in size, in the area of the left gastric artery, and a fatty liver, but no hepatic metastasis or peritoneal effusion were seen. Barium enema revealed a polyp in the sigmoid colon and a diverticulum in the ascending colon, but there was no evidence of peritoneal dissemination. Cardiac scintigraphy showed depressed blood flow in the anterior wall, apical region, and posterior wall, and no blood flow in the lower posterior wall. These findings suggested myocardial infarction of three coronary vessels with hypokinesis in the anterior, apical, and lower posterior wall. No pulmonary dysfunction was found with 106% volume capacity and 77% forced expiratory volume. Selective celiac angiography showed that his RGEA had been used for the CABG (Fig. 2). After giving informed consent and being aware of the risks of gastric and cardiac problems, he underwent a D2 total gastrectomy with Roux-en-Y anastomosis, including #6 lymph node dissection preserving the RGEA which continued to pulsate before and after the procedure (Fig. 3). During the operation, we dissected the #6 lymph node carefully to avoid infarction of the REGA, and normal blood pressure was maintained throughout anesthesia. The surgical diagnosis was M post, sT3, sN2, P0, CY1, H0, and M0, resulting in surgical Stage IV. The pathological diagnosis was poorly differentiated adenocarcinoma (por2), pT3SE, pN2 (15/17), INF, ly3 v1, pDM (−), and pPM (−). The patient is currently alive without any further signs of disease progression 1 year after his operation.

Discussion

The RGEA is often used for CABG; however, because successfully treated patients can survive for a long time, if gastric cancer ever develops, the RGEA graft might result in difficult lymph node dissection. Yoshida et al.1 reported a series of 12 patients with malignant tumors, including 4 with gastric cancer, who underwent cardiac surgery. They recommended performing cardiac surgery before operating on the malignant tumor when the patient had a life expectancy of longer than 1 year; then to perform surgery for the malignant tumor as soon as the patient recovered from the cardiac operation. Uchida and Kawae2 reported the mid-term results 74 months after CABG using RGEA in 1291 patients, when the preservation rate of the RGEA was 98.9% (n = 178). Because gastric cancer had developed in 5 (2.6%) patients within this period, they suggested that CABG using RGEA would create a problem if gastric cancer surgery was required after the cardiac operation.