Case Reports

Successful Surgical Treatment of Secondary Kwashiorkor After Total Gastrectomy: Report of a Case

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Abstract: We report herein the case of a 56-year-old woman who developed secondary Kwashiorkor 9 years after undergoing a total gastrectomy for early gastric cancer. Until she began developing the symptoms of Kwashiorkor, including general fatigue, edema of the face and extremities, anemia, alopecia, and weight loss, she had been leading a normal life post-gastrectomy. Her symptoms were alleviated by total parenteral nutrition (TPN) therapy, but reappeared soon after TPN therapy was discontinued. Therefore, she required several subsequent courses of TPN. In an attempt to permanently resolve the ongoing Kwashiorkor symptoms, reconstructive surgery involving transposition of the jejunum from the previous Graham method to the interposition method was performed 10 years after the initial gastrectomy. After the second operation, her malnutrition was completely alleviated, and she has been in good health for the 8 years since. To our knowledge, there has been no other report of the symptoms of secondary Kwashiorkor being alleviated by altering the procedure of reconstruction of the intestinal tract. Thus, we recommend surgical treatment to alter the digestive continuity to a more physiological pathway for selected patients with secondary Kwashiorkor syndrome.

Key Words: secondary Kwashiorkor, surgical treatment, malnutrition, total gastrectomy, reconstruction

Introduction

It is not unusual nowadays for patients who have undergone a total gastrectomy for stomach cancer to live for a long period. However, one of the problems sometimes seen in these long-term survivors is malnutrition. We recently experienced a case of remarkable protein-calorie malnutrition that developed 9 years after total gastrectomy for early gastric cancer. We performed a reoperation in an attempt to establish an alternative pathway of food and an excellent result was achieved.

Case Report

A 56-year-old Japanese woman was transferred to our hospital from another hospital on April 16, 1985, where she had been diagnosed and treated for chronic hepatitis, anemia, hypoproteinemia, and cholelithiasis. On November 15, 1971, at 43 years of age, she had been diagnosed as having early gastric cancer, for which a total gastrectomy with splenectomy was performed at the other hospital. The gastrointestinal tract was reconstructed by a variation of the Graham method. She had suffered from transfusion hepatitis because of a 600-ml blood transfusion that she had received at the time of surgery, which required 4 months' hospitalization. Otherwise, she had lived a normal life since her gastrectomy. However, in 1980, 9 years after the operation, she began to develop general fatigue and edema of the face and the upper and lower extremities. These symptoms were improved by a drip infusion requiring hospitalization for 4 months, but 4 months after discharge she developed the same symptoms. This time, 3 months' hospitalization and the same intravenous therapy was required to improve the symptoms again. She experienced similar symptoms and hospitalizations six times in 4 years and lost 9 kg in weight.

During her last recurrence, she was admitted to another hospital on December 15, 1984, from where she was transferred to our hospital. The physical signs on admission were mild edema of the lower extremities and face, and surgical scars along the upper middle abdomen. She was 151 cm tall and weighed 35 kg. A smooth and soft margin of the liver was palpated for 2.5 finger breadths under the right costal arch but...
there was no ascites. Signs of anemia were seen in the conjunctiva, but there were no signs of icterus. Her hair was shedding and discolored to a slightly reddish color. She was passing soft stools three to five times each day, but she consumed all 2,400 kcal of the diet provided.

Biochemical examinations of her blood, stool examinations, upper gastrointestinal (GI) studies, ultrasonic (US) examination of the liver, computed tomography (CT), thyroid function tests, a pancreatic function diagnostic test (PFD), and liver biopsies were carried out. Histological examination of the liver biopsy confirmed chronic hepatitis with fatty metamorphosis, and several gallstones were recognized on the US and CT scans. The upper GI series revealed no abnormal findings such as small bowel dilatation, barium regurgitation to the esophagus or duodenum, or any blind loops. The barium transit time was normal. No signs of recurrence of the gastric cancer were seen. Mild liver dysfunction was recognized. The PFD was 22.5%, implying a grave condition. No abnormal findings were found in a biopsy of the mucosa of the small and large intestines. Thus, the patient was diagnosed as having malnutrition following total gastrectomy. On April 26, total parenteral nutrition (TPN) was commenced, 43 days after which she recovered from her systemic conditions including the anemia, edema, and low proteinemia. Moreover, her PFD increased to 65.5%. During this conservative therapy, she consumed almost all of a normal diet of approximately 2,000 kcal per day, and had no symptoms such as nausea, vomiting, diarrhea, or fatty diarrhea. However, soon after the TPN was ceased, she started losing weight again, and nutritional assessment by biochemical blood examination showed deterioration, suggesting post-gastrectomy malabsorption syndrome or blind loop syndrome. Therefore, TPN was recommenced once again to improve her general condition.

By October 14, 1985, her general condition had greatly improved and an operation was performed to establish better digestion and absorption of food. At laparotomy, adhesion was found in the abdominal cavity. However, no recurrence of cancer, stenosis, or ectasis of the digestive tract was observed. The intestine was more than 2 m long, and no pathologic fistula was seen. No abnormal findings were observed in the liver and pancreas. The gallbladder was atrophied and a thumb head-sized stone was palpated inside.

The digestive tract was reconstructed by the jejunum interposition method in place of the Graham method which had been done previously (Fig. 1). We resected as little intestine as possible, and did not remove the gallbladder. Except for a slight stenosis at the site of the jejuno-jejunalostomy, the postoperative course was uneventful. This improved in less than 1 month and she was able to recommence oral feeding. TPN was stopped postoperatively and she was finally discharged on December 24, 1985. Since her discharge, she has been taking digestive enzymes and vitamins, and attending regular checkups. Her weight is now stable at 50 kg, and she has no edema nor is she suffering any fatigue. She is currently leading an ordinary daily life. No anemia or any losses of trace elements such as Zn and Fe have been found. Thyroid function and serum vitamins have been within the normal range (Fig. 2). Since her last operation 8 years ago, she

Fig. 1a. Schematic diagram of the reconstructive procedure used in the initial operation. The shaded portion represents the intestine removed by the reoperation. E, esophagus; D, duodenum; F, flexura duodeno-jejunalis; I, interposing jejunum; J, jejunum. a The completed reoperation (interposition). a, a', b, b', and c, c' indicate the anastomotic sites