Surgical Treatment for Duodenal Involvement in Crohn's Disease: Report of a Case

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Abstract: A 29-year-old woman was hospitalized with a 1-month history of postprandial epigastric pain, nausea, and vomiting. An upper gastrointestinal tract X-ray series showed a marked narrowing of the pyloric region. A histological examination of duodenal mucosal biopsy samples showed granulomatous inflammation, and thus a diagnosis of intrinsic duodenal Crohn's disease was made. A second upper gastrointestinal tract X-ray revealed a persistent gastric outlet obstruction. At laparotomy, the duodenal wall was found to be thickened over a distance measuring 3.5 cm in length from the pyloric ring. A longitudinal incision was made over the entire length, up to 5.5 cm beyond the pyloric ring on either side, while Finney-type anastomosis was also performed. A postoperative upper gastrointestinal tract X-ray showed an improvement in the gastroduodenal passage. Enteral nutrition therapy was provided postoperatively. Omeprazole was administered at a dose of 20 mg/day for 2 months. The patient currently remains on maintenance therapy with famotidine at 20 mg/day and is clinically doing well.

Key Words: Duodenum, Crohn's disease, Strictureplasty

Introduction

Although careful endoscopic examinations have demonstrated that the incidence of minute duodenal lesions in Crohn's disease is considerably higher than has been previously thought,1-4 gross duodenal involvement requiring surgical treatment is uncommon.5-9 With respect to surgery for Crohn's disease, the duodenum is distinctly different from any other part of the alimentary tract. Because of the high complication rate of bypass operations, a bowel resection has become the standard approach in Crohn's disease.10 However, a bypass is still the accepted form of treatment for patients with duodenal Crohn's disease,5-7 in order to avoid not only such major surgery as a pancreaticoduodenectomy but also simple gastrectomies, due to their increased morbidity.

Thus, to minimize the extent of the operation for Crohn's disease, the use of strictureplasty for intestinal narrowing has recently increased.10-12 Due to the high incidence of marginal ulceration after gastroenterostomy, we treated a patient presenting with symptoms of pyloric stenosis caused by intrinsic duodenal disease using Finney-type strictureplasty. We herein review the case, and also discuss the surgical management of gastroduodenal involvement in Crohn's disease.

Case Report

A 29-year-old woman was admitted to our hospital with a 1-month history of postprandial epigastric pain, nausea, and vomiting on June 2, 1994. She complained of a weight loss of 5 kg, although no severe diarrhea, high temperature, or melena was observed. She had undergone resection of the terminal ileum and local repair of a rectovaginal fistula for Crohn's disease 2 years previously. She had never previously had any symptoms suggestive of duodenal Crohn's disease. A blood examination disclosed 11.0 g/dl hemoglobin, 3410000 red blood cells, and 5700 white blood cells. Regarding blood chemistry, the serum bilirubin was 0.4 mg/dl, GOT was 31 U/l, GPT was 60 U/l, and serum proteins were 5.7 g/dl, of which 3.3 g was albumin; blood urea nitrogen was 13 mg/dl.

An upper gastrointestinal tract X-ray series showed a marked narrowing of the pyloric region, deformed duodenal bulbs, and diminished distensibility in the descending duodenum (Fig. 1). A gastroscopic examination also showed the presence of ulceration and "cobbledstoning" in the duodenum. No Crohn's
Fig. 1. Upper gastrointestinal tract X-ray showing a marked narrowing of the pyloric region, deformed duodenal bulbs, and diminished distensibility in the descending duodenum.

disease was observed, however, in the periampulla of the duodenum. A histological examination of duodenal mucosal biopsy samples showed granulomatous inflammation (Fig. 2). Intensive medical therapy, including enteral nutrition, did not relieve her symptoms, and a second upper gastrointestinal tract X-ray revealed a persistent gastric outlet obstruction.

The operation was performed on June 13, 1994. At laparotomy, the duodenal wall was found to be thickened over a distance measuring 3.5 cm in length from the pyloric ring. As the operative procedure was only for the gastroduodenal lesion, no other intestinal disease could be examined at the time due to postoperative adhesion. A longitudinal incision was made over the entire length, 5.5 cm beyond the pyloric ring on either side. No Crohn’s lesions were seen around the ampulla. After mobilization of the duodenum, a stay suture was inserted at the middle of the incision (pyloric ring) on the side of the lesser curvature. This segment was then folded into an inverted U, and Finney-type anastomosis was performed using one layer of 3-0 absorbable sutures posteriorly, and two layers anteriorly (one full-thickness suture of 3-0 absorbable material and one seromuscular layer suture of 4-0 polypropylene) (Fig. 3).

A postoperative upper gastrointestinal tract X-ray showed improved gastroduodenal passage (Fig. 4). A gastroscopic examination also showed small nodular lesions and ulcer scars in the duodenal bulbus. There was no narrowing or stricture between the pylorus ring and bulbus. Enteral nutrition therapy was provided postoperatively. Omeprazole was administered at a dose of 20 mg/day for 2 months. The patient is currently on maintenance therapy with famotidine at 20 mg/day and is clinically doing well. An X-ray taken in February 1996 revealed no recurrence of either gastroduodenal or lower intestinal lesions.

Discussion

The incidence of gross duodenal involvement in Crohn’s disease requiring medical or surgical intervention has been found to range from 2% to 4% in various studies. It is thought that the failure to recognize duodenal involvement in Crohn’s disease and the erroneous attribution of the patient’s symptoms to more distal disease may often delay the diagnosis of intrinsic duodenal Crohn’s disease. Furthermore, it is difficult to distinguish between peptic ulcers and ulcerous lesions secondary to Crohn’s disease. The clinical and radiographic features may overlap, and a histologic examination of a mucosal biopsy is often not confirmatory. Duodenal involvement should thus be