Peroral Placement of a Self-Expandable Covered Metallic Stent Using an Overtube for Malignant Gastroduodenal Obstructions

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Abstract

Purpose. To evaluate the technical feasibility and safety of overtube-guided covered metallic stent placement as palliative treatment for patients with inoperable malignant gastric outlet obstructions.

Methods. To relieve the symptoms of severe nausea and recurrent vomiting in five patients with inoperable gastric cancer, we used an overtube (Long overtube; Sumitomo Bakelite, Tokyo, Japan) to place large-diameter, self-expandable, covered esophageal Ultraflex stents (inner diameter 22–28 mm, length 10 or 12 cm; Boston Scientific, Watertown, MA, USA). Success was defined both technically and clinically.

Results. The stent placement was technically successful in all patients and resulted in improvement of symptoms in all five patients, four of whom were thereafter able to ingest solid food. The remaining patient, a 94-year-old man, was unable to ingest food because of dysmaseosis. During the mean follow-up of 17 weeks, there was no stent reocclusion and no life-threatening complications developed.

Conclusions. The placement of a large diameter, self-expandable, covered esophageal stent using an overtube appears to be effective for the palliative treatment of malignant gastric outlet obstruction.

Key words Malignant gastroduodenal obstruction · Self-expandable covered metallic stent · Overtube

Introduction

The practice of passing expandable metallic stents through obstructing neoplasms is becoming more common. Although self-expanding metallic stents have proved to be effective for the palliation of esophageal malignant obstruction, the placement of a covered stent, which is flexible and has strong force of expansion, is required for patients with gastric outlet obstruction to allow food intake and prevent reocclusion and bleeding from tumors. However, the stomach has extensive curvature, unlike the morphologically straight esophagus, and effective placement is often difficult. Because the wall of the anal end of the duodenum is thin and easily perforated, stents suitable for use with gastric outlet obstruction have not yet been developed, and nor have accurate placement methods. Although surgical bypass operations are an option for such patients, the associated morbidity and mortality are high, and good control of symptoms is achieved in about only about 50%.

Using a newly developed overtube (Long overtube; Sumitomo Bakelite, Tokyo, Japan), we placed an Ultraflex stent (Boston Scientific, Watertown, MA, USA) in five patients with malignant gastric outlet obstruction. The Ultraflex stent is a flexible, covered stent with a strong force of expansion, which was originally designed as an esophageal stent. The purpose of this study was to assess the safety and effectiveness of covered stent placement in these patients.

Patients and Methods

Patients

Between February 2001 and June 2002, five patients underwent placement of a covered Ultraflex stent using an overtube for a gastroduodenal malignant obstruction caused by inoperable gastric cancer (Table 1).

Stent Placement Technique

The procedure was performed in the radiology room under fluoroscopic guidance, via a peroral approach in
all patients. Before the procedure, a nasogastric tube is placed to empty the stomach of patients with severe gastric distention. Sedatives (midazolam, Dormicum; Yamanouchi, Tokyo, Japan) and analgesic drugs (pethidine hydrochloride, Opystan; Tanabe, Tokyo, Japan) are administered intravenously. No general anesthesia is needed.

An endoscope (XQ240; Olympus, Tokyo, Japan) is inserted perorally into the stomach and contrast medium injected directly, from just above the malignant stricture. The status of constriction is confirmed endoscopically and fluoroscopically. A 0.038-inch guidewire (Boston Scientific) is advanced into the stomach via the endoscope and then through the malignant stricture.

If it is possible to pass the endoscope through the malignant stricture, it is inserted up to the duodenum (Fig. 1). When this is not possible, it is inserted after expanding the stenosis using an esophageal wire-guided balloon dilatation catheter (Boston Scientific). The covered overtube is advanced from the area of stenosis up to the duodenum and the apical balloon is blown up to fix the tip of the overtube in the duodenum.

Next, the endoscope is raised and the curvature of the stomach is straightened as much as possible (Fig. 2). The endoscope is then removed, keeping the overtube and guidewire in place (Fig. 3). The Ultraflex stent is inserted through the opened side-hole of the overtube and advanced to the second portion of the duodenum following the guidewire in the overtube (Fig. 4). The side-hole should be made at an extracorporeal point less