

Leakage of Jejunal End of Roux Limb after Total Gastrectomy: Management with a Placement of a Covered Metallic Stent - Case Report -

Postoperative leakage is a serious complication in patients after gastric surgery. It can lead to a rapid deterioration in the patient's condition and quality of life. Treatment is guided by the type of anastomosis and the patient's clinical status. The role of interventional radiology in gastrointestinal tract is evolving. Metallic stent placement has shown encouraging results for the palliation of gastrointestinal tract obstruction and fistula in malignant patients. We encountered a case of the leakage of jejunal end of Roux limb after total gastrectomy. This patient required a drainage procedure with long-term parenteral nutrition. We performed peroral placement of a covered metallic stent to avoid surgery and long-term parenteral nutrition, and he resumed adequate oral intake immediately after stent placement. This minimally invasive procedure is very promising for the treatment of a gastrointestinal fistula to avoid surgery and long-term parenteral nutritional support in selected cases.

Key Words : Stents; Postoperative Complications; Gastrectomy

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Received : 23 May 2002
Accepted : 15 July 2002

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INTRODUCTION

Postoperative leakage is a serious complication in patients after gastric surgery. It can lead to the progressive deterioration in the patient's condition and quality of life. Most patients require a drainage procedure with long-term parenteral nutrition. Surgical palliation is indicated in selected cases with peritonitis and paralytic ileus, but because of the invasiveness of the intervention and the poor general condition of these patients, it is associated with significant complications. Although there was no report for postoperative leakage after gastric surgery, metallic stent placement has shown encouraging results for the palliation of malignant gastrointestinal tract obstruction and fistula (1-13). In this report, we present a case of the postoperative leakage after total gastrectomy which was successfully treated with temporary placement of a covered metallic stent.

CASE REPORT

A 61-yr-old male was admitted to the hospital because of nausea, vomiting, and fever for 1 day. Two weeks prior to this admission, he underwent total gastrectomy with esophagojejunostomy for high body gastric cancer and was discharged

without complication. The pathologic stage was T₂N₂M₀ (stage III_A). Immediately after discharge, he developed nausea, vomiting, and high fever. On this admission, physical examination revealed left upper quadrant pain with decreased bowel sound. Fever (38.5 °C), tachycardia (100/min), and elevated white blood cell count (17,900/ μ L) were also noted. Abdomen-pelvis computed tomography demonstrated about 8 × 4 cm sized fluid collection in the esophagojejunostomy site suggesting intraabdominal abscess (Fig. 1). Computed tomography-guided 10-Fr locking pig-tail catheter was inserted via transhepatic approach. Fistulography was obtained via the pig-tail catheter, which showed a fistula from the abscess cavity to the esophagus (Fig. 2A). Endoscopy revealed one opening in the jejunal end of Roux limb (Fig. 2B). At this point, it was believed that the best treatment avoiding surgery or long-term parenteral nutrition would be temporary placement of a covered metallic stent in this fistula.

Seven days after pig-tail catheter insertion, peroral placement of a covered metallic stent was performed. Initially the fistula was demonstrated with a small amount of contrast (Ultravist, Hankook Schering Inc., Ansan, Korea) swallowing. Under endoscopic guidance, a long hydrophilic guide wire (Terumo Radiofocus, Terumo Inc., Tokyo, Japan) was inserted via the oral route through the esophagus to negotiate the esophagojejunostomy site following oropharyngeal

anesthesia, which was achieved successfully with lidocaine gel. The stent (Niti-S Esophageal Covered Stent, Taewoong Medical Inc., Kyunggi-Do, Korea) and stent introducer were inserted over the guide wire. The metallic stent mesh was covered with polyurethane membrane to prevent leaking through the mesh. The length of the stent body was 6 cm with a diameter of 16 mm. There were 2 cm long shoulders at each end of the stent for the prevention of stent migration. The



Fig. 1. Initial abdomen-pelvis computed tomography demonstrates about 8×4 cm sized fluid collection in the esophago-jejunojejunostomy site.

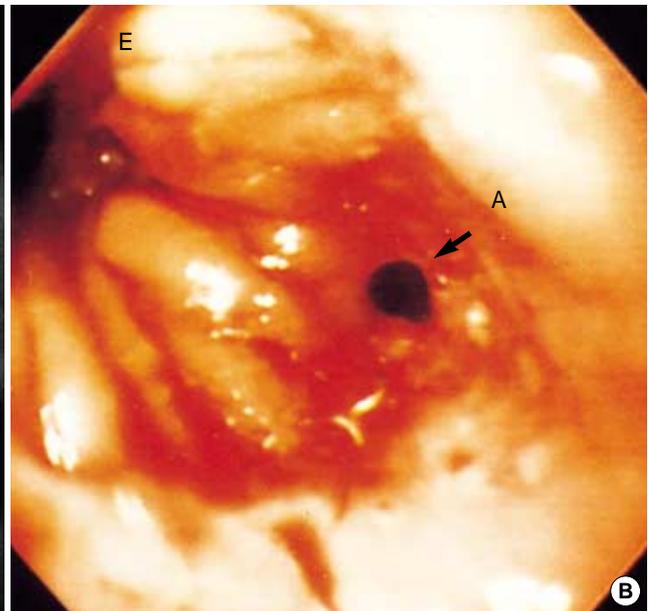


Fig. 2. (A) Fistulography shows a fistula from the abscess cavity to the esophagus. (B) Endoscopy reveals one opening in the jejunal end of Roux limb. (E; efferent loop, A; jejunal end of Roux limb, closed arrow; one opening in the jejunal end of Roux limb).

outer diameter of the flexible introducer catheter was 20-Fr. The stent was fully expanded after deployment. On post-stenting contrast study, there was no significant leaking of the contrast suggesting successful sealing of the fistula (Fig. 3A). Three days after the stent placement, a follow-up contrast study demonstrated slight migration of the stent without leakage of the contrast (Fig. 3B). Immediately after a follow-up contrast study, he resumed adequate oral intake without parenteral nutritional support. After 10 days of follow-up contrast study, he was discharged without complication.

One month after the stent placement, follow-up abdomen-pelvis computed tomography showed no fluid collection without migration of the stent, and the pig-tail catheter was removed. Three months after the stent placement, esophagography was done for the removal of the stent. However, the stent was passed out spontaneously, and esophagography demonstrated no leakage of the contrast (Fig. 4).

DISCUSSION

Postoperative leakage is a serious complication in patients after gastric surgery and can lead to a rapid deterioration in the patient's condition and quality of life. Most patients require a drainage procedure with long-term parenteral nutrition to relieve the symptoms of leakage and to improve their nutritional status. Treatment is guided by the type of anastomosis and the patient's clinical status. With a silent or localized leak, oral feeding is discontinued, and the patient is fed parenterally or by a jejunal tube. Although minimally invasive,

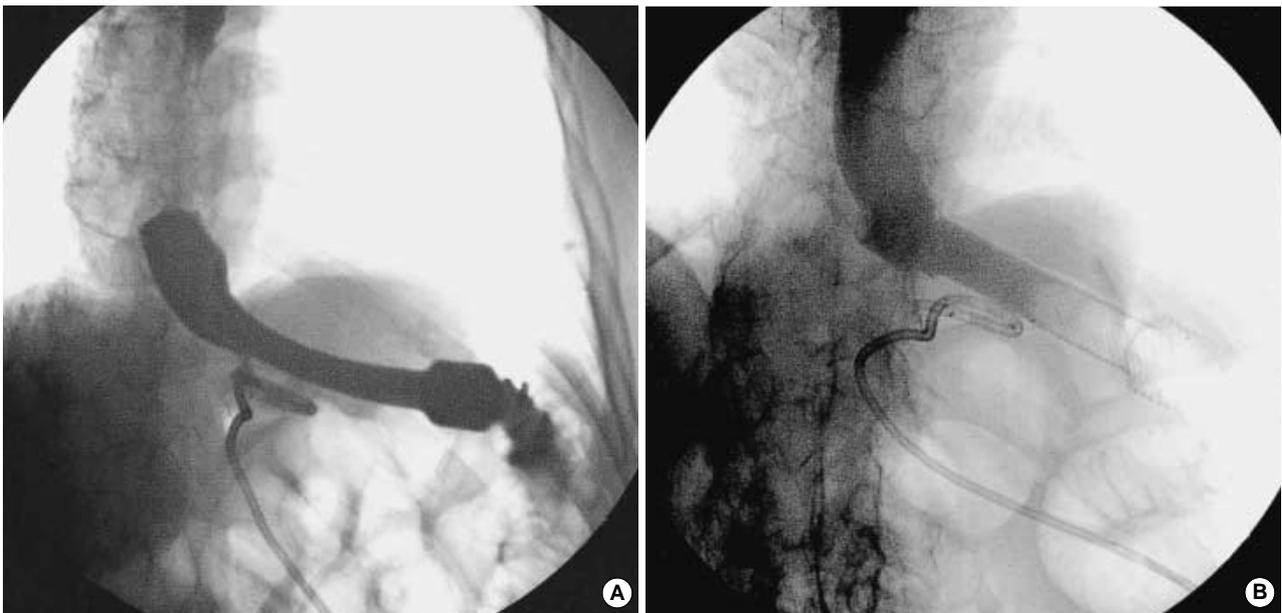


Fig. 3. (A) Post-stenting contrast study shows a fully expanded stent without significant leakage of the contrast. (B) Three days after the stent placement, a follow-up contrast study demonstrates slight migration of the stent without leakage of the contrast.

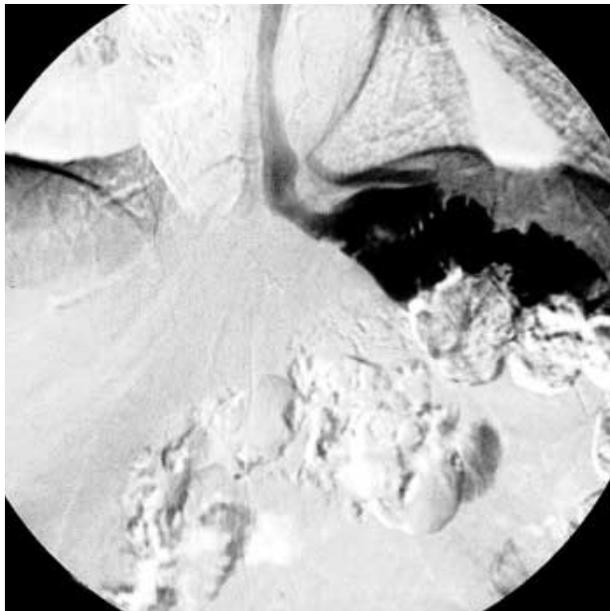


Fig. 4. Follow-up contrast study demonstrates that the stent has been passed out spontaneously without leakage of the contrast.

it is often an inadequate palliative measure, because it does not allow oral intake and a longer hospital stay with a higher overall treatment cost is required. Peritonitis and paralytic ileus are the decisive criteria for surgical palliation. Because most patients have an advanced disease, other unfavorable medical conditions, or advanced age, surgical palliation may be associated with significant morbidity and mortality.

The role of interventional radiology in the gastrointestinal

tract is evolving. It is increasingly supplanting surgical palliation as a less invasive and often more definitive modality. Although there was no report for postoperative leakage after gastric surgery, metallic stent placement has shown encouraging results for the palliation of malignant gastrointestinal tract obstruction and fistula (1-13). Gastrointestinal stent placement for malignant obstruction or fistula creates a more physiologic conduit than does surgical bypass, resulting in earlier resumption of oral intake, a shorter hospital stay, a lower overall treatment cost, and minimal morbidity (2, 3, 5). Furthermore, recent improvements in the design of longer and more flexible introducing systems have permitted a higher technical success in 94-100% of the cases with malignant obstruction of the gastrointestinal tract (2). However, the rates of delayed complications including hemorrhage, stent migration, perforation or fistula formation, granulomatous obstruction, and stent covering disruption were substantial. Wang et al. (8) reported that the overall incidence of delayed complications was 64.6% after esophageal stent placement for treatment of inoperable malignant esophageal obstructions and fistulas in 82 consecutive patients. In 16 patients with malignant gastroduodenal obstruction, Lopera et al. (1) reported that the technical success rate was 94% with no major complications. But long-term results are not available yet and further evaluation is needed, because all patients died 1-48 weeks after stent placement.

Temporary placement of a covered metallic stent is a feasible and effective method of palliation in a patient with the leakage of jejunal end of Roux limb after total gastrectomy. In our case, the patient resumed adequate oral intake immediately after stent placement. Three months after the stent

placement, the stent was passed out spontaneously without complications. Although he was not inoperable, metallic stent placement resulted in earlier resumption of oral intake and a shorter hospital stay. Furthermore, it avoided surgery and surgery associated morbidity and mortality. In conclusion, this minimally invasive procedure is very promising for the treatment of a gastrointestinal fistula to avoid surgery and long-term parenteral nutritional support in selected cases.

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