

Self-expandable metallic stents in the treatment of post-esophagogastrectomy/post-esophagoenterostomy fistula

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SUMMARY. Esophageus or gaster resection in patients with malignant disease is still a treatment of choice. It is obvious that each surgical procedure in these patients carries some possibility of complications. Esophageo-gastric or esophageo-jejuno anastomosis has a 4–27% frequency of fistula occurrence. All these result in 65% mortality in cases of poorer prognosis. The aim of this paper is not to present all types of complications but to objectively analyse the usefulness of the covered stent placement in the treatment of anastomotic fistulas. We present six patients who were treated for postoperative fistula of esophageo-gastric anastomosis (1 case) or esophageo-jejuno anastomosis (5 cases). All patients were treated with stapler suture for digestive tract reconstruction after malignancy removal during the primary surgical procedure. Signs and symptoms of suture leak between 5–8 days post-surgery were observed. Conservative therapy was not effective. Thus a new method of treatment was employed – covered stent placement. The procedure was performed under X-ray control. In all treated patients there was change for the better and quick reduction of secretion from the fistulas was observed. All patients were discharged from the department after several days and all had survived at 30 days follow-up. Covered esophageal stent placement seems to be a safe and promising method of treatment for patients with anastomotic fistula which significantly reduces mortality and improves quality of live. Our experiences confirms that of other investigators.

KEY WORDS: anastomosis, fistula postoperative, resection, SEMS.

BACKGROUND

Resection has been universally recognized as management of esophageal and gastric cancer. Although surgery can be successful in tumor elimination, some patients may develop postoperative complications. Esophagogastrectomy or esophagoenterostomy leaks have been observed in 4–27% of cases.^{1–5} Anastomotic leakage causes deterioration of the patient's condition, and results in mediastinitis, a life-threatening condition which, if recognized late or improperly treated, can have a mortality rate as high as 65%.^{2–7} New surgical techniques (e.g. mechanical [stapler] anastomosis) can decrease, although not completely eliminate, the risk of anastomotic leakage. Another possible complication is a bronchoesophageal fistula.

PATIENTS

The study group consisted of six patients; two women and four men, mean age 58.5 years. Two patients had been surgically treated in the Department of General and Vascular Surgery Reference Center, Medical University in Katowice, Poland and four were admitted after operations performed in other hospitals. All had undergone elective surgery for cancer of distal esophagus (1 patient), and the stomach (5 patients); subsequent histology confirmed the malignancy. Distant metastatic disease was not detected. In five patients mechanical suture was used to form esophagogastrectomy/esophagoenterostomy; in one patient the anastomosis was formed manually. All anastomoses were formed through abdominal access. Following partial resection of the esophagus, reconstruction using stomach and esophagogastrectomy was performed in one patient while in five total gastrectomy was followed by Roux-en-Y reconstruction.

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Fig. 1 Fistula before stent implantation.

The subjects were diagnosed as having developed a postgastrectomy anastomotic fistula. Anastomotic leakage occurred between 5 and 8 days after surgery manifesting as moderate pyrexia (up to 40°C), pleural effusion, and dyspnoea. In each case, fistula formation was confirmed on contrast-enhanced radiographs (Fig. 1).

INTERVENTIONS

Initial treatment was non-invasive; three patients underwent pleural drainage, but the fistula did not close. Thus, a decision was made to implant self-expandable metallic stents to occlude the leakage site. Our center has had several years of experience in using covered stents for non-operative management of esophageal or cardial tumors, and available literature on the surgery described the effectiveness of covered stents in the treatment of gastroesophageal anastomotic leak. Conservative treatment failed, and surgical re-exploration was considered to be associated with a higher risk of major complications including death compared to attempts at covered esophageal stenting across the surgical anastomosis.



Fig. 2 Fistula after stent implantation.

Typical patient preparation was carried out; the stenting procedure was performed in an X-ray laboratory with anaesthesiological support. Based on our previous experience we selected covered Ultraflex stents (Boston Scientific, Watertown, MA, USA).

Under X-ray supervision, a metal guide was endoscopically inserted, and the stent delivered to occlude the leakage site. Leak occlusion was confirmed on contrast assessment (Fig. 2).

RESULTS

Prompt improvement was observed after the procedure, that is, temperature decreased, pleural effusion resolved in all patients, and it was possible to remove the drains on days 3 or 4 after stent placement. Oral feeding was initiated on day 2; at first patients were only allowed liquid food.

The patients were discharged home or transferred to their referral centers 5 or 6 days after stent implantation. During the follow-up, stent migration outside the site of anastomosis was observed in two patients. However, neither developed stent-related obstruction of the alimentary tract, and there was no need for stent removal during a period of 2 years following the procedure.

LIMITATIONS

Postoperative esophagogastrostomy/esophagoenterostomy fistula remains a major therapeutic issue. Symptoms of anastomotic leakage typically occur between 5 and 8 days after surgery.^{6–9} Fistulas may develop as a result of increased protein depletion, considerable intraoperative blood loss, and technical imperfections during manual or mechanical suture placement.^{1,7}

The deteriorating condition of patients urges a medical team to take action. Until recently, surgical intervention was the only alternative to conservative non-invasive treatment.^{3,7} However, surgery has often been associated with high complication rates, constructing a salivary fistula, nutritional gastric or intestinal fistula, and, as a result, the need for subsequent reconstructive procedures. In view of the above, other therapeutic options have been intensively sought. Literature on the subject has been scarce, and it is difficult to discuss our results against those obtained by other authors. Roy-Choudhury *et al.*⁶ presented stent placement results in 14 patients with esophagogastrostomy or esophagoenterostomy leaks; all received stent treatment after conservative management had failed. Closure occurred in 13 subjects; one patient died of recurrent leak and resulting complications in the late postoperative period.

Endoscopic dilation of anastomotic leaks using Savary-Gillard expandable plugs was also attempted, but it is hard to refer to this method as it was described in one paper only.⁹

Currently, different types of esophageal stents have been manufactured and used; in our opinion ULTRAFLEX nitinol devices are the stents of choice for the treatment of anastomotic leakage. These stents were also selected by Roy-Choudhury *et al.*⁶

Esophageal expandable metallic stent placement can prove ineffective. Complications include bleeding from the alimentary tract, food impaction, or granulomatous stent obstruction.¹ These were not observed in our patients. We had two cases of stent migration below the site of the anastomosis, which could probably be explained by different susceptibilities within the anastomotic area to centrifugal pressure from the stent. Resulting dilation causes

the stent to migrate downwards. However, even if there should be a need for subsequent stent removal, the procedure is not burdensome for the patient after successful closure of the fistula. Patients admitted to our Department for stent placement since the time of the above study termination have received a modified treatment which consists of temporarily fixing the stent to an esophageal probe. The latter is removed when the mucous membrane has grown across the uncovered stent segment.

CONCLUSION

Stent placement seems to be a promising alternative in the treatment of anastomotic leakage, and can be advocated due to its association with reduced mortality rates. However, adequate financial resources and a well-trained medical team are mandatory, and this may preclude implementation of the method for routine use.

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