

# Endoscopic Treatment of a Cervical Esophageal Dissection Using a Polyflex Self-expanding Plastic Stent

by Jonathan M. Buscaglia, J. Timothy Sherwood and Sanjay B. Jagannath

**Treatment of esophageal perforations and anastomotic leaks with self-expanding plastic stents in the mid- or distal-esophagus has been well-described. We report the case of a 69-year-old male who suffered an iatrogenic dissection of the hypopharynx and cervical esophagus in an effort to dilate a hypopharyngeal stricture. His surgical management was aided successfully by the placement of a Polyflex self-expanding plastic stent within the cervical esophagus above the upper esophageal sphincter. The stent was left in place for 12 days, and the site of esophageal injury appeared to be completely healed upon removal.**

## INTRODUCTION

**A** 69-year-old male presented to the otolaryngology clinic complaining of dysphagia. He had been diagnosed with T3N2bM0 squamous cell carcinoma of the hypopharynx one year prior. Direct laryngoscopy at that time demonstrated an extensive mass involving the right hypopharynx. Treatment consisted of induction chemotherapy followed by combined chemoradiation therapy. His course was complicated by hypopharyngeal stenosis resulting in dysphagia. This was initially managed successfully with a Maloney 60-French bougie dilator.

Five months later, the patient presented to the otolaryngology clinic with recurrent dysphagia. On laryngoscopy, no distinct mass or stenosis was identified.

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Empiric serial dilation was performed up to a diameter of 60-French, with modest resistance encountered at the final dilation. Immediate endoscopic inspection demonstrated a patent esophageal inlet with mild bleeding, but no evidence of perforation. In the recovery area, the patient complained of severe chest pain, and a chest radiograph demonstrated moderate pneumomediastinum and pneumoperitoneum. An upper GI series was performed which showed an esophageal dissection originating in the cervical esophagus (Figure 1). The false lumen of the dissection extended down along the esophagus, exiting the outer wall of the distal esophagus with flow of contrast into the left lower lung parenchyma and pleural space (not shown).

The patient was emergently brought to the operating room. On endoscopy, the entrance site of the false lumen could be seen just proximal to the thoracic inlet. The lumen of the false passage was the diameter of the 60-French bougie. The plane of dissection was between the submucosa and the muscularis propria, and the scope was passed along this plane until the exit

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### A CASE REPORT

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**Figure 1.** Upper GI series demonstrates a cervical esophageal dissection extending down to the distal third of the esophagus. A false lumen is clearly seen to the left of the true esophageal lumen.

site of dissection into the pleural space was identified. The true lumen was seen on the other side of the septum. A nasogastric tube was placed into the true lumen under direct visualization. A left thoracotomy was performed with heavy contamination of the pleural space. A lung decortication was done, and the inferior pul-

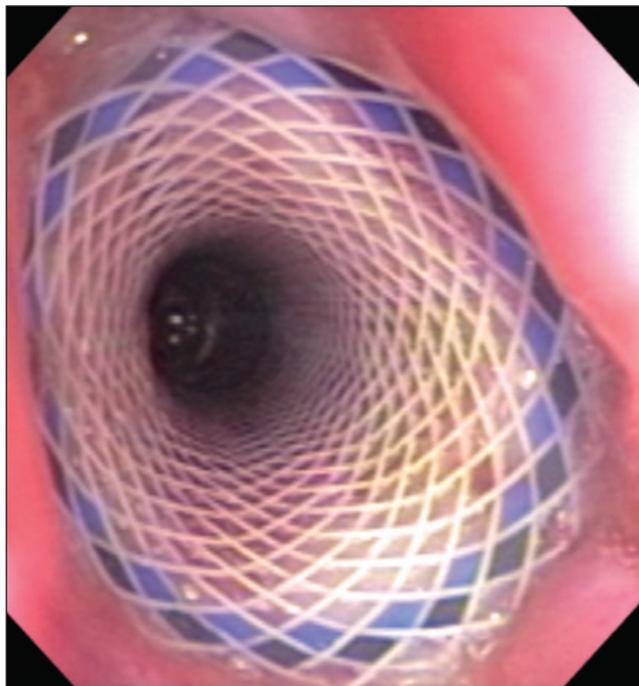
monary ligament was divided up to the inferior pulmonary vein. Perforation of the lung was identified at the level of the inferior pulmonary ligament, explaining the presence of contrast in the lung. Immediately adjacent to this was the puncture site in the mediastinal pleura, and this was opened proximally and distally in order to debride and drain the mediastinum. The distal esophagus was identified, and a defect in the muscularis propria was seen indicating the exit site of the dissection. Methylene blue was instilled into the distal esophagus with air insufflation to rule out a transmural perforation. A 19-French Blake drain was then inserted into the false lumen and passed retrograde, using biopsy forceps through the flexible endoscope from above to assist placement at a point 2–3 cm distal to the entry site of the false lumen. The distal exit site of the dissection was not closed. The Blake drain exited the esophagus at this location, and was brought out through a puncture wound in the left chest wall.

Esophagoscopy was performed two days later. The upper esophageal sphincter was identified at 16 cm from the incisors, and a 10 mm mucosal defect was identified at this location, indicating the entry site of the false lumen. A Polyflex self-expanding plastic stent (9 cm × 20 mm × 16 mm) (Boston Scientific Co, Natick, MA) was placed under fluoroscopic guidance with the proximal phalange at 15 cm from the incisors, just superior to the upper esophageal sphincter (Figure 2).

Overall, the stent was well-tolerated by the patient with minimal discomfort. Eleven days later, a repeat esophagram demonstrated the absence of contrast extravasation, yet there was subclinical aspiration of contrast material noted. It was presumed that this may be due to the high position of the stent, and so the stent was removed the following day. Another esophagram demonstrated healing of the dissection site without any further significant aspiration. The Blake drain was then slowly inched out over a period of seven days. The patient was started on a clear liquid diet, and tolerated oral intake without symptoms.

### DISCUSSION

This case highlights the ever-expanding indications of removable, self-expanding plastic stents (SEPS). The use of SEPS for esophageal perforations and leaks has



**Figure 2a.** Polyflex stent positioned with its proximal edge just above the upper esophageal sphincter.



**Figure 2b.** The endotracheal tube is also in view next to the stent.

been well-described (1–4). However, there are few reports of the use of SEPS in the treatment of dissection of the cervical esophagus. Traditionally, placement of esophageal stents for treatment of fistulae or perforations in the cervical esophagus has been problematic because of its proximity to the cricopharyngeus muscle. Patients cannot tolerate an esophageal stent that embeds at the upper esophageal sphincter. Often the pain, discomfort, and possible dysphagia are too severe. For the patient in this clinical scenario, stent placement facilitated closure of the proximal dissection entry site, preventing prolonged NPO status.

The Polyflex stent has several characteristics that may enable it to be better tolerated in the distal hypopharynx or cervical esophagus. One favorable quality of this polyester mesh-reinforced silicone stent is that it is capable of narrowing under pressure. In contrast to metal stents, this allows it to be more malleable in a dynamic environment such as the cervical esophagus and hypopharynx. Secondly, this non-metal polyester covering may cause less surrounding tissue inflammation and proliferation (5). Both qualities

appear to account for better tolerability near the upper esophageal sphincter, and thus success in treating benign (and possibly malignant) disease in this location. This case report illustrates that the Polyflex stent offers therapeutic stenting options in the upper cervical esophagus or distal hypopharynx that otherwise would not have been feasible with traditional esophageal metal stents. ■

#### References

1. Schubert D, Scheidbach H, Kuhn R, et al. Endoscopic treatment of thoracic esophageal anastomotic leaks by using silicone-covered, self-expanding polyester stents. *Gastrointest Endosc*, 2005;61:891-696.
2. Evrard S, Le Moine O, Lazaraki G, et al. Self-expanding plastic stents for benign esophageal lesions. *Gastrointest Endosc*, 2004; 60:894-900.
3. Dormann AJ, Wiggighaus B, Deppe H, et al. Successful treatment of esophageal perforation with a removable self-expanding plastic stent. *Am J Gastroenterol*, 2001; 96:923-924.
4. Radecke K, Gerken G, Treichel U. Impact of self-expanding, plastic esophageal stent on various esophageal stenoses, fistulas, and leakages: a single-center experience in 39 patients. *Gastrointest Endosc*, 2005; 61:812-818.
5. Siersema P. Treatment of esophageal perforations and anastomotic leaks: the endoscopist is stepping into the arena. *Gastrointest Endosc*, 2005;61:897-900.