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## Case Report

## Percutaneous retrograde approach and perioral placement of a covered esophageal stent in a patient with a complex esophageal cancer



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### ABSTRACT

This case report shows an effective esophageal stent placement via retrograde (transgastric) approach under fluoroscopic guidance in the interventional radiology suite. This alternative can be evaluated and offered to patients that suffer from a firm esophageal occlusion before a major procedure such as surgery can be considered. Thus, decreasing major surgery complications and improving the quality of life.

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**Keywords:** Esophageal stenosis; Self expandable metal stents; Tracheoesophageal fistula

### Introduction

Malignant dysphagia, aspiration, and septic pneumonia are serious complications of esophageal cancer that lead to a decreased survival rate and life quality. Multiple types of esophageal stents are available as palliative measures for malignant obstruction as well as for other benign condition and its role is well established in this setting.<sup>1</sup> We present a challenging case diagnosed with a totally occlusive esophageal carcinoma and tracheoesophageal (TE) fistula in which a classic antegrade approach for esophageal stent placement was abandoned due to a tight occlusion and aspiration. The approach was then changed to a retrograde-antegrade approach.

### Case Report

A 64-year-old male with a history of terminal esophageal cancer with symptoms of aspiration pneumonia, extreme weight loss in 4 weeks and severe dysphagia. There was no previous history of radiation for the patient. A chest X-ray showed right upper lobe consolidation. The chest computed tomography with intravenous contrast showed an irregular and heterogeneous mass with contrast enhancement involving the upper and mid esophagus along with partial compression of the lower trachea (Fig. 1).

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The patient was referred for gastrostomy tube placement due to the inability to place a nasogastric tube and debilitating condition. In order to control the TE fistula and dysphagia, an esophageal covered-stent placement was selected.

Under fluoroscopic guidance, multiple attempts to place a 4 Fr Kumpe catheter and a 0.035-inch guidewire (Boston Scientific, Marlborough, MA, USA) through the mouth into the stomach failed due to the large TE fistula with a persistent passage of the guidewire into the right main bronchus furthermore; the patient was not able to tolerate this approach as this was causing severe cough due to the passage of the guidewire into the right main bronchus hence, this option was abandoned.

Access to the stomach was possible under ultrasound guidance with a 22 G Chiba (Cook Medical, Bloomington, IN, USA) needle and was confirmed by injecting contrast. A 4 Fr Kumpe catheter-guidewire combination was successfully inserted into the lower esophagus showing a bottom opening TE fistula. Passage across the stenotic esophageal portion with the guidewire was achieved and pulled out through the mouth with a hemostat. Lateral view confirmed esophageal position. A superstiff 0.035-inch guidewire (Amplatz; Boston Scientific) was advanced from the mouth into the stomach and a covered esophageal stent was periorally placed

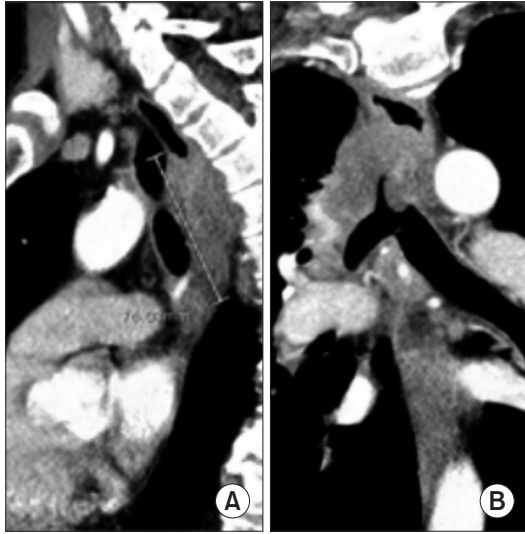
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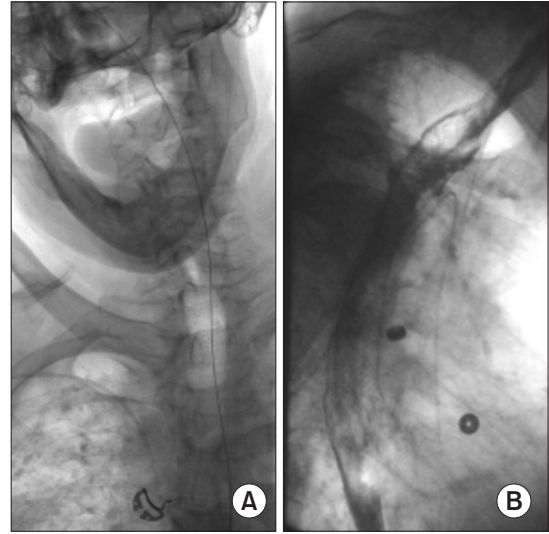
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**Fig. 1.** Sagittal (A) and coronal (B) images show a heterogeneous, irregular and enhancing mass compressing the airway.



**Fig. 2.** Adequate guidewire location (A) and stent localization (B). No trachea-esophageal fistula is visualized.

(WallFlex™ Esophageal Stents; Boston Scientific) (Fig. 2). On the first post-procedure day stent patency was confirmed by upper gastrointestinal series demonstrating no communication with the respiratory tract; on the third post-procedure day, the patient was tolerating a soft diet and then discharged for hospice care.

## Discussion

An antegrade (transoral) approach consisting in passing a guidewire across the stenotic level and stent placement is the classic approach for the management of esophageal strictures due to malignant or benign etiologies. Most of the times this alternative comes together with the use of a variety of dilators via endoscopic or using a rigid laryngoscope or endoscopic guidance<sup>2</sup>; nevertheless, these methods hold the risk of subcutaneous emphysema and a more dreadful complication such as esophageal perforation leading to fatal consequences such as mediastinitis. Furthermore, the presence of a tight esophageal stenosis due to malignancy and a TE fistula carries a very poor prognosis for the patient highly increasing the risk of necrotizing pneumonia and also makes a traditional antegrade approach more challenging.

Our case illustrates a retrograde-antegrade combined approach as a safe option for the placement of an esophageal stent on a patient that an antegrade approach had to be abandoned due to complete obstruction and the presence of a TE fistula. A few literature supports this entry approach as a safe and feasible technique, even with an under-distended stomach<sup>3-6</sup>; however, there is no actual consensus for this technique. Minor complications such as esophageal microperforations due to guidewire manipulations can emerge nonetheless, it resolves spontaneously. Unfortunately, due to lack of literature there is limited knowledge of the compli-

cations of this treatment alternative.

To our knowledge, this is the first patient in the literature treated with a stent placement via retrograde-antegrade combined approach with a totally occlusive esophageal cancer and a TE fistula.

We consider this technique is a good alternative for patients suffering from a severe esophageal obstruction and TE fistula for palliative purposes and for patients with poor functional and nutritional status.

## Conflicts of Interest

No potential conflict of interest relevant to this article was reported.

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