Case report - Thoracic general

Management of a difficult malignant tracheoesophageal fistula

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Received 10 June 2003; received in revised form 13 August 2003; accepted 26 August 2003

Abstract

Malignant tracheoesophageal fistula is a pre terminal condition in oesophageal cancer and is associated with significant patient distress. Various treatment options have been described and the general consensus is to use stents to cover them and relieve patient symptoms. We describe a case in which a modified Wilson–Cook prosthesis was successfully used to palliate tracheoesophageal fistula in a markedly dilated oesophagus.

1. Introduction

Malignant tracheoesophageal fistula is a distressing and essentially incurable condition. The frequency of this complication in patients with oesophageal cancer ranges from 5 to 10% [1,2]. They are associated with a dramatic downhill course leading to continued respiratory tract contamination, sepsis and death [1–3].

Once the diagnosis of tracheoesophageal fistula is confirmed palliative treatment needs to be instituted promptly. Per oral placement of an oesophageal stent is often used to close the fistula to prevent respiratory infection and to allow oral feeding [1–3]. Problems have been reported with tube migration in dilated oesophagus along with other complications including tube induced perforation and necrosis [1,2]. We report a case in which a covered self-expanding oesophageal prosthesis failed to obliterate a tracheoesophageal fistula or even was contributory towards it and use of a cuffed Wilson–Cook prosthesis established successful palliation. To the best of our knowledge the effective use of this prosthesis in a markedly dilated oesophagus has not been described previously.

2. Case report

A 67-year-old Caucasian male presented with history of progressive dysphagia and significant weight loss. Oesophagoscopy showed a large tumour at 30–40 cm of oesophagus and was confirmed to be squamous cell carcinoma on biopsy. An incidental renal tumour was found on the CT scan, this was found to be a renal cell carcinoma on histology. Apart from this the CT did not show mediastinal invasion or lymphadenopathy.

Bronchoscopy and video assisted thoracoscopy failed to show any extraesophageal spread of the tumour. The patient was discussed in the multidisciplinary team meeting and a decision to do a combined oesophagectomy and nephrectomy was taken. A thoracotomy with curative intent revealed an inoperable oesophageal tumour invading right lung. He was referred back to his local hospital where a covered self-expanding stent was placed after 4 weeks to palliate symptoms of dysphagia. He continued to deteriorate and a gastrograffin swallow done 4 months after stent placement revealed a leak around the stent communicating with the right main bronchus (Fig. 1). He was referred back to us for further management.

Oesophagoscopy showed a markedly dilated oesophagus with stent in situ (Fig. 1). There was no migration of stent but the fistula was uncovered because of the dilatation. The opening of the fistula was measured at 27 cm. The previous stent was removed and a modified Wilson–Cook cuffed prosthesis inserted with the upper end of the prosthesis at
23 cm (Fig. 2). This effectively obliterated the fistula (Fig. 2) and a subsequent gastrograffin swallow did not show a leak. The patient was commenced on semisolid diet from the 2nd day and tolerated this well. He was transferred to a hospice for recovery after 5 days. The patient has unfortunately passed away 3 months after the procedure.

3. Discussion

Management of malignant tracheoesophageal fistula represents a challenge for any gastroenterologist/oesophageal surgeon. The development of these fistulas is usually preterminal and the condition of the patient deteriorates rapidly [1–3]. There is overspill of oesophageal contents into the respiratory tree and death is often due to respiratory infection rather than the malignancy itself. In these circumstances rapid palliation is the only way forward. The aim of treatment is to exclude oesophageal contents from the respiratory tree, to restore swallowing and to achieve this with least distress to the patient. Surgical treatment with intestinal and colonic bypass and oesophageostomy and gastrostomy has been suggested and used [3,4] but with unacceptable morbidity and mortality [3,4]. Quality of life is often poor following these procedures and they have been abandoned.

Prolonging survival is not the primary goal and endoscopic techniques have been most successful in fulfilling the treatment objectives. Several types of oesophageal prosthesis have been used in an attempt to seal the fistula with varying results [1,3–5]. Tissue glues and amino acid solutions have been instilled in small fistula with some success [6] but they can cause obstruction of the respiratory tree due to their sealing effect [6]. Conventional oesophageal prostheses are suitable for tracheoesophageal fistula with a stenotic tumour but often migrate and allow food to track into the fistula in a normal sized oesophagus [1,3]. Covered self-expanding stents have been used to successfully treat malignant tracheoesophageal fistula [7] but may prove to be unsuccessful in a dilated oesophagus.

![Fig. 1](https://example.com/image1.png)

**Fig. 1.** (A) Gastrograffin swallow showing tracheoesophageal fistula; (B) endoscopic picture showing old stent with dilated oesophagus.

![Fig. 2](https://example.com/image2.png)

**Fig. 2.** (A) Wilson–Cook oesophageal prosthesis; (B) endoscopic picture after stent placement showing successful obliteration of fistula.
as in our case. The use of Wilson–Cook prosthesis was first described by Lux and Wilson [6] and soon after by Irving and Simpson [3] in oesophageal fistula with good results.

In our case the oesophageal tumour was at first stented with a covered stent, deterioration in symptoms lead to a gastrograffin swallow, which revealed a tracheoesophageal fistula. Whether the fistula existed prior to intubation or if the stent was the cause remains an unanswered question. The oesophagus was dilated to at least twice the size of the stent. Interestingly the stent had not migrated and the problem was not migration of the stent but the large lumen of the oesophagus allowing food to pass into the fistula. Removal of the previous prosthesis and stenting with a modified Wilson–Cook stent above the level of dilated oesophagus successfully obliterated the fistula. Our report demonstrates that the use of this prosthesis may lead to successful palliation in seemingly difficult cases of tracheoesophageal fistulae.

References