

Chronic sinusitis and bilateral deafness as a presentation of oesophageal stent failure: case report

S AL-ZAHID, J CLARKE, C ROBERTS

Abstract

Objective: We report an extremely rare upper airway complication of oesophageal stent failure.

Case report: A 58-year-old woman presented four months after having a covered (anti-reflux valve type) oesophageal stent placed for a benign oesophageal stricture. Abdominal radiography showed a broken fragment at the gastroesophageal junction and another fragment in the rectum. On presentation, the patient had pneumonia with sepsis which required intensive care management. After recovery, she developed sinus symptoms of facial pain, green nasal discharge and bilateral hearing loss. ENT review revealed bilateral otitis media with effusion. Flexible naso-endoscopy found a stent fragment lodged in the nasopharynx. The wire mesh fragment was removed under general anaesthetic and bilateral grommets inserted. The patient's symptoms resolved.

Conclusions: To our knowledge, this is the first report in the world literature of a broken and migrated oesophageal stent presenting with chronic sinusitis and bilateral hearing loss. This case highlights the importance of examining the upper airways in such cases, and the need for further, long term studies of the complications of metallic, expandable stents.

Key words: Oesophagus; Oesophageal Stent; Complication; Sinusitis; Otitis Media With Effusion

Introduction

The rise in incidence of gastroesophageal reflux disease has been accompanied by an increase in the presentation of benign and malignant oesophageal strictures. The pathophysiology of these strictures is thought to be attributed to Barrett's metaplasia due to acid reflux.¹ Initially, treatment of such strictures included endoscopic insertion of a plastic prosthesis to relieve dysphagia. However, these prostheses had high complication rates, mainly due to oesophageal perforation, with procedure-related mortality rates of between 2 and 16 per cent.² Newer, expandable, metallic stents have wider internal diameters, easier deployment mechanisms and markedly safer efficacy.³ There is a wide variety of metallic stents available, including such features as anti-reflux valves, internal plastic coatings and retrievable threads.

We hereby present the case of an upper airway complication of an expandable, covered, metallic oesophageal anti-reflux stent. The Hanaro anti-reflux stent (MI Tech Co. Ltd., Kyunggi-do, Korea), designed by Shim *et al.*,⁴ has an S-type valve with long leaflets inside its body designed to reduce acid reflux, and is suitable for the treatment of tumours at the gastroesophageal junction. Our patient presented four months after insertion of this stent with multiple broken fragments, one of which had migrated to the nasopharynx, giving symptoms of chronic sinusitis and deafness in both ears caused by middle-ear effusion.

Case report

A 58-year-old woman presented complaining of the gradual onset of dysphagia symptoms. She had a past

medical history of cleft palate repair 30 years ago, rheumatoid arthritis, a 10-year history of gastroesophageal reflux disease, and hiatus hernia.

In September 2005, gastroesophagoscopy had demonstrated Barrett's oesophagus and a stricture at 35 cms. At that time, radiological investigations (i.e. computed tomography and endo-oesophageal ultrasound scanning) and repeated biopsies had confirmed that the stricture was benign.

The patient had experienced gradual worsening of her dysphagia symptoms and also weight loss, despite multiple endoscopic dilatations.

In August 2006, an anti-reflux Hanaro-Shim (covered) oesophageal stent had been placed at the gastric cardia (Figure 1). This had resulted in a marked reduction in dysphagia and a general improvement in the patient's nutritional state.

Four months after stent insertion, the patient presented with a four-day history of coughing green sputum, nausea and vomiting, and was diagnosed with pneumonia. Abdominal radiography demonstrated that the stent was broken, with a fragment lying at the gastroesophageal junction and another migrated to the rectum (Figure 2), which was eventually excreted rectally. The patient spent three weeks in the intensive care unit with septic pneumonia and multiple organ failure, as well as profuse oral secretions, sore throat, and persistent nausea and vomiting. Blood cultures isolated *Serratia marcescens* and *Candida albicans*. The patient recovered with antibiotics and was discharged.

Two months after discharge (April 2007), the patient was readmitted with recurrent pneumonia, sinus symptoms

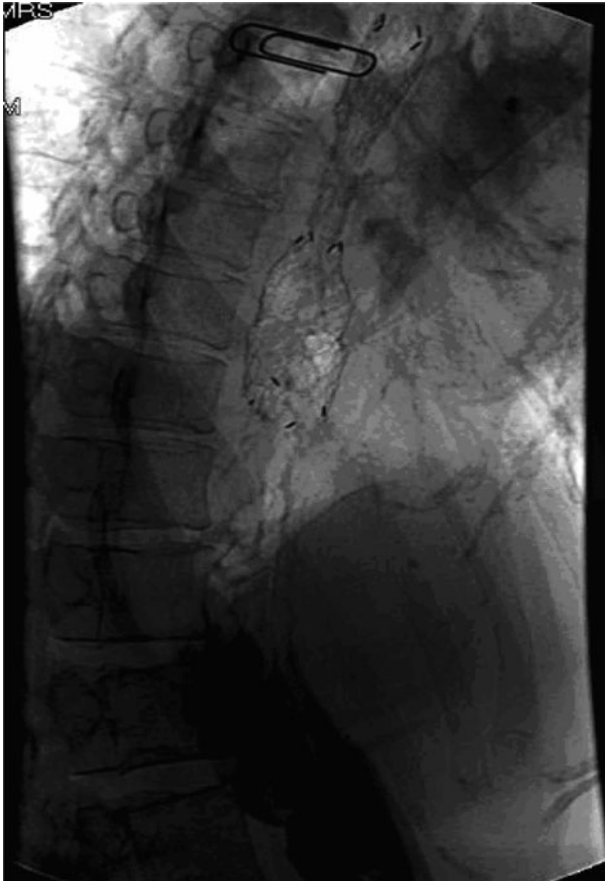


FIG. 1
Barium swallow following stent insertion.

(facial pain, green nasal discharge and hyposmia) and bilateral, progressive deafness. Blood cultures isolated *Streptococcus oralis*. She recovered with antibiotics and was referred for an ENT out-patient review.

On ENT review in June 2007, examination of the patient's ears revealed retracted tympanic membranes bilaterally with fluid in the middle ears. Flexible naso-endoscopy revealed thick, mucous discharge in the nasal cavities and a wire mesh embedded in the postnasal space. Computed tomography scanning of the sinuses illustrated the exact location of the wire mesh (Figure 3).

In August 2007, the patient was taken to theatre. Bilateral myringotomy produced fluid. Grommets were inserted on both sides, and the wire mesh was removed piecemeal from the postnasal space (Figure 4). The patient was discharged the following day.

On one-month post-operative out-patients review, there was marked improvement in the patient's sinus symptoms and an improvement in her hearing.

Discussion

To the best of our knowledge, and after a thorough literature search, the upper airway complication presented has not previously been documented in the literature. The Hanaro stent used in this case for symptom relief of a benign oesophageal stricture produced marked initial improvement in symptoms. However, four months after insertion the stent fractured, further complicated by fragment migration with one fragment lodging proximally in the nasopharynx. Local reaction to this foreign body caused the patient's symptoms and signs of persistent

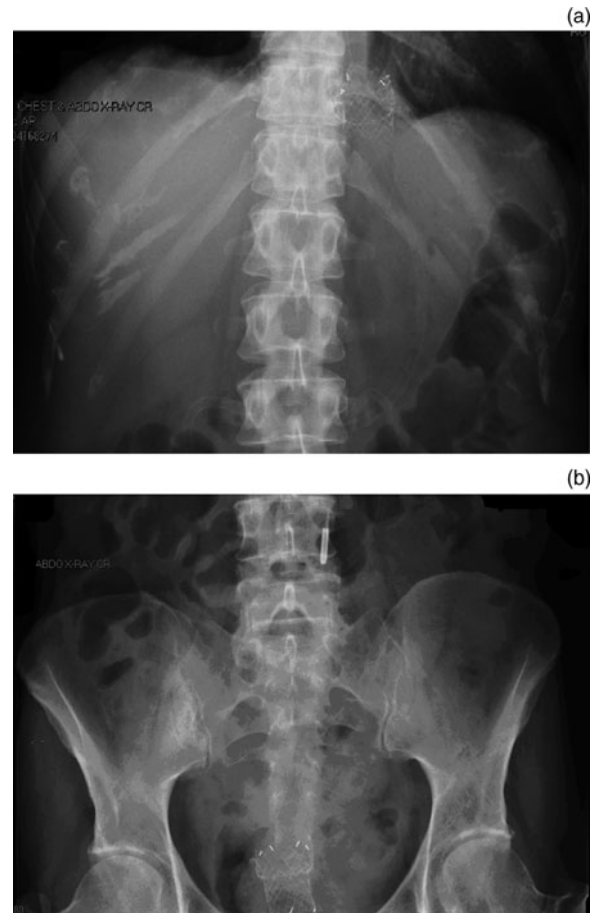


FIG. 2
Abdominal radiograph showing broken stent fragments (a) at the gastroesophageal junction and (b) in the rectum.



FIG. 3
Axial computed tomography scan showing stent fragment in the postnasal space.

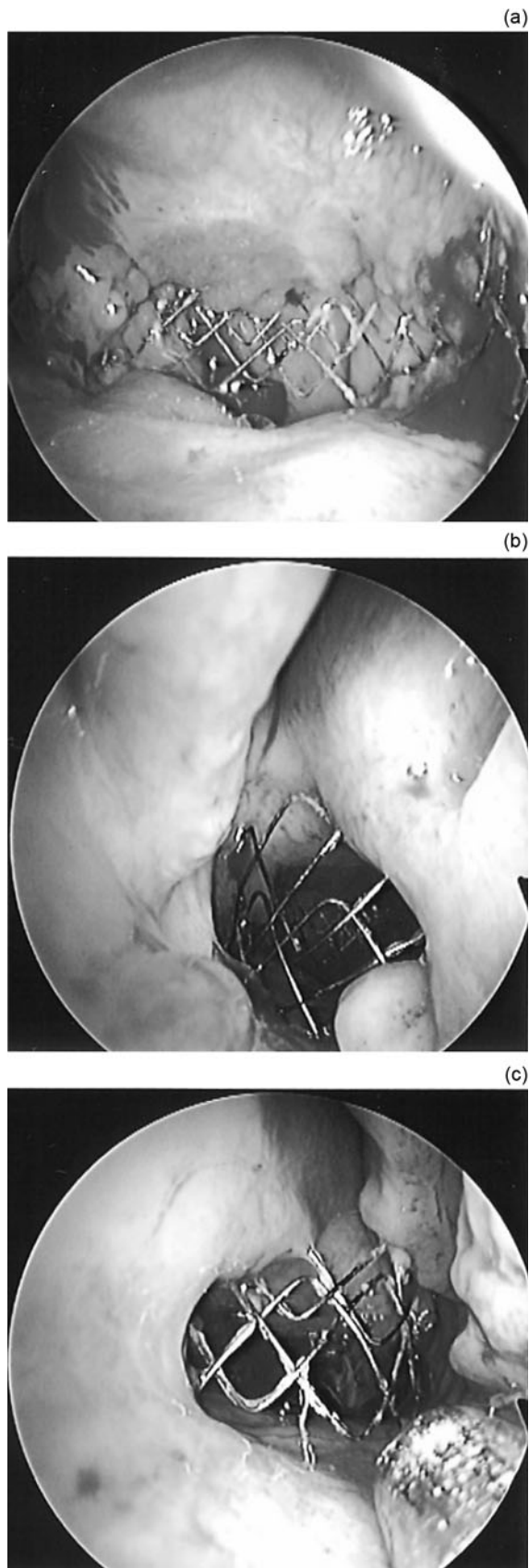


FIG. 4

Intra-operative photographs showing stent fragments found in the postnasal space. (a) Postnasal space via left nostril; (b) naso-endoscopy right nostril; (c) naso-endoscopy left nostril.

nausea and vomiting, sore throat, increased oral and nasal secretions, and chronic sinusitis. Eustachian tube dysfunction gave rise to bilateral otitis media with effusion, causing hearing loss in both ears.

Other serious complications of metallic stents have been documented in the literature.^{5,6} Early complications include chest pain after stent insertion, usually resolving after the first week. However, approximately 10–20 per cent of patients have a major complication such as bleeding, perforation, aspiration, fever or fistula.^{6–8} Stent migration is common when stents are placed at the cardia, and more so when covered stents are used.^{6,7} Late complications include haemorrhage, oesophageal ulceration, perforation or fistula, stent torsion, stent migration, and stent fracture. Lower airway complications, such as airway compression and tracheoesophageal fistula, are commoner with stents placed in the proximal third of the oesophagus.^{9,10}

- **This paper describes a rare upper airway complication of an oesophageal stent failure**
- **A portion of fragmented oesophageal stent was located in the nasopharynx, where it had caused sinusitis and otitis media with effusion**
- **This case highlights the importance of examining the upper airways in such cases, and also the need for further, long term studies of complications of metallic, expandable stents**

Metallic anti-reflux stents have been proven to significantly reduce acid oesophageal exposure and dysphagia symptoms, when compared with open stents.⁴ However, Schoppmeyer *et al.* argue against their use for tumours of the gastroesophageal junction, due to the high rates of migration seen in their study of Gianturco-Z anti-reflux stents (MI Tech Co. Ltd., Kyunggi-do, Korea).¹¹ As there is a lack of data regarding long term complication rates and efficacy, we may in future see more upper airway complications of fractured or migrated oesophageal stents. We therefore put forward a case for routine inspection of the upper airways following stent fracture (especially if some fragments cannot be traced) when there are localising symptoms such as sore throat, persistent nausea and vomiting, nasal discharge, and sinusitis.

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Address for correspondence:
Dr Saif Al-Zahid,
13 Grafton Close,
Penylan,
Cardiff CF23 9JA, Wales, UK.

E-mail: alzahids@doctors.org.uk

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