CASE REPORT

Broken Esophageal Stent Successfully Treated by Interventional Radiology Technique

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Abstract  Esophageal stent fractures occur quite rarely. A 61-year-old male patient was previously treated for rupture of benign stenosis, occurring after dilatation, by implanting an esophageal stent. However, a year after implantation, the patient suffered from dysphagia caused by the broken esophageal stent. He was treated with the interventional radiology technique, whereby a second implantation of the esophageal stent was carried out quite successfully.

Keywords  Stent fracture · Broken esophageal stent · Stent complication

Introduction

The following diseases constitute the indicators that confirm the need for an esophageal stent implantation: malignant esophageal obstruction; appearance of tracheoesophageal fistulae; formation of primary or secondary tumors within the mediastinum causing extrinsic esophageal compression; esophageal perforations, usually iatrogenic, caused by direct endoscopic trauma or arising after stricture dilatation; treatment of symptomatic malignant gastroesophageal anastomotic leaks; reoccurrence of anastomotic tumor as a consequence of surgery; and appearance of benign esophageal strictures that are refractory to balloon dilatation and not suitable for surgery [1]. Esophageal stents are usually placed as a treatment for malignant stenosis and for a poor outcome of esophageal cancer, wherein the patient usually dies a few months after stent implantation. Esophageal stent fractures occur quite rarely; only a few cases are described in the literature.

Case Report

A 61-year-old male patient was previously treated for rupture of benign stenosis caused, after dilatation, by implantation of an esophageal stent. He returned to the hospital a year after the implantation, suffering from dysphagia caused by the broken esophageal stent (covered 20/26 × 120/150-mm Sinus Esophageal Stent; Optimed) (Fig. 1).

Technique

A 5-Fr multipurpose diagnostic catheter (MP; Cordis) and 0.035-in. guidewire (Storq; Cordis) were orally inserted in the esophagus of the patient under fluoroscopic control. Since the broken esophageal stent could not be crossed by means of the guidewire, the diagnostic catheter was replaced by an AndraSnare AS-35 Set catheter (Andramed). The guidewire was removed and the stent was caught by a snare (Fig. 2) inserted through the catheter. However, since it was not possible to remove the broken stent, it was placed in a straight line. Subsequently, the remaining lumen was crossed by means of the guidewire and dilated with the help of a 10 × 60-mm angioplasty balloon catheter (OptaPro; Cordis) twice to 8 atm for 120 s (Fig. 3), and a canal was created to facilitate stent implantation. Finally, an Ultraflex stent (proximal release, covered 23/28 × 90/120 mm; Boston Scientific) was inserted into the broken stent and properly released, and thus a food passage was
re-established in the esophagus (Fig. 4). An additional dilatation was not required. The process of fluoroscopy lasted 19 min 42 s. By control barium esophagographies (including an esophagography conducted 2 months later), the patency of the esophageal stents as well as the accurate position of the second stent was documented (Fig. 5). Consequently, the patient was free of dysphagia.

**Discussion**

The occurrence of an esophageal stent fracture is very rare. There are only a few reports regarding this fracture in the literature. However, the fracture can be caused by the
presence of a defective material or the occurrence of thermal overstrain during laser application [2]. Doğan et al. described a case of esophageal stent fracture in malignancy in which the broken stent was left in situ within the stomach after the application of another stent and remained there until the end of the patient’s life [3]. von Schönfeld published a case report of a young patient suffering from metastatic adenocarcinoma of the cardia who was treated with a self-expanding metal stent after endoscopic dilatation of a tumor stenosis in the distal esophagus. Immediately after the procedure, he was able to eat and soon gained weight. However, within 6 weeks of stent implantation, while on a continuous infusion of 5-fluorouracil, the patient complained of recurrent severe dysphagia. An ordinary X-ray revealed a broken and migrated stent, the two parts of which were seen in the stomach and the duodenum, respectively. Although the broken stent was extracted endoscopically without encountering any complications, the procedure was difficult and took 4 h, as the stent broke twice during the retrieval process [4]. Reddy et al. found two fractures of an esophageal nitinol stent in the same patient [5]. It is noted that, in some cases, gastrocolic fistula may develop due to the trauma caused by the broken metallic esophageal stent [6].

In our patient the esophageal stent was implanted primarily to cure a rupture caused after dilatation of a benign stenosis. Several specimens were examined histologically, but malignancy was never confirmed. However, the stent was not dilated initially and follow-up endoscopy, radiotherapy, or laser application was not performed; fracture of the stent occurred later. During the procedure, the broken esophageal stent could not be removed, maybe due to the long duration between implantation of the stent and its fracture. The broken stent was still fixed to the esophageal wall and was not fractured completely into two parts. Finally, the stent-in-stent technique was used for treatment of the broken esophageal stent. Control barium esophagographies documented the patency of the esophageal stents as well as the accurate position of the second stent. The patient was finally free of the problem of dysphagia.

Fig. 5 Follow-up esophagography (2 months later) documents the patency of the esophageal stents and the accurate position of the second stent

References