Fatal aortogastric fistula following fully covered metal stent placement for refractory esophageal stricture

A 45-year-old woman with a history of systemic sclerosis presented with a post-anastomotic gastric tube stenosis 1 year after esophagus resection and gastric tube interposition for a ypT3N1M0 adenocarcinoma of the esophagus. She was also treated with neo-adjuvant chemoradiation therapy [1]. Endoscopy identified a post-anastomotic esophageal stenosis extending from 24 cm to 32 cm aborally. She had shown only a limited response to 23 Savary dilations and one balloon dilation in 9 months. We therefore decided to use an 18×12 cm fully covered metal stent (Evolution; Cook Medical Inc., Bloomington, Indiana, USA) across the stenosis.

The patient presented 3 weeks after stent deployment with massive hematemesis and hemodynamic instability 3 weeks after placement of a fully covered stent. Emergency endoscopy revealed a massive amount of blood and a distally displaced stent [1 Fig. 1a, b]. The patient did not show any cardiac activity in spite of direct cardiac massage and chemical resuscitation, and she died during surgery. A post-mortem full-body computed tomography scan and autopsy revealed an aortogastric fistula on the downwards-migrated distal part of the esophageal stent (Fig. 1b, c).

An aorto-esophageal fistula (AEF) is an infrequent, but mostly fatal complication after esophagectomy [2, 3]. Thoracic aortic aneurysms are the most common cause of AEF; further causes include foreign body ingestion, trauma (usually iatrogenic), carcinoma or, rarely, tuberculous aortitis [3]. The literature on esophageal stent-related AEF is scarce, and can be classified as follows.

1. Anastomotic-aortic fistula
   ◆ after anastomotical leakage and esophageal stent placement (aortic pressure and local inflammation) [3]
   ◆ after anastomotical stenosis and stent placement (aortic pressure and possible local perforation) [4, 5]
2. Benign esophageal stricture-aortic fistula after stent placement (aortic pressure and possible local perforation) [6]
3. Direct stent perforation-induced aortic fistula
   ◆ non-migrated stent [7]
   ◆ migrated stent (the current case).

Sierssema et al. reported the first case of an AEF caused by proximal stent perforation in a patient with inoperable squamous-cell carcinoma [7]. A gastric-aortic fistula caused by perforation due to a migrated distal fully covered stent in an esophagectomized patient with a benign anastomotical stenosis has not been reported previously. Direct pressure-related perforation of the gastric wall by a fully covered stent is the possible mechanism in the current case and raises questions about the design of fully covered stents and indications for their use. Radiotherapy and chemotherapy have been described as possible risk factors for developing complications after esophageal stent placement [4]. Further research on this matter is warranted following the recent publication of the CROSS study results [1] and the fact that combined chemoradiotherapy is becoming the gold standard approach for patients with esophageal adenocarcinoma.

Endoscopy_UCTN_Code_CPL_1AH_2AD

Competing interests: None
E. J. M. van Geenen, N. C. M. Visser, J. J. Bonenkamp
1 Department of Gastroenterology and Hepatology, St. Radboud University Medical Center, Nijmegen, The Netherlands
2 Department of Pathology, St. Radboud University Medical Center, Nijmegen, The Netherlands
3 Department of Surgery, St. Radboud University Medical Center, Nijmegen, The Netherlands

References

Bibliography
DOI http://dx.doi.org/10.1055/s-0033-1344561
Endoscopy 2014; 46: E16–E17
© Georg Thieme Verlag KG
Stuttgart · New York
ISSN 0013-726X

Corresponding author
E. J. M. van Geenen, MD
Department of Gastroenterology and Hepatology
St. Raboud University Medical Center
Geert Grooteplein-Zuid 22
Nijmegen
Gelderland 6525 GA
The Netherlands
Fax: +31-24-3540103
e.vangeenen@mdl.umcn.nl