Importance of early detection of oesophageal complications after aortic stent graft repair

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Abstract
Oesophageal complications after endovascular aortic stent repair are rare, but may lead to catastrophic consequences. Early detection is mandatory, but is sometimes difficult because of a lack of specific signs in the early stages. We report 2 cases with opposing results of oesophageal complications after aortic stent graft repair, and discuss the early signs of this disastrous complication and potential methods for early detection.

Keywords: Aortic aneurysm • Aortic stent graft • Oesophageal complication

INTRODUCTION
Oesophageal complications after endovascular aortic stent repair are rare, but may lead to catastrophic consequences [1, 2]. We report 2 cases with opposing results of oesophageal complications after aortic stent graft repair.

Case 1
An 85-year old woman on haemodialysis underwent emergent endovascular repair of ruptured descending aortic aneurysm using a stent graft.

Except for loss of appetite, the postoperative course was relatively uneventful until she experienced rupture of an abdominal aortic aneurysm on postoperative day (POD) 31. Emergent open surgical repair with a Y-graft was performed successfully. However, the patient complained of general fatigue with loss of appetite, and developed high fever. Computed tomography (CT) showed air in the mediastinum (Fig. 1A), and gastrointestinal fibrescopy (GIF) performed 12 days after open Y-graft showed a perforated oesophagus. The endovascular aortic stent wall was observable via the perforated oesophagus (Fig. 1B). Her family did not desire surgical intervention, and therapy was withdrawn. She died on POD 57.

Case 2
Total aortic arch replacement with an open distal self-expanding stent graft was performed for a 72-year old woman with right aortic arch aneurysm and descending aortic aneurysm. The postoperative course was uneventful, and she was discharged on POD 20. However, she was readmitted 20 days later due to loss of appetite. Blood tests showed normal hepatic and renal functions, and no sign of infection. GIF showed oesophageal ulcer and stenosis (Fig. 2A). We utilized a 3D CT image to investigate the relationship between the oesophagus and residual aneurysm, and diagnosed remnant aneurysmal sac compressing the oesophagus and causing stenosis and ulcer (Fig. 2B). She underwent aneurysmal resection and explantation of the stent graft.

DISCUSSION
Although rare, oesophageal complications after endovascular aortic stent repair may lead to disastrous outcomes [1, 2]. Once the oesophagus has been perforated, severe mediastinal infection or massive haematemesis can occur after aorto-oesophageal fistula [3, 4]. In these scenarios, even aggressive surgical intervention, including radical oesophagectomy, aortic replacement and greater omentum wrapping may not achieve satisfactory outcomes [1, 2].

Early detection is mandatory, but can prove difficult because of a lack of specific signs in the early stages. Our patients both complained of loss of appetite. In the first case, GIF was only...
performed after the abdominal aorta had ruptured, and the oesophagus showed perforation over a wide area. In the second case, GIF was performed promptly after the initial complaint and detected oesophageal ulceration.

When loss of appetite persists after aortic stent repair and no other medical cause is apparent, GIF may be warranted as a method for detecting oesophageal complications at an early stage.

Several hypotheses have been suggested regarding aorto-enteric fistula [5]. Fistula in the first case was caused by direct erosion of the stent graft into the oesophagus. However, in the second case, oesophageal ulceration was caused by pressure necrosis as shown on 3D CT. The self-expanding stent graft expanded the aneurysm from the inside, and compressed adjacent organs. For the treatment of oesophageal ulcers, we

Figure 1: (A) Free air was observed in the mediastinum. (B) The endovascular aortic stent is apparent via the perforated oesophagus.

Figure 2: (A) Severe oesophageal stenosis and ulcer are demonstrated on gastrointestinal fibrescopy. (B) The right aortic arch and descending aneurysm were repaired with total arch replacement and open stent graft. Blue structure indicates oesophagus compressed by the stent graft. (C) The stent was removed and replaced with a woven straight graft. (D) Oesophageal ulcer is completely healed and stenosis has resolved.
performed surgical removal of the aortic aneurysm and stent graft. After removing the stent graft and aortic aneurysm, the ulcer healed completely. If perforation of the oesophagus had occurred and infection had developed, we would have had to treat not only the aneurysm, but also the oesophagus and infection. As the oesophagus was not perforated, as confirmed by preoperative blood testing, CT, GIF and intraoperative findings, our relatively simple procedures led to good results.

Loss of appetite might be an important sign of oesophageal complications after aortic stent repair, especially when no other medical cause is apparent. Proper examination, including GIF or contrast-enhanced CT, should be performed without delay before perforation of the oesophagus can occur. Since oesophageal perforation represents a devastating complication, early detection and prompt therapeutic management are crucial.

Conflict of interest: none declared.

REFERENCES