Case report of robotic dor fundoplication for scleroderma esophagus with aperistalsis on manometry

Alonso Andrade*, Matthew K. Folstein, Brian R. Davis
Department of Surgery, Texas Tech University Health Sciences Center, El Paso, TX, United States

ARTICLE INFO

Article history:
Received 16 February 2017
Received in revised form 13 June 2017
Accepted 13 June 2017
Available online 16 June 2017

Keywords:
Robotic surgery
Esophagitis
Gastroesophageal reflux
Scleroderma
Minimally invasive surgery
Case report

ABSTRACT

Scleroderma is a systemic disease of collagen deposition resulting in fibrosis of small arteries and arterioles. It commonly affects the skin, lungs, and gastrointestinal tract. The most common site of GI tract involvement is the esophagus. We present the case report of a 44 year old female with scleroderma esophagus and severe reflux which was successfully treated with robotic dor fundoplication. Because of the wide variety of symptoms with which this problem can present, a tailored approach taking into consideration the patient’s symptomatology and findings during diagnostic work-up was implemented with good results. The patient exhibited complete resolution of symptoms at short term follow up. Robotic dor fundoplication is an effective option for patients with scleroderma esophagus and no evidence of hiatal hernia or esophageal shortening.

1. Introduction

Scleroderma is a systemic disease of collagen deposition resulting in fibrosis of small arteries and arterioles. The most common site of involvement for scleroderma in the gastrointestinal tract is the esophagus. Up to eighty percent of patients with scleroderma and GI tract involvement present with either gastroesophageal reflux or dysphagia within two years of diagnosis. Evidence of erosive esophagitis, strictures, or Barrett’s metaplasia is commonly seen in these patients. The operative management for GERD or dysphagia in the setting of scleroderma must be tailored to the unique needs of the patient based on the functional and mechanical abnormalities identified during their workup. In accordance with the SCARE criteria [7], we present the case of a 44 year old woman with reflux esophagitis and aperistalsis on manometry due to scleroderma successfully managed with Robotic Dor Fundoplication and complete resolution of symptoms at short-interval follow-up.

2. Presentation of case

A 44 year old woman with twenty-five-year history of GERD refractory to high dose proton pump inhibitors presents for evaluation of reflux. Patient reported sleeping on a wedge to help alleviate nighttime symptoms. Her medical history is notorious for a diagnosis of scleroderma and pulmonary fibrosis six years prior to current presentation for which she has received intermittent pulse steroids. A recent esophagogastroduodenoscopy demonstrated islands of salmon colored mucosa with Z-line biopsies positive for Barrett’s esophagus. As part of her preoperative evaluation she underwent repeat endoscopy, barium swallow, and high resolution manometry. The repeat endoscopy confirmed the absence of a hiatal hernia and was negative for retained food. Evaluation of relaxation of the distal esophagus to differentiate achalasia and scleroderma was also done. The patient underwent a barium swallow to confirm diagnosis and evaluate position of GE junction (Fig. 1). In addition the patient had a high resolution manometry study to confirm aperistalsis and assist in creating a tailored operative approach to address her symptoms (Fig. 2). Of note, the patient had the appearance of achalasia on barium swallow, but showed aperistalsis on manometry and, paradoxically, low LES pressure. Upon completion of these studies, it was determined that the patient suffered from gastroesophageal reflux disease, barrett’s metaplasia, and esophageal scleroderma. After informed consent was obtained, the patient underwent a Robotic Dor Fundoplication to alleviate the gastroesophageal reflux and prevent long-term complications with dysphagia (Fig. 3). Intraoperative endoscopy was performed to evaluate the wrap (Fig. 4). Total OR time including anesthesia, robot docking, and endoscopy was 150 min, with a total EBL of 15 mL. The operation and postoperative course were uneventful. The patient was discharged on post-operative day one with a clear liquid diet and subjective description of symptom resolution while in the recumbent position. At one month follow up the patient was tolerating a soft-mechanical diet and reported subjective resolution of all symptoms with cessation of PPI. The patient did not
3. Discussion

Patients with Scleroderma can develop various systemic complications from their disease process. Scleroderma most commonly affects the skin, lungs, and gastrointestinal tract. Of these, esophageal pathology can be challenging for the clinician to manage due to the various presentations which can occur [1,2]. The differential diagnosis for a patient with aperistaltic esophagus includes achalasia, scleroderma, eosinophilic esophagitis, and carcinoma of the gastroesophageal junction or gastric fundus. The operative management of these pathologies can be very different, so a meticulous pre-operative evaluation must be carried out and a “tailored approach” is recommended. Even within the subset of patients with scleroderma esophagus, the various existing surgical options and lack of a standard operative approach speaks to the varied presentation and the importance of having a tailored approach to these patients. Patients with scleroderma esophagus can present with any combination of findings including esophageal shortening, Barrett’s esophagus, peptic stricture, and aperistaltic esophagus among others [1–6]. The existing surgical options include esophagectomy, collis gastroplasty with fundoplication, Roux-en-Y gastric bypass, and the various complete and partial fundoplications [1–6]. Some studies have shown improved quality of life and symptomatic resolution with Roux-en-Y gastric bypass.
scleroderma esophagus, can be complicated by dysphagia. Dor and Toupet fundoplications can be as effective in preventing reflux as a Nissen fundoplication at 5-year follow up and are associated with decreased risk of dysphagia. Taking advantage of existing technology which allows surgeons to perform more complex procedures is an important tool when managing this patient population. As shown by our patient, the anterior robotic Dor Fundoplication is an effective option for patients with scleroderma esophagus and no evidence of hiatal hernia or esophageal shortening.

Conflicts of interest
None.

Sources of funding
Department of Surgery, TUTHSC El Paso.

Ethical approval
Does not apply.

Consent
Consent available upon request.

Authors contribution
Brian R. Davis – Study concept and design.
Alonso Andrade – Data collection, analysis, manuscript writing and editing.
Matthew Folstein – Data collection, analysis.

Guarantors
Alonso Andrade MD.
Brian R. Davis MD.

References
[1] R. Henderson, F. Pearson, Surgical Management of esophageal scleroderma, J. Thorac. Cardiovasc. Surg. 66 (1973) 686.
[2] M.S. Kent, J.D. Luketich, K. Irshad, et al., Comparison of surgical approaches to recalcitrant gastroesophageal reflux disease in the patient with scleroderma, Ann. Thorac. Surg. 84 (2007) 1710–1716.
[3] M. Oettinger, J. Oettinger, L. Davich, C. Zarofonetis, Combined Collis gastroplasty-fundoplication operations for scleroderma reflux esophagealitis, Surgery 90 (1981) 624–630.
[4] F.G. Pearson, Esophageal Surgery, second edition, Churchill Livingstone, Philadelphia, PA, 2002.
[5] T. Pouer, R. Tailfeur, P. Topart, et al., Antireflux operations in patients with scleroderma, Ann. Thorac. Surg. 58 (1994) 66.
[6] D.I. Watson, G.G. Jamieson, J.R. Bessell, P.G. Devitt, Laparoscopic fundoplication in patients with aperistaltic esophagus and gastroesophageal reflux, Dis. Esophageus 19 (2006) 94–98.
[7] R.A. Agha, A.J. Fowler, A. Saetta, I. Barai, S. Rajmohan, D.P. Orgill, the SCARE group, The SCARE statement: consensus-based surgical case report guidelines, Int. J. Surg. 34 (2016) 180–186.

Open Access
This article is published Open Access at sciedirect.com. It is distributed under the IJSSCR Supplemental terms and conditions, which permits unrestricted non commercial use, distribution, and reproduction in any medium, provided the original authors and source are credited.