

Esophagogastric Fistula Caused by an Angelchik Antireflux Prosthesis

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Abstract

The Angelchik prosthesis is an antireflux device that was popular in the 1980s for treatment of refractory gastroesophageal reflux disease (GERD). We present a patient who developed a gastroesophageal fistula 17 years after Angelchik prosthesis placement. The incidence of late complications continues to grow, and clinicians should consider device malfunction in patients with history of Angelchik placement presenting with abdominal symptoms.

Introduction

The Angelchik prosthesis, first described in 1979, is a c-shaped silicone device designed to treat refractory gastroesophageal reflux disease (GERD).¹ It gained popularity due to the simplicity of device placement around the esophagus at the gastroesophageal junction (GEJ). By 1983, surgeons had placed more than 25,000 devices.² Angelchik and Cohen reported a cohort of 122 patients, of whom 92% were free from reflux symptoms in early follow-up.¹ They described the device to be a safe, simple, and “permanent” solution based on 1 year of follow-up data.³ However, dysphagia, strap malfunction, device migration, and erosion into the esophageal lumen contributed to an eventual removal rate of 24%, and led to abandonment of the procedure.⁴ Most complications occurred within 5 years of follow-up.

Case Report

An obese 55-year-old woman presented with abdominal pain 17 years after placement of an Angelchik prosthesis intended for weight loss. Six months prior to presentation, she experienced a new “ripping” sensation in her upper abdomen, followed by odynophagia to solid foods and weeks of persistent epigastric abdominal pain intermittently radiating to her back. Though most of her symptoms resolved, her abdominal pain persisted. Her past medical history included asthma, morbid obesity, and adjustment disorder with anxiety. Her surgical history, aside from the Angelchik placement, consisted of total abdominal hysterectomy and cholecystectomy. Her exam was significant for an obese abdomen with epigastric tenderness. Complete blood counts, thyroid studies, and routine chemistries were normal. She had a normal esophagogastroduodenoscopy (EGD) 12 years prior and a normal colonoscopy 5 years prior. Barium esophagram showed normal emptying of contrast from the esophagus to the stomach, and scout film prior to the barium swallow confirmed location of the Angelchik device in the left upper quadrant, consistent with placement around the GEJ (Figure 1). EGD revealed a large hiatal hernia with a widely patent fistula connecting the distal esophagus to the gastric fundus with no evidence of inflammation or recent stigmata of bleeding at the fistula site (Figure 2). The endoscope easily traversed both the GEJ and the fistula. The patient declined both endoscopic and surgical repair of the fistula and decided to pursue a strategy of watchful waiting. She is doing well on follow-up.

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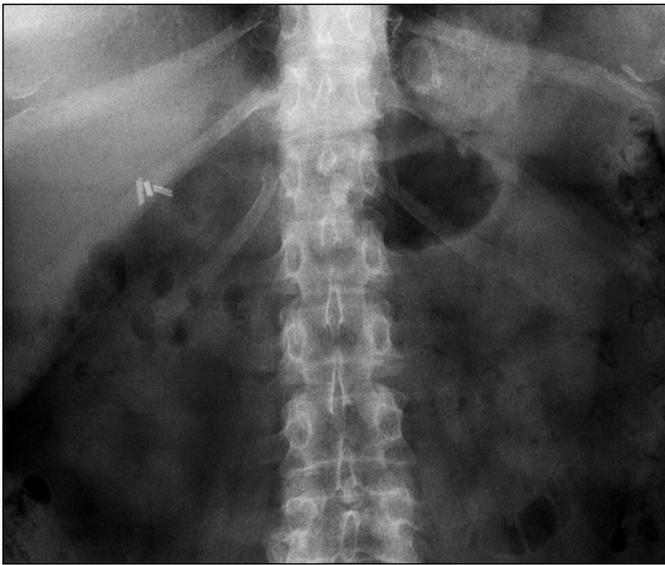


Figure 1. Scout film confirming location of Angelchik device.

Discussion

The Angelchik procedure was thought to be a simple and safe modality for the treatment of GERD based on initial randomized control trial.⁵ Unfortunately, extramural device migration secondary to strap rupture was a common problem with the first generation of Angelchik devices, leading to intestinal obstruction and abdominal pain.^{6,7} The second generation device, introduced in 1982, featured a single tying strap and lower complication rates of rupture (4% vs. 33%) and migration (4% vs. 7%).⁸ There are few studies to date investigating the long-term effects of the Angelchik prosthesis. In 2001, Subodh et al performed an extended follow-up review of patients who received Angelchik prosthesis from 1983 through 1994.⁹ Sixty-five patients were followed for an average of 145 months. Complications included dysphagia (40%), persistent GERD (15%), and prosthesis migration (10%). Fifteen percent of patients required removal of the prosthesis due to adverse symptoms.⁹

Since then, case reports have highlighted late complications as many as 15-25 years after prosthesis placement. Plaiser et al reported a case of Angelchik migration prompting laparoscopic removal 17 years after placement.¹⁰ Transmural migration (erosion) is a rare complication recently reported to occur in 1.5% of cases.⁹ Carbonell et al reported a case of prosthesis erosion into the GEJ, necessitating transgastric removal 25 years after placement, an approach chosen to avoid entry of the fibrous capsule surrounding the device.¹¹ Authors have described endoscopic removal of eroded prostheses, which allows patients to avoid potentially morbid surgical procedures.⁹ Recurrent GERD symptoms can occur as late as 15 years after prosthesis placement. In reported cases, inadequate GERD control after prosthesis placement led to subsequent Nissen fundoplication, and in 3 patients, esophageal adenocarcinoma.^{12,13}

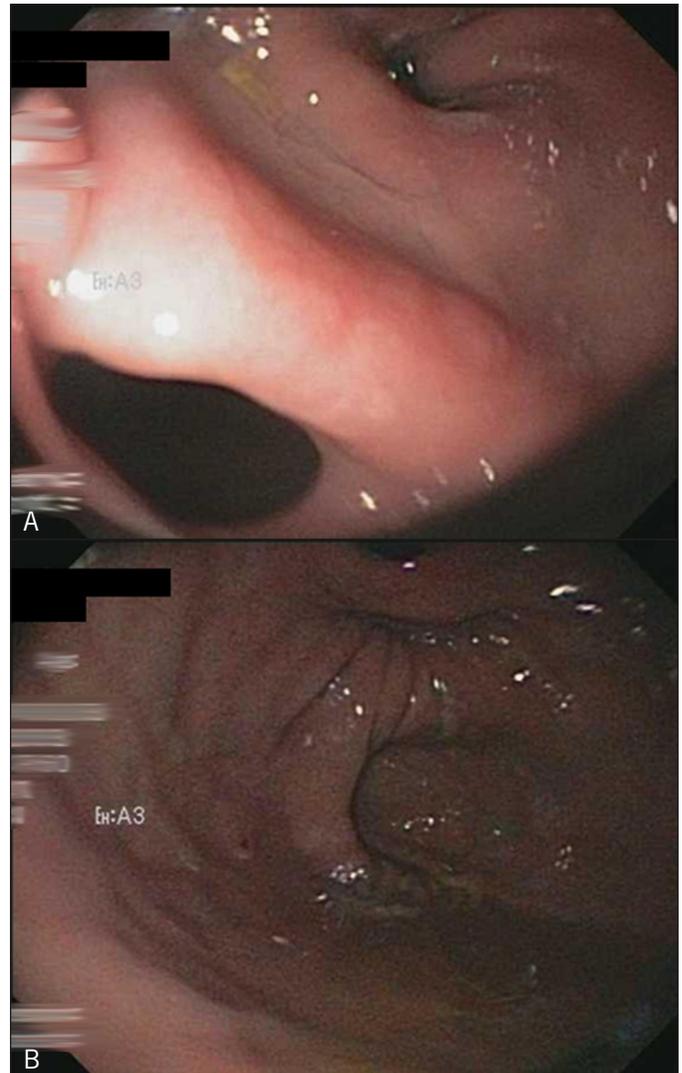


Figure 2. Endoscope retroflexion (A) revealing a large fistula at the gastric fundus, and (B) traversing the fistula revealing body of stomach.

We hypothesize that the development of an esophagogastric fistula in this case is likely secondary to increased extramural and transmural pressure exerted by the device. These forces, coupled with localized ischemia and inflammation the device created, are the probable genesis of the fistula.

Disclosures

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