

Endoscopic anti-reflux therapies: Are we near closing the treatment gap in GERD

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Abstract

Gastroesophageal reflux disease is the most common outpatient gastrointestinal diagnosis. GERD accounts for 9 million outpatient visits in 2009 in the USA. Extra-esophageal symptoms of GERD such as sore throat, laryngopharyngeal Reflux, non-cardiac chest pain and GERD induced asthma and aspiration do not respond with the same regularity to PPIs. Regurgitation is quite common and difficult to relieve even with high-dose acid suppression. Until recently there was no effective minimally invasive treatment for this problem. Several endoscopic therapies have been developed and tested in the hope of filling the “treatment gap” between medical and surgical options to treat GERD.

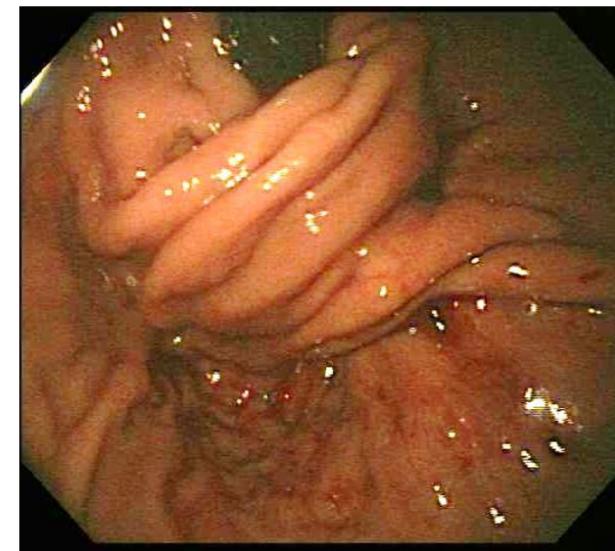
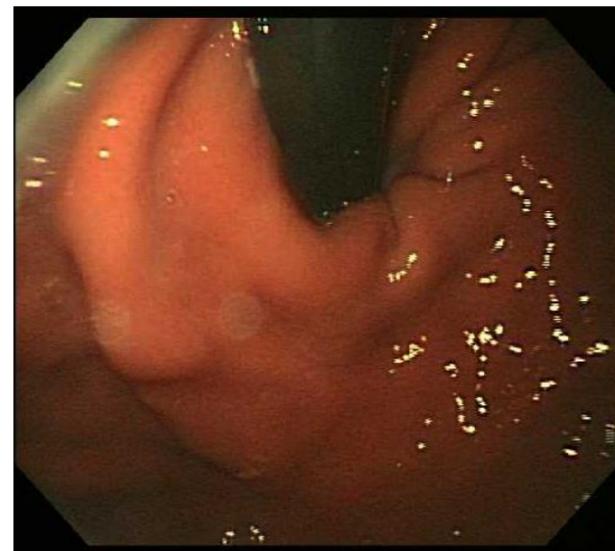
Gastroesophageal Valve Augmentation

Surgical Fundoplication traditionally has been offered to the patients with refractory GERD especially those with regurgitation. This operation, although successful in expert hands, there has been a constant decline in the number of surgeries performed during the last two decades.

Radiofrequency Augmentation (Stretta) temperature-controlled radiofrequency is used to deliver the radiofrequency energy deep into the submucosa inducing fibrosis in the submucosa and muscle layer. It provides a mild subjective improvement in symptoms but no objective improvement in reflux burden.

Mucosal Plication (Endocinch) The plication achieved with Endocinch is mucosal not full thickness. Pooled data from multiple studies suggest that there may be a possible modest benefit in clinical symptoms and medication use at 3 months, but this benefit is not durable.

	Surgical Fundoplication	Radiofrequency Augmentation	Mucosal Plication	Full Thickness Plication	
				Blind	US Assisted
Efficiency	Yes	No	Yes	Yes	Yes
Durability	Yes*	No	No	?	?
Minimally Invasive	No	Yes	Yes	Yes	Yes
Technical Aspect	Challenging	Easy	Challenging	Challenging	Relatively Easy
Learning Curve	Shallow	Steep	Shallow	Shallow	Steep
Complication	Relatively safe	Self-limited	Self-limited	Relatively safe	Self-limited



Before and after MUSE Ultrasound assisted Full Thickness Fundoplasty



Full thickness endoscopic Fundoplasty

Full thickness endoscopic plication most closely mimics the effect of Surgical Fundoplication with the exception of the crural repair. Transmural endoluminal serosa to serosa plication devices allow anchoring the fundus of the stomach into the intrabdominal portion of the esophagus. This results in maintenance of the intrabdominal position of the gastroesophageal valve and restores the acute angle of Hiss.

Transoral Incisionless Fundoplication (TIF or Esophyx) is a Blind Full thickness endoscopic plication procedure. Esophyx is able to improve subjective parameters, but it does not adequately improve objective parameters such as the percentage of AET (acid exposure time) or reflux events on impedance monitoring. Serious complications likely related to inadvertent vascular or adjacent organ damage have been reported.

Ultrasound assisted Full Thickness Fundoplasty (Medigus Ultrasonic Surgical Endostapler or MUSE) consists of a flexible surgical endostapler equipped with an ultrasonic sight and a range finder and titanium surgical staples to create Full thickness endoscopic plication under direct visualization. After 5 years, over 90% of study participants maintained their normalized quality of life measures and approximately 77% had ceased taking daily GERD medications.

Conclusions

Introduction of MUSE as a technically easy and safe platform to perform Ultrasound Assisted Endoscopic Fundoplasty, sparked the interests again for endoscopic therapy in GERD. Early results showing promising improvement in subjective and objective parameters and potentially this novel technology could play a key role to close the treatment gap in GERD treatment.