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LEARNING OBJECTIVES

Objective 1: To better understand the Anti-Reflux Mucosal Ablation (ARMA) technique and its potential use in low resource settings.

Objective 2: To recognize other endoscopic and surgical treatment options for reflux.

BACKGROUND

Gastroesophageal reflux disease is a major cause of upper GI complaints and affects nearly one quarter of Americans. If medical therapy fails, there are endoscopic interventions that can be offered to decrease symptoms. One such endoscopic procedure is called anti-reflux mucosal ablation or ARMA. ARMA is a minimally invasive option available to the general endoscopist even in low resource settings.

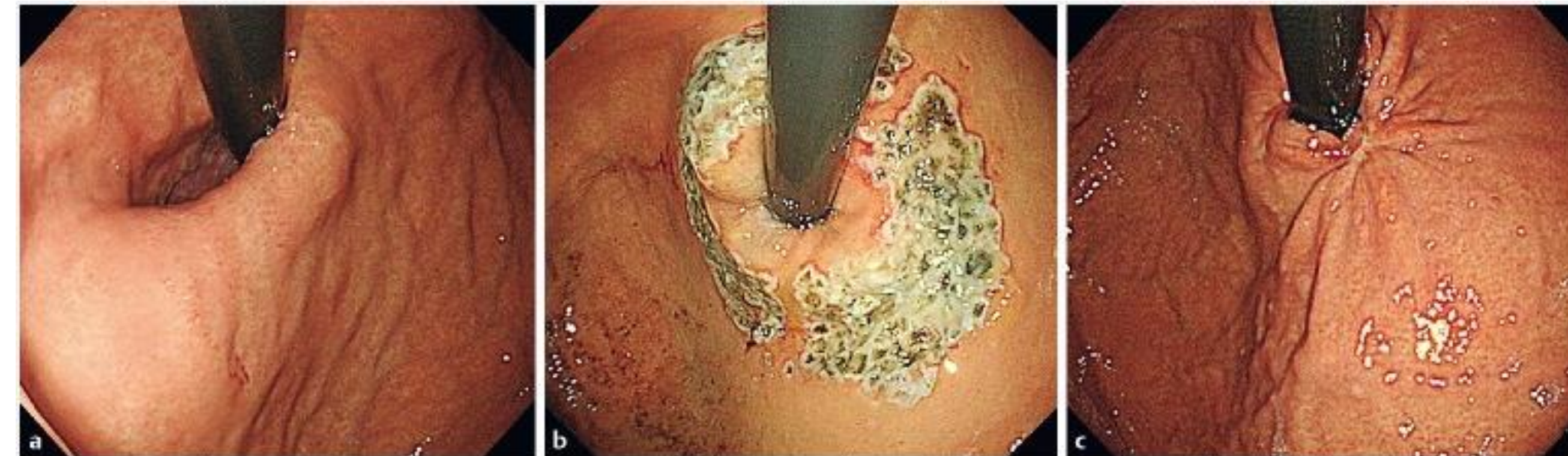
A CASE OF REFRACTORY GERD

A 66-year-old female with severe GERD confirmed with pH impedance testing presented with recurrent heartburn two years after successful treatment with transoral incisionless fundoplication (TIF). High dose PPI improved the pain but did not resolve it. She continued to have daily severe symptoms. She could not identify any dietary triggers or exacerbating factors other than laying down or bending over. She had no hematemesis, dysphagia or abdominal pain. There was no family history of esophageal or gastric cancer.

Objective data consisted of 24-hour pH probe study showed 98 reflux episodes, 13 of which were >5 min, 10% while upright. The patient recorded 1 episode each of heartburn, chest pain, and regurgitation--all 3 correlated with an acid reflux episode. After discussion of her therapeutic options, she chose EGD with anti-reflux mucosal ablation (ARMA).

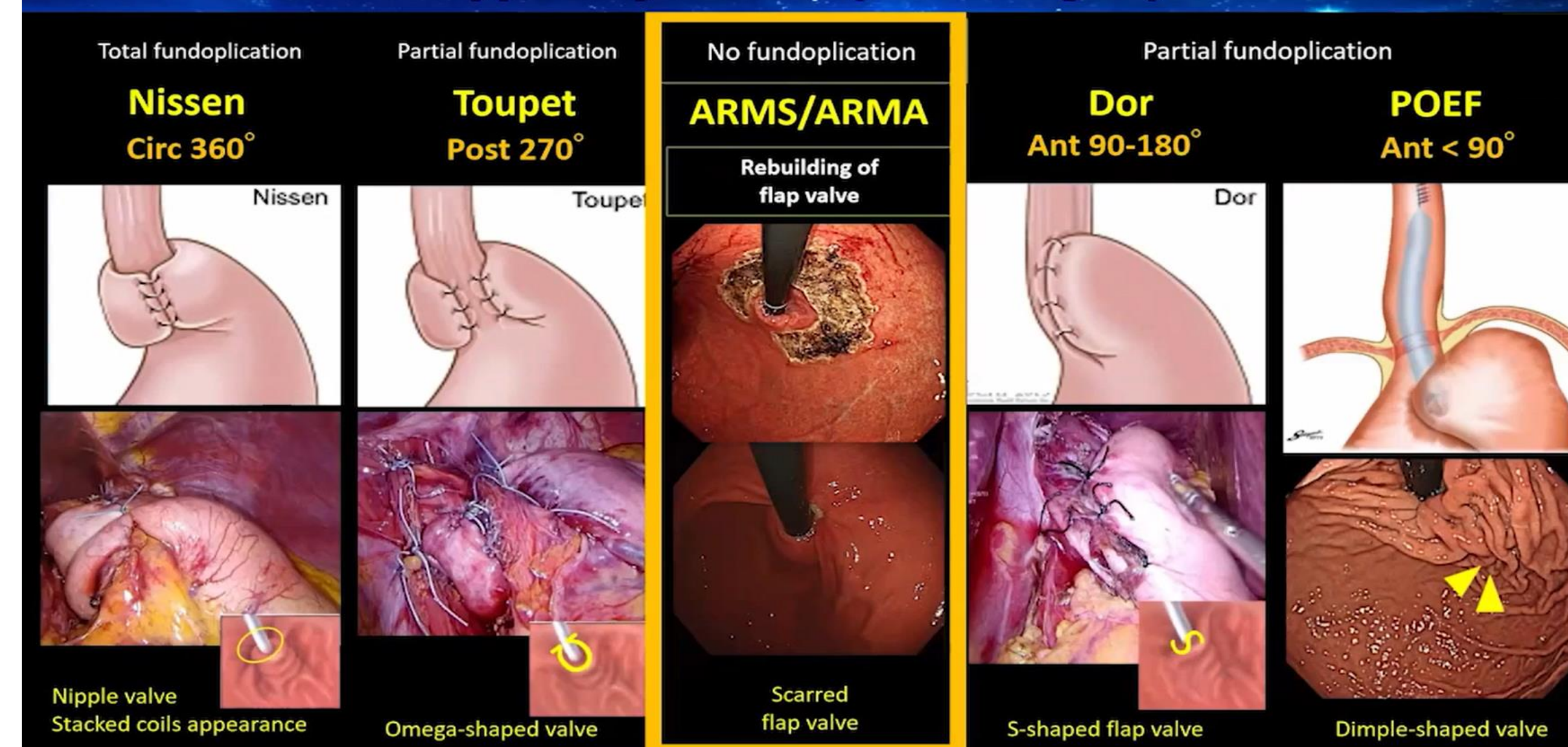
Anti-reflux Mucosal Ablation (ARMA)

ARMA consists of ablation of the gastric cardia just below the gastroesophageal junction in a horseshoe shape in order to induce scar formation creating a tighter junction and decreasing risk of reflux. The major indication is PPI refractory GERD without large sliding hiatal hernia.



a Pre-ARMA. Endoscopy in retroflexion demonstrated significant hernia but no sliding component. b Immediately post-ARMA. Endoscopy in retroflexion showed butterfly-shaped artificial ulcer. c Appearance at 1 month post-ARMA. Mucosal flap valve was re-shaped.

Types of Anti-reflux surgery



OTHER ENDOSCOPIC ANTI-REFLUX TECHNIQUES

Anti-reflux Mucosectomy or ARMS involves a partially circumferential endoscopic mucosal resection around the gastroesophageal junction (GE), which then contracts and tightens during healing.

Peroral Endoscopic Fundoplication or POEF involves endoscopic submucosal dissection and anchoring with sutures the full thickness of gastric mucosa laid over the GE junction to form a partial fundoplication.

Transoral Incisionless Fundoplication or TIF is an endoscopic procedure that creates a flap valve with full-thickness serosa-serosa plications of the esophagus and gastric cardia, with the aim of restoring the angle of His, similar to a surgical partial fundoplication

PATIENT'S CLINICAL COURSE AND CONCLUSION

The patient's GERD quality of life questionnaires at follow-up from ARMA were as follows: a score of 33 (max 50) down to 13 then to 7 at 0, 3, and 6-month follow-up, respectively. The questionnaire consists of 10 questions on a scale of 1-5 with highest numbers being the most severe symptoms. ARMA is an accessible anti-reflux endoscopic intervention because it utilizes argon plasma coagulation (APC) which is readily available to general endoscopists and has promising results for symptomatic relief for patients. It is less invasive than other anti-reflux surgeries and can be performed after other interventions if patients have recurrent symptoms of reflux and has the advantage of being repeatable. Importantly, this procedure is accessible to patients in low-resource environments.

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