



## MUSE™ procedure in a patient with pathological esophageal pH-impedance monitoring and positive reflux-symptom correlation

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### Patient Background

27 year old male, suffered for approximately 5 years from daily heartburn. Partially responsive to Esomeprazole 40 mg x2 daily, and Alginate x3 daily, with rebound of symptoms at the suspension of medication.

Medical history includes a deviated septum repair and previous therapy with beta blockers for extrasystole.

Previous upper endoscopies showed hiatal hernia (HH) of 2 cm, a gastroesophageal junction (GEJ) valve estimated as Hill Grade II and no evidence of esophagitis.

Preoperative high resolution manometric study showed hypotonia of the lower esophageal sphincter and normal motility of esophageal body; while the gastric emptying scintigraphy was normal.

The 24h- esophageal pH-impedance monitoring, performed off PPI for 8 days, showed a normal acid exposure time, but a pathological number of acidic, non acidic and weakly acidic refluxes. Moreover, the test showed a statistically significant temporal relationship between symptoms and acid refluxes. A concomitant 24-h oropharyngeal pH monitoring (Dx probe) showed a normal oropharyngeal acid exposure.

### Treatment

Procedure was conducted under general anesthesia. A gastroscope was used to examine the integrity of the staples deployed. The MUSE device was inserted through an over tube and it was retroflexed to identify a suitable location for stapling. Using the built-in ultrasound and stapler, three sets of quintuplet staples were deployed 3 cm above the GEJ, achieving evidence of a successful endoscopic anterior fundoplication and improved Hill grade.



**Figure 1: Pre-procedure view of GEJ**  
Hill Grade II, Jobe length 1 cm, HH 2 cm.



**Figure 2: Post procedure GEJ**  
Hill Grade I, Jobe length 3 cm, no HH.

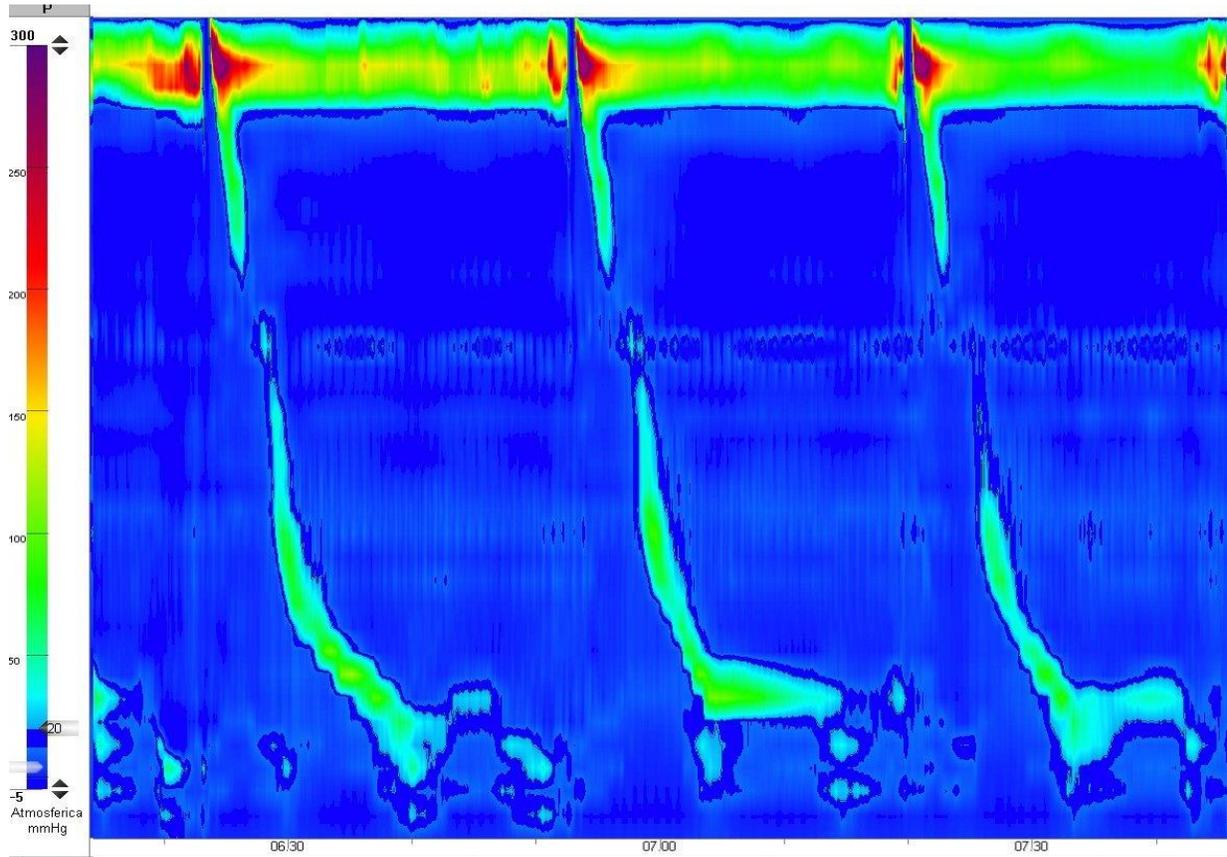
There were no complications during and after the procedure. Patient was administered 1 gr of Paracetamole and 4 mg Zofran to manage post-operative epigastric pain and nausea. Patient experienced epigastric discomfort in the first 48 hrs, well controlled by analgesic therapy and gradually disappearing over one week. Upon discharge the patient diet was restricted to fluids for one week, soft foods for 2 weeks, then advanced to a regular diet.

### Outcomes

Patient reports absence of GERD-related symptoms and is off PPI at two months post-procedure.



## Pre-MUSE procedure high resolution manometry:



## Pre-MUSE procedure 24-hours esophageal pH-impedance monitoring:

