Resolution of Roemheld Syndrome After Hiatal Hernia Repair and LINX Placement: Case Review

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Background

- Roemheld syndrome, also known as gastrocardiac syndrome, was first studied as a relationship between gastrointestinal and cardiovascular symptoms through the vagus nerve.[1]
- Several hypotheses have attempted to explain the pathophysiology of Roemheld syndrome, but the underlying process remains unclear.
- The most prominent explanations include autonomic imbalance associated with reflux-induced vagus nerve stimulation or local inflammation of the left atrium triggered by esophageal reflux due to the close anatomical association between the left atrium and esophagus.

Presentation

- 60-year-old male
- PMHx: Esophageal stricture and hiatal hernia
- CC: GERD and related arrhythmias for the previous five years.

Evaluation

- CT angiography revealed normal cardiac chamber morphology, an ejection fraction of 61%, and moderate plaque burden in the right coronary artery. Arrhythmias were characterized as supraventricular tachycardia with intermittent pre-ventricular contractions.
- High-resolution manometry (Figure 1) showed low pressure in the lower esophageal sphincter with normal esophageal motility. After the procedure, the patient experienced a subsequent 48 hours of continuous cardiac arrhythmias.
- 96-hour Bravo test (Figure) performed two weeks after the stoppage of omeprazole recorded a DeMeester score of 3. Esophagastroduodenoscopy (EGD) was unremarkable.

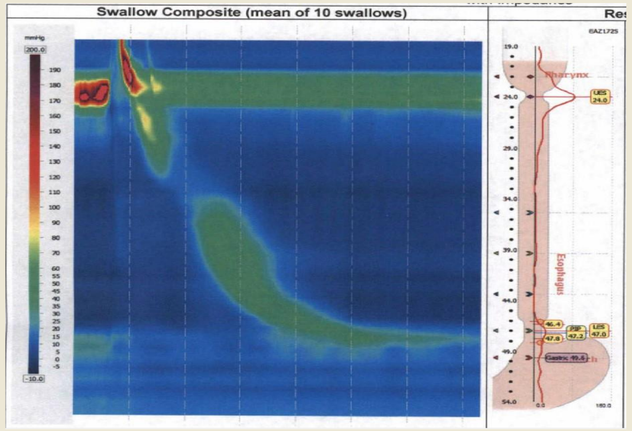


Figure 1. High-resolution esophageal manometry.

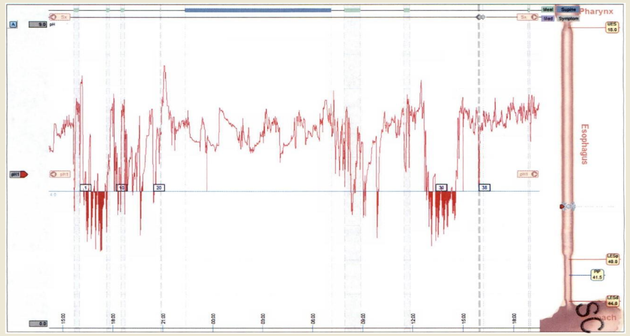


Figure 2. 96-hour Bravo test.

Acid Exposure Summary	Total	Normal	Upright	Normal2	Supine
Acid exposure time (5)	11.1	<6.0	16.4	<8.0	0
Longest reflux (min)	24.4	<16.0	24.4		0.2
DeMeester Score	31	<14.7			

Table 1. Acid exposure summary from 96-hour Bravo test

Intervention and Outcome

- With the goal of complete symptom relief and weaning off proton pump inhibitors, surgeons elected to perform a robotic assisted hiatal hernia repair, EGD, and magnetic sphincter augmentation. Of note, during the procedure a substantial amount of periesophageal inflammation was encountered.
- Four months following surgery, the patient denied symptoms of GERD or episodes of palpitation and subsequently weaned off all proton pump inhibitors with continual lack of symptoms at 10 months post-hiatal hernia repair.

Discussion and Future Directions

- We present a case of clinical diagnosed Roemheld syndrome in which both GERD and arrythmia symptoms were resolved with surgical hernia repair and LINX magnetic sphincter placement.
- Despite the high prevalence of GERD and cardiac arrhythmias, Roemheld syndrome is a rare diagnosis which lacks a well-described pathophysiology.
- The contribution of hiatal hernias to the risk for developing Roemheld syndrome is unclear. These hernias could increase the risk by exacerbating existing reflux and physically aggravating the vagus nerve or the heart leading to the arrythmia.
- Further research is needed into the prevalence of Roemheld syndrome, the role of hiatal hernias in the pathophysiology, and the efficacy of surgical hernia repair in resolving associated arrhythmia symptoms.

References

1. Roman C, Varannes SB des, Muresan L, Picos A, Dumitrascu DL. Atrial fibrillation in patients with gastroesophageal reflux disease: A comprehensive review. *World J Gastroenterol*. 2014;20(28):9592-9599. doi:10.3748/wjg.v20.i28.9592