

that has several benefits. It helps prevent hyperglycemia and helps prevent glycemic variability associated with adiposity in patients with NAFLD.² Furthermore, and most importantly, tight glycemic control using an artificial pancreas provides the ability to prevent blood glucose levels from falling below 70 mg/dL (3.9 mmol/L), by aiming for 80 to 110 mg/dL.²

As numbers of surgical patients with NAFLD, diabetes, and/or glucose intolerance increase, perioperative glycemic control will become more important. It will play an increasingly significant role in improving surgical outcomes, by preventing complications of perioperative hyperglycemia and glycemic variability such as infections.

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What Is the Value of Preoperative Esophageal Manometry in Patients with Giant Paraesophageal Hernia?



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The actual prevalence of esophageal manometric abnormalities in patients with giant paraesophageal hiatus hernia is largely unknown because physiologic assessment in these individuals has often been considered irrelevant and difficult to perform due to the distorted anatomy secondary to volvulus of the intrathoracic stomach and

consequent inability to reach the gastric lumen with the manometric probe. Instead, previous studies have widely addressed the role of manometry in patients with sliding hiatus hernia and gastroesophageal reflux disease. Stationary or high-resolution (HR) manometry has been found useful to exclude achalasia in these patients, but the debate on whether the motility findings should guide the choice of a partial vs a total fundoplication still continues. Conversely, for patients with giant paraesophageal hernias, neither stationary nor HR manometry is part of routine evaluation in most centers, including ours. We congratulate Wirsching and colleagues¹ for embarking on such a study and for demonstrating abnormal preoperative motility disturbances at HR manometry in 53% of their patients. A major study finding is that type 1-2 achalasia was never diagnosed preoperatively, and therefore, there was no need to modify the planned surgical strategy and reoperations were not required. We certainly agree with the authors' conclusions that abnormal HR manometric findings in patients with giant paraesophageal hernia do not preclude elective surgical repair and that concomitant achalasia is a very rare entity.²

However, we question the reliability of HR manometry to provide a realistic picture of esophageal motility in a context in which distorted anatomy, decreased esophageal length, and loss of anchoring of the esophagus may alter the relaxation pattern of the lower esophageal sphincter.³ Interestingly, in the study by Wirsching and colleagues,¹ preoperative symptoms were present in the majority of patients irrespective of the baseline manometric findings, and the incidence of postoperative dysphagia was very low considering that 18.5% of patients had either an esophago-gastric junction outflow obstruction or type III achalasia and 44.5% of patients received a total fundoplication. Furthermore, minor esophageal motor function abnormalities, including ineffective motility and fragmented peristalsis as detected by HR manometry, are known to be associated with minimal consequences over the long-term follow-up.⁴

We are convinced that preoperative HR esophageal manometry is unnecessary in patients with giant paraesophageal hernia who are candidates for elective surgical repair. We routinely perform a Toupet rather than a complete fundoplication in these patients to minimize the incidence of postoperative dysphagia, irrespective of the baseline motility pattern.⁵ In our opinion, indications for elective surgical repair should be based solely on typical barium swallow and endoscopic findings. A CT scan can be selectively added based on previous medical history or the suspicion of concurrent cancer, which may alter the therapeutic algorithm. High-resolution manometry has a definite role in patients with persistent

postoperative dysphagia who may ultimately benefit from pneumatic dilation or revisional surgery with Heller myotomy.

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Use of High Resolution Manometry In reply to Siboni and colleagues



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We would like to start by thanking Siboni and colleagues for their insightful comments. We do agree that, as in so many other areas of benign surgery, the decision whether to do manometry and what response is most appropriate when it is abnormal has been historically controversial.

Our colleagues point out appropriately that the prevalence of esophageal manometric abnormalities in patients with giant paraesophageal hernias has been largely unknown. This was one of the major motivators for this study.¹ We take issue with the statement that this assessment is irrelevant as it must be acknowledged that the incidences of recurrent hernias, postoperative dysphasia, and, in fact, revisional operations are all higher in patients with paraesophageal hernias than they are with standard antireflux operations. With respect to the indication that the studies are difficult, we agree with our colleagues that endoscopy should be a standard component of initial work-up and, as we have stated in our manuscript, we typically place the high resolution catheter at the time

of preoperative endoscopy to make it more tolerable for the patient, but also to increase the accuracy of the placement of the high resolution manometric catheter in these patients with complex anatomy.

Our colleagues have indicated that the majority of centers do not use preoperative manometric assessment in patients with paraesophageal hernias. Like so many other issues, the size and presentation of paraesophageal hernias are variable, and we have continued to obtain these measurements because up to this time, no data had been available about the ramifications of abnormal or a manometric measurements done in the preoperative setting. Now that these data are available, we have modified our approach and have used preoperative manometric assessment only in patients who present with significant symptoms of dysphagia preoperatively, which we have shown in previous publications to be the case in up to 48% of patients.²

Our colleagues also indicate that they use a Toupet operation in the majority of their patients who present with these large hernias. We agree that the Toupet is an excellent procedure, but we also recognize that some of these patients with extremely large hernias, especially those with a history of esophagitis, stricture, or Barrett's, will have an increased tendency for short esophagus and therefore hiatal hernia recurrence, in which a Toupet operation may not be the best option. Other centers, such as the University of Pittsburgh, have used the Collis procedure. We typically use the Hill operation, which is the only operation predicated on anchoring the antireflux procedure within the abdominal cavity. The Hill operation is an outstanding approach to decrease the incidence of recurrence, but in the presence of a major motility issue such as achalasia or presbyesophagus, can have an increased incidence of dysphagia, which would cause us to modify our approach.

In summary, we agree with our colleagues' statement that the use of high resolution manometry in the preoperative setting for patients with large paraesophageal hernias has historically been controversial. We do believe that our study has provided some very useful clinical information, which has allowed us to modify our overall approach to these surgical procedures for the benefit of our patients.

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