EDITORIAL

Endoscopic full-thickness plication for the treatment of GERD: is there a future?

After an enthusiastic rise more than a decade ago, interest in endoscopic techniques aimed at reinforcing the gastroesophageal junction (GEJ) and improving the symptoms of GERD has declined, as have the number of articles published on the topic.[1] Lack of efficacy of these devices, medical complications occurring during the learning curve of physicians performing the procedures, or financial difficulties of small companies launching them on a potential huge market have sounded the death knell for several of them.[2] Today, 2 devices remain available for endoscopists considering an endoscopic treatment for their GERD patients: radiofrequency energy delivery (Stretta, Mederi Therapeutics, Inc., Greenwich, CT), and the transoral incisionless fundoplication device (EsophyX, EndoGastric Solutions, Redmond, WA).

In the current issue of Gastrointestinal Endoscopy, Koch et al[3] from Austria report their experience with the full-thickness plication using the Plicator device, which allowed the implantation of 1 to 4 (usually 2 or 3) transmural sutures in the cardia. They provide objective and subjective data, using esophageal manometry, ambulatory reflux monitoring with pH impedance, and detailed symptomatic and quality of life questionnaires, to assess the clinical outcome 1 year after treatment. They show a reduction in reflux parameters, among which a reduction in the proximal extent of the reflux, which gives proof that the improvement in GERD symptoms (eg, regurgitation and ear, nose, and throat symptoms) is not a placebo effect, and which adds fuel to the body of literature supporting the effectiveness of this technique. Indeed, the Plicator device previously compared favorably with a placebo procedure in a randomized controlled trial, measurement of pH being assessed 3 months after therapy. Longer-term efficacy on improving GERD symptoms has been suggested in uncontrolled open trials with up to 5 years of follow-up. During the initial development of the device, a single plication was applied, but the technique was later implemented with the implantation of several sutures that allowed a tighter closure of the GEJ. At the time of patients' inclusion in the study by Koch et al, the Plicator was distributed by Ethicon Endosurgery (Sommerville, NJ), but the device is currently no longer commercially available; Ethicon took the device off the market for reasons that remain unclear.

After an enthusiastic rise more than a decade ago, interest in endoscopic techniques aimed at reinforcing the gastroesophageal junction (GEJ) and improving symptoms of GERD has plummeted.

One of the theoretic advantages of endoscopic techniques that have been advocated is that many patients (about one third) using proton pump inhibitors (PPIs) for GERD have persistent symptoms and are dissatisfied with therapy. However, many, if not the majority, actually do not have GERD, and ambulatory reflux monitoring with the use of impedance can help clarify the diagnosis for these patients.[4] An accurate diagnosis is indeed important because it is generally considered that patients not responding to PPIs have a less-favorable outcome after antireflux surgery. In the study of Koch et al, pH impedance monitoring was performed without the use of PPIs, and patients were included if a pathologic reflux (defined by a positive DeMeester score or a pathologic number of reflux episodes) or a positive temporal association between symptoms and reflux episodes (the symptom index) was found. It is unknown whether these patients had persistent symptoms because of inadequate dosage of PPIs (they were using a standard dose) or because of their symptoms were caused by non-acid reflux. The authors also do not detail how many of the patients were selected on the basis of the symptom index, with a normal range reflux. Of the 420 patients assessed in their surgical center, only a minority (36) were eligible for treatment. It has to be noted that the same group recently published the results of a randomized study comparing full-thickness plication with laparoscopic fundoplication, with similar inclusion criteria during the same inclusion period.[5] Sixty patients were enrolled, and we might think that they were also part of the same group of patients evaluated for an endoscopic antireflux procedure. Nevertheless, a lesson of this article is that the number of patients selected after a careful work-up is small compared with the number of patients

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initially sent to the surgeon because of persistent or recurrent symptoms. Therefore, potential patients for endoscopic plication procedures are probably far less numerous than one would have anticipated, because of strict selection criteria and also because of the skepticism of referring physicians.[6] This could also explain why the financial interest of large companies for these techniques has substantially decreased.

In most of the studies assessing the efficacy of endoscopic techniques for GERD, patients were good responders to PPIs and were dependent on their drugs. Albeit there are potential concerns with long-term side effects with PPIs, the absolute risk of all complications attributed to PPIs is low, and these medications are most generally innocuous. So the advocated argument to propose an alternative therapy to a patient whose symptoms are controlled by a PPI, because of potential long-term side effects, is certainly not valid according to the current knowledge. In that case, which patient could benefit from a full-thickness plication? First, several patients taking PPIs have regurgitation, the so-called volume reflux, which does not respond well to antisecretory drugs. This report, like others, indicates that for these patients, an endoscopic full-thickness plication could be a reasonable therapeutic option.[7] The procedure is probably more suitable for thinner patients with moderate GERD, with no or a small hiatal hernia, as was reported in a series of 260 patients treated with the Plicator.[8] Other potential candidates for endoscopic plication could be patients with a failed Nissen fundoplication and relapsing regurgitation, and the few patients with side effects of PPIs.

Interestingly, dysphagia and bloating, side effects commonly encountered after laparoscopic antireflux surgery, were not more common after endoscopic plication in the present study. These symptoms even improved, and if dysphagia can be an atypical GERD symptom, the improvement of bloating, a functional symptom, might reflect an improvement of general well-being in these patients. If the lower esophageal sphincter (LES) pressure was not affected by the procedure, one can imagine that the plication induced a reduction in the GEJ compliance that impedes reflux, to a lesser extent that would have been observed after surgery (that increases the LES pressure), but sufficiently to improve symptoms in many of the patients without the side effects that a tighter plication would have provoked.[5] Compliance of the LES, assessed with an endoscopic functional luminal imaging probe, is probably a more sensitive way than LES pressure measurement to evaluate the mechanisms of action of the plication on GERD.[9] Full-thickness plication seems therefore to be tight enough, but not too tight, and one could consider this less-invasive endoscopic approach to selecting patients with more severe reflux who can be offered an antireflux surgery in case the endoscopic plication fails.

In this study, as in previous ones, a significant number of the patients (about one half) were still using PPI therapy during follow-up, albeit the majority was using demand therapy. We should therefore change our minds and accept that the goal of endoscopic therapy for GERD is not to abolish reflux but to improve symptoms and quality of life. In the same line, the elimination of antisecretory medications should also not be a primary goal; instead, medical, endoscopic, and also surgical therapies should be seen as adjunctive therapies.

A critical point for patients is that a failed endoscopic plication does not make a subsequent laparoscopic surgery more difficult or impossible. Koch and colleagues successfully retreated 6 patients with another plication implant. Three patients considered to represent failure, among whom 2 had been treated again with plications, underwent laparoscopic fundoplication with no operative complication.

Certainly, 1 year is not a sufficient goal as duration of an endoscopic device. Investigator-initiated studies, like the study of Koch et al and registries, are useful to assess the safety and the efficacy of endoscopic procedures on a longer prospect, and a 5-year duration should be assessed. Therefore, patients should be informed that the long-term efficacy of endoscopic plication has not been established and that a more aggressive Nissen fundoplication might be a choice later. Indeed, reported outcomes of the other plication technique with EsophyX have shown that stitches might migrate with time, a high percentage of patients requiring laparoscopic surgery.[10]

One of the limits of the study is that only 60% of the patients underwent the 1-year follow-up with manometric and ambulatory reflux monitoring. However, it is probably more difficult to convince patients who are asymptomatic to undergo these examinations, compared with patients whose symptoms persist or are relapsing, and others have reported that patients who refused to undergo follow-up studies after antireflux surgery were actually well in the vast majority.

The study of Koch et al indicates that there might be a future for full-thickness plication, for carefully selected patients. A majority of these patients could benefit from an endoscopic plication instead of an unnecessary surgical fundoplication that would induce more side effects. Today, the only plication device on the market is the EsophyX, despite the absence of a randomized control trial demonstrating its efficacy. It is unknown whether the Plicator technology will be taken over by another company, but we might hope that there is a future for this technique, for which proofs of safety and efficacy exist.

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Abbreviations: GEJ, gastroesophageal junction; LES, lower esophageal sphincter; PPIs, proton pump inhibitors.

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