

Luminal and Extraluminal Applications of Endoscopic Stenting: A Bright Future for Gastroenterology

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Aplicações luminais e extraluminais de próteses endoscópicas: um futuro brilhante para a gastroenterologia

Palavras Chave

Endoscopia · Ultrassonografia transendoscópica · Prótese endoscópica · Prótese metálica de aposição de lúmen

In recent years, considerable strides have been made in therapeutic endoscopy and specifically in stent technology to overcome strictures and fistulas. As such, several types of devices with advanced designs and materials are continuously being developed, and this evolution has helped expand the applications of therapeutic endoscopy to new horizons. The best example of this is the use of lumen-apposing metal stents (LAMS) in therapeutic endoscopic ultrasound (EUS), allowing for the endoscopic treatment of pancreaticobiliary and luminal disease previously reserved for

surgical or percutaneous treatment. Thinking outside the box and using new devices to seal fistulas that cannot be managed with conventional endoscopic devices is also sometimes needed. While exciting, this continuing evolution and the growing number of therapeutic endoscopy applications may present a challenge for gastroenterologists to keep updated with the state of the art.

This special issue of *GE – Portuguese Journal of Gastroenterology* is dedicated to therapeutic endoscopy including 8 articles that provide further evidence of the safety, feasibility, and favorable outcomes of different applications of stents and similar devices in endoscopic therapeutic procedures, in particular the application of stents in therapeutic ultrasound endoscopy, luminal stenting, and treatment of leaks, perforations, and fistulas. The review articles also include several technical tips and tricks from experts that can clearly be helpful to the majority of endoscopists.

Canakis and Baron [1] performed a review article focused on current indications and innovations in therapeutic EUS. The therapeutic role of EUS has evolved to become a complementary technique to endoscopic retrograde cholangiopancreatography (ERCP) to provide adequate drainage in patients with pancreatic and biliary

disorders. EUS allows visualization of the intra and extrahepatic biliary tree and pancreatic duct, as well as extraluminal structures, serving as a platform for various successful drainage strategies described in this article. Technical description, efficacy, and safety of different techniques for drainage of pancreaticobiliary obstruction, pancreatic cyst ablation, gastric varices management, and gallbladder drainage can be found in this study. This review goes in line with previous studies, as well as the GRUPUGE guideline on EUS-guided biliary drainage [2–4].

Tarrio et al. [5] performed a single-center retrospective study evaluating the efficacy and safety of EUS-guided choledochoduodenostomy in 20 patients with distal malignant biliary obstructions after failed ERCP. LAMS were the stent most often used ($n = 15$; 75.0%). Technical and clinical success rates were 100% and 89.5% ($n = 17/19$) at 7th day and 93.3% ($n = 14/15$) at 30th day, in line with previous studies [6]. These results are encouraging, especially in patients after ERCP failure, where other alternatives, like percutaneous drainage, are nowadays considered suboptimal. The reported rate of early complications is also similar to previous studies [7].

Two review articles regarding luminal stenting are also included in this supplemental issue – one by Medas et al. [3] focused on the description of current practice in luminal stenting for malignant and benign indications throughout the gastrointestinal tract, and other by Silva et al. [8] focused on the technique and personal experience of esophageal stenting. Technical description, safety, and efficacy of esophageal, gastroduodenal, and colonic stenting are described in the first article, while the “How I do” article regarding esophageal stenting [8] addresses the characteristics of some of the currently available stents, offering an elaborated description of insertion delivery systems, techniques of placement, as well as some tips and tricks regarding placement and management of adverse events. This can be extremely helpful to understand and avoid the occurrence of adverse events and comes in line with recent technical reviews [9].

In summary, self-expandable metallic stents are an excellent option for the treatment of patients with unresectable esophageal cancer, malignant tracheoesophageal fistulas, recurrent benign esophageal strictures, esophageal transmural defects, malignant gastric outlet obstruction (GOO), and malignant colonic obstruction. However, gastroduodenal stenting now competes with EUS-guided gastrojejunostomy for the title of first-line therapy for GOO. In this regard, Antunes et al. [10] described a

case series of three EUS-guided gastroenterostomies for the palliation of malignant GOO, using the wireless endoscopic simplified technique, with technical and clinical success in all patients. A detailed description of this technique is provided.

Sometimes endoscopists need to innovate and think outside the box to overcome complex and particular situations. For instance, Brito et al. [11] presented a case series describing the application of Niti-S esophageal mega-stent in 2 patients with anastomotic leaks after oncologic surgery. Both cases achieved leak resolution after 2 weeks without adverse events. Self-expandable metallic stent placement for luminal defects is a safe, well-established therapeutic technique; however, limitations include stent migration and incomplete sealing. Bariatric stents might have a role in addressing these limitations.

Kumaira Fonseca et al. [12] presented a case study that evaluated the use of a cardiac septal defect occluder (CSDO) in the treatment of a patient with a chronic gastrocutaneous fistula after bariatric revisional surgery. In this case, fistula closure was achieved after placement of a second CSDO between the discs of a former dislodged CSDO. CSDO might be an emerging technique for closure chronic, mature gastrointestinal fistulas. The study presents the first *off-label* use of the Occlutech® occluder for the treatment of a chronic fistula after bariatric revisional surgery.

Chálim Rebelo et al. [13] presented an EUS-directed transgastric ERCP in a patient with Roux-en-Y gastric bypass and choledocholithiasis, providing a detailed description of the technical steps of this innovative technique. In this case, placement of a 10 × 15 mm LAMS allowed endoscopic access to the native papilla 3 weeks later, with LAMS being transposed with the duodenoscope without need for further dilation. When transposition of the stent with the duodenoscope proves difficult, other techniques can be pursued [14].

In sum, the role of endoscopic stenting in the management of patients with gastrointestinal diseases has expanded greatly in recent years, with increasing use of endoluminal and transluminal stents. We are particularly excited about the growing establishment of EUS-guided therapies. These studies provide evidence that this therapeutic approach will be standard practice in the near future, as an alternative for biliary and pancreatic drainage and for the creation of several types of enteric anastomosis, with excellent safety and clinical success. However, standardization of the different techniques and limited number of therapeutic EUS experts are limitations that need to be overcome.

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