



POSITION PAPER

What to expect from the “bear claw”? The initial Portuguese experience with the over-the-scope clip system



O que esperar da “garra de urso”? A experiência inicial portuguesa com o sistema over-the-scope clip

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Received 13 May 2014; accepted 20 May 2014

Available online 5 August 2014

Until recently, surgery was the mainstay therapy for large gastrointestinal (GI) leaks, with inherent morbidity/mortality and high costs.¹ Endoscopic treatments for GI leaks (including postoperative dehiscences, fistulas and endoscopic perforations) have quickly evolved in the last decade. The endoscopic approach to postoperative dehiscences and fistulas has traditionally included covered self-expandable metal stents, various sealants/glues and regular clips, but these options have several limitations.^{2,3} Although standard endoscopic clips are familiar and readily available, their application is technically limited to small and regular wall defects and may result in a superficial mucosal suture (rather than a durable full-thickness wall closure).^{4,5} The main concern regarding endoscopic perforation management with standard clips is that the metallic clips might not close a larger wall defect firmly enough and once the clips drop off peritonitis can occur. A novel single loop-and-clips closure technique (KING closure), where the leak is closed with clips and an endoloop is then placed to fix and tighten all of the clips together, has shown

promising results in the closure of perforations after endoscopic full-thickness resection of subepithelial tumors.^{6,7}

The ‘bear-claw’ or over-the-scope clip (OTSC) system (Ovesco Endoscopy, Tübingen, Germany) is a new clipping device developed for closure of large GI wall defects.⁸ This clip is preloaded on a cap fitted onto the endoscope tip, similarly to band-ligation systems. When the clip is released from the applicator cap, it closes because of a “shape-memory” effect (a bear-trap like mechanism). On deployment, it is capable of capturing significantly larger amounts of tissue, with more force exerted for tissue apposition.⁴

A key element to technical success when using the OTSC is to accurately position the wall defect within the OTSC cap.⁹ An anchoring or grasping device can facilitate the approximation of tissue margins before the OTSC is released. An emerging application for the OTSC system is major GI bleeding, particularly in large and fibrotic bleeding ulcers refractory to conventional endoscopic treatments.^{10,11}

In this issue of GE – Portuguese Journal of Gastroenterology, Correia et al. report the first Portuguese case series of patients undergoing OTSC placement for gastrointestinal leaks. In this retrospective series from a tertiary referral centre, six consecutive patients underwent OTSC placement by two endoscopists (with previous experience on OTSC placement in animal models), mainly for post-surgical or chronic fistulas of the gastrointestinal tract (only one patient

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underwent OTSC placement for an acute post-polypectomy perforation). The visceral leaks had defect diameters of 7–12 mm, were mostly located in the upper digestive track (only two in the colon) and had fibrotic edges in most cases (three post-surgical dehiscences and two benign esophageal-respiratory fistulas). In these chronic leaks, there was a large time interval between the diagnosis and the OTSC placement (33–153 days) and previous attempts of endoscopic treatment using self-expandable stents had failed in two cases. Successful OTSC application and immediate closure of the leak were achieved in all cases, with no complications. Long-term healing of the leaks was assessed by endoscopic or radiological means and failed only in one patient.

This first Portuguese single-centre study has confirmed the favourable results of the OTSC system for treatment of gastrointestinal leaks reported in other series and in a recent systematic review.^{9,12,13} Moreover, the patients included in this study were very complex, mostly resistant to previous attempts of endoscopic or surgical treatments, with a large time interval between the leak diagnosis and the OTSC placement. As previously reported in the literature, a major drawback preventing successful OTSC application is the presence of fibrotic or inflamed leak edges.¹³ As pointed out by the authors, the only case of clinical failure (with fistula recurrence) was referred to endoscopic treatment very late (153 days after diagnosis).

The results presented by Correia et al. seem promising and support the efficacy and safety of the OTSC in the management of GI leaks, even in complex cases, although this is a small case series. It has been previously shown that the OTSC allows the closure of leaks as large as 27 mm¹⁴; however, it is only approved by the FDA to close defects smaller than 20 mm in size, and complex geometries could yield less-consistent results.⁹ Randomized clinical trials regarding OTSC treatment of GI leaks are missing and the evaluation of the OTSC efficacy is essentially based on small case series.¹³ A benefit in the management of large GI perforations, in terms of technical feasibility and effectiveness, has not been shown in a recent randomized experimental study comparing the OTSC system and the KING closure technique.¹⁵

Novel endoscopic approaches and technologies to manage larger perforations, defects with complex geometry, and even those complicated by leak of luminal contents, continue to evolve. The OverStitch (Apollo Endosurgery, Austin, Tex) is an endoscopic suturing device that allows full-thickness tissue apposition, with a variety of suture patterns, via an endoscopic platform.¹⁶ A novel method of endoscopic abdominal exploration through the perforation site and full-thickness closure using the OverStitch was recently described by Kumar and Thompson.¹⁷ In this recent report, the authors have demonstrated successful management of two large complex perforations, complicated of peritoneal contamination, with the use of endoscopic abdominal exploration and OverStitch closure, in a single session in the endoscopy suite.¹⁷

Although these innovative endoscopic approaches, as the promising experience with the OTSC reported by Correia et al., may initially be confined to centres with the necessary equipment and expertise, they are encouraging and represent the full potential of endoscopy in the optimization of patient care.

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