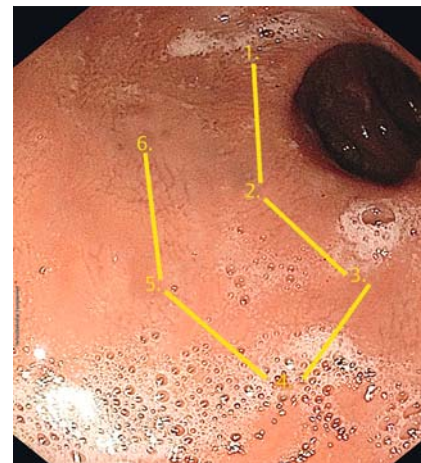


## Endoscopic sleeve gastropasty using Apollo Overstitch as a bridging procedure for superobese and high risk patients



► **Fig. 1** Photograph showing the positioning of the patient, devices, and team during the performance of endoscopic sleeve gastropasty in a superobese patient. The patient is under general anesthesia, intubated, and in a supine position.



► **Fig. 2** The suturing pattern for the six parallel stitches used to perform endoscopic sleeve gastropasty. A triangular pattern is obtained by positioning the sutures as following: (1) anterior wall; (2) greater curvature; (3) posterior wall; (4) posterior wall; (5) greater curvature; and (6) anterior wall.

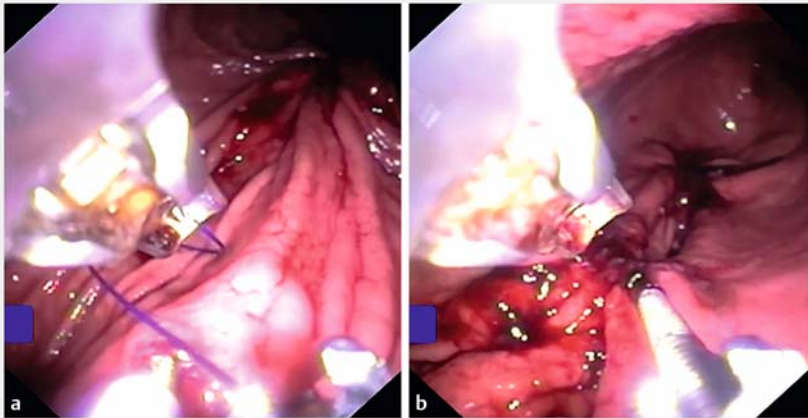
In some cases, bariatric procedures cannot be performed via laparoscopic or open surgery because of surgical contraindications or high operative risk. Endoscopic sleeve gastropasty (ESG) using an Overstitch (Apollo Endosurgery, Austin, Texas, USA) is a recently described procedure [1,2] with good preliminary 1-year results in small series and low complication rates [3–5] for patients with a body mass index (BMI) ranging from 30–45 kg/m<sup>2</sup>. However, the routine use of ESG for superobese and high risk patients has not yet been described. The indications for ESGs performed in five superobese patients in our institution were as follows: (i) surgically impenetrable abdomen due to multiple operations or a giant incisional hernia; (ii) future liver or kidney transplant recipient; (iii) high risk patient with a contraindication to operation; (iv) a bridging procedure in a two-step concept (the first endoscopic, the second surgical 12–18 months later). Patients with BMI



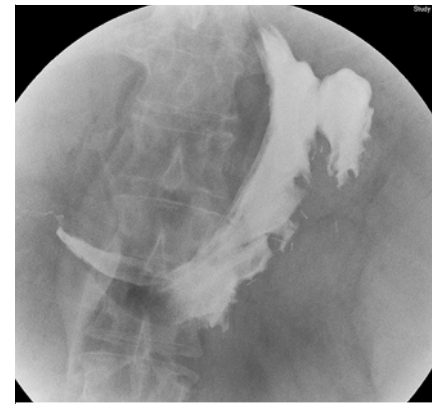
► **Video 1** Performance of an endoscopic sleeve gastropasty in a patient with a body mass index (BMI) over 50 kg/m<sup>2</sup>. Successive patterns of six parallel full-thickness stitches are performed from the incisura towards the gastroesophageal junction to create gastric restriction.

ranging from 51–72 kg/m<sup>2</sup> with numerous co-morbidities were submitted to ESG after multidisciplinary evaluation.

With the patient under general anesthesia and after installation of an overtube (Apollo Endosurgery), ESG was per-



► **Fig. 3** Endoscopic views showing: **a** full-thickness suturing being performed across the stomach wall; **b** the tubular construction that results after completion of the endoscopic sleeve gastrectomy. In many cases, a residual pneumoperitoneum is found postoperatively.



► **Fig. 4** Postoperative radiologic examination showing an adequate endoscopic sleeve gastrectomy with preservation of the gastric fundus, which slows the gastric emptying and improves satiation by other mechanisms, as in resectional sleeve gastrectomy.

formed using a standard two-channel endoscope (GIF-H180) with the patient intubated and in a supine position because of difficult ventilation (► **Fig. 1**; ► **Video 1**). Using CO<sub>2</sub> insufflation, a pattern of six stiches was performed for each suture, starting from the incisura and progressing proximally to the gastroesophageal junction (► **Fig. 2**). The tubular construction of the gastrectomy was obtained after five to eight sutures, while closure of the upper fundus was avoided (► **Fig. 3** and ► **Fig. 4**).

The operative time ranged from 93 to 230 minutes and there were no complications. Patients resumed a liquid diet on the same day and were discharged on postoperative day 3. At 3-month follow-up, the patients had lost 17–56 kg (mean 34.5 kg) resulting in a mean reduction of BMI from 58.6 to 52.5 kg/m<sup>2</sup>. ESG for superobese and high risk patients offers a potential alternative therapy for bridging or a primary morbid obesity therapy.

Endoscopy\_UCTN\_Code\_CCL\_1AZ\_2AL

### Competing interests

Ricardo Zorron is a member of the Scientific Advisory board (SAB) of Apollo.

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DOI <https://doi.org/10.1055/s-0043-119685>  
Published online: 17.10.2017  
*Endoscopy* 2018; 50: E81–E83  
© Georg Thieme Verlag KG  
Stuttgart · New York  
ISSN 0013-726X

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