



*Clinical Developments and Metabolic Insights in Total Bariatric Patient Care*

## [Treatment of Leaks After Sleeve Gastrectomy](#)

[BT Online Editor](#) | September 23, 2009 | [3 Comments](#)

by Jacques Himpens, MD; Giovanni Dapri, MD; and Guy-Bernard Cadière, MD, PhD

*Dr. Himpens and Dr. Dapri are from St. Blasius Hospital Dendermonde and St. Pierre Hospital, Brussels, Belgium. Dr. Cadière is from St. Pierre Hospital, Brussels, Belgium*

### **Introduction**

In Europe, sleeve gastrectomy (SG) is swiftly replacing adjustable band gastroplasty (ABG) as the most commonly performed restrictive bariatric procedure. Increasing numbers and longer follow-up times allow us to better evaluate the pros and cons of this relatively new operation. One of the drawbacks of the procedure appears to be the relative frequency and severity of its complications. Reportedly, leaks occur in up to nine percent of the cases, and even more often in revision cases. A majority of leaks appear close to the gastroesophageal junction. These leaks are known to be difficult to treat by conventional means. This retrospective study presents the results of the treatment strategy we offer our patients suffering from leaks at the angle of His after SG.

### **Study Design**

Between January 2005 and December 2008, 1,123 patients benefitted from sleeve gastrectomy (SG) in our departments, either as an isolated procedure or as first stage of a duodenal switch (DS) procedure. This study evaluates the outcome of the 29 patients who developed a leak at the angle of His. All patients were treated under general anesthesia by placement of a covered stent (Ultraflex, Boston Scientific). When indicated computed tomography (CT) guided percutaneous abscess drainage was performed before stent insertion.

### **Results**

Twenty patients were female. The median age was 52 years (range 24–68). Fifteen of the 29 patients presented with a subphrenic abscess between 14 and 30 days after the operation (median 21 days). The other 14 patients presented with a clinical leak in the immediate postoperative period. They had undergone another bariatric procedure before the sleeve gastrectomy: 10 had a vertical banded gastroplasty (VBG) by open approach, while nine patients had ABG. The latter patients still had their drains in place, and diagnosis was obtained by a positive methylen blue swallow test. All 14 patients presenting an immediate leak underwent simple gastroscopic stent placement without further drainage procedure. The other 15 patients were treated by percutaneous CT guided abscess drainage followed by gastroscopic stent placement.

All stents were removed uneventfully after a mean of seven weeks (5–11 weeks). In 24 of the patients (83%), a plastic stent (Polyflex, Boston Scientific) was inserted within the metal stent two weeks before removal in order to diminish granulation tissue overgrowth hence to facilitate stent removal.

Stent treatment was immediately successful in 19 patients, as documented by barium swallow performed the day after ablation of the stent. Ten patients, however, had a positive barium swallow and/or methylen blue test and required insertion of a new stent for another six weeks. Five of them recovered completely after this new stent placement and had their drains removed the day after stent ablation when the fistula was documented to be closed. The five remaining patients presented with a persistent leak after removal of the second stent; two had a history of previous ABG and three had had open VBG. One of the latter three patients declined further treatment in our hospital and was lost for further follow up. The two remaining patients after VBG showed a complex gastrobronchiocutaneous fistula, which was treated successfully by percutaneous injection of acrylate glue in the fistula tract after removal of the drain. At the same occasion, a new stent was placed endoscopically inside the gastric sleeve for another four weeks. Thus, total stent time in these patients added up to some four months, but treatment was eventually successful. The two patients with persistent wide fistula after ABG were treated laparoscopically by placement of a Roux-en-Y loop on the defect in the gastric wall, which resulted in immediate closure of the fistula in one, and after 10 days in the other. None of the 28 patients available for follow up in this group of 29 patients died during the study.

### **Discussion**

In bariatric surgery, the majority of perioperative deaths are caused by staple line dehiscence and subsequent leaks. The correct treatment of fistulas and leaks is therefore critical, even more so in SG where the staple line is long and the intraluminal pressure elevated.[1] In prospective studies, the leak rate after SG appears to be rather high, up to more than nine percent.[2] In recent literature, it appears that the more conservative treatment of this complication carries better results than reoperations, and more importantly, no mortality.[3] Our study seems to confirm this finding. Moreover, it appears that very early placement of a covered metallic stent substantially reduces length of hospital stay. A possible explanation can be that the ability for patients to be fed directly in the gut rather than intravenously improves morbidity over all[4] and allows earlier hospital discharge since patients no longer need an intravenous (IV) line. Major concerns with stents are migration and difficulties of removal.[5] None of our patients, however, experienced stent migration, possibly because of the physical properties of the device we used (covered, self expandable, and metallic). Our policy to introduce a plastic stent in the lumen of the metal device for a couple of weeks before stent

extraction seems successful as stent removal was remarkably straightforward in all cases. In case of persistent leak despite stent treatment, constructing a Roux-en-Y loop on the defect, when large, as described by Baltasar et al,[6] or injection of glue in a rather thin or very complex fistula tract together with placement of a new stent were both effective, which confirms the experience of other teams.[7]

### **Conclusion**

Leaks appearing mostly at the angle of His are not uncommon after sleeve gastrectomy. These leaks, both immediate and delayed, can safely be treated by stent placement with good success. Leaks in SG after previous restrictive surgery are more difficult to handle and can require additional treatment (glue injection in case of gastrobronchial fistula or Roux-en-Y gastrojejunostomy for persistent leak).

### **References**

1. Yehoshua RT, Eidelman LA, Stein M, et al. Laparoscopic sleeve gastrectomy—volume and pressure assessment. *Obes Surg.* 2008;18(9):1083–1088.
2. Stroh C, Birk D, Flade-Kuthe R, et al. Results of sleeve gastrectomy—data from a nationwide survey on bariatric surgery in Germany. *Obes Surg.* 2009;19(5):632–640.
3. Casella G, Soricelli E, Rizzello M, et al. Nonsurgical treatment of staple line leaks after laparoscopic sleeve gastrectomy. *Obes Surg.* 2009;19(7):821–826. Epub 2009 Apr 21.
4. Kotzampassi K, Kolios G, Manousou P, et al. Oxidative stress due to anesthesia and surgical trauma: importance of early enteral nutrition. *Mol Nutr Food Res.* 2009;53(6):770–779
5. Zhao JG, Li YD, Cheng YS, et al. Long-term safety and outcome of a temporary self-expanding metallic stent for achalasia: a prospective study with a 13-year single-center experience. *Eur Radiol.* 2009;19(8):1973-80. Epub 2009 Mar 19.
6. Baltasar A, Serra C, Bengochea M, et al. Use of Roux limb as remedial surgery for sleeve gastrectomy fistulas. *Surg Obes Relat Dis.* 2008;4(6):759–763.
7. Papavramidis TS, Kotzampassi K, Kotidis E, et al. Endoscopic fibrin sealing of gastrocutaneous fistulas after sleeve gastrectomy and biliopancreatic diversion with duodenal switch. *J Gastroenterol Hepatol.* 2008;23(12):1802–1805.

**Category:** [Original Research](#), [Past Articles](#)