Problems in bariatric surgery: anastomotic leaks and bleeders – fistulae – pouch dilatation/weight regain

Bariatric procedures, such as gastric bypass or sleeve gastrectomy, have reached a level of standard care with good clinical outcomes and a favorable risk-benefit ratio. However, even in experienced hands there are several typical complications of considerable impact which are not infrequent. Amongst these are acute anastomotic leaks and bleeders and the development of chronic fistulae between different organs. Another common problem is weight regain, limiting the long-term efficacy of bariatric procedures.

Anastomotic leaks and bleeders

Gastrointestinal bleeding in the early postoperative period has an incidence of 1–4% of all Bariatric procedures. Bleeding may be self-limiting but may also require immediate therapeutic action, especially in patients under anticoagulants or anti-thrombotic medication. The treatment options include endoscopic or surgical hemostasis.

Leaks of anastomotic tears are a known problem in both, gastric bypass and gastric sleeve procedures. The incidence specified for the literatures varies between 2% and 8%, depending on procedure and technique used (Fullum TM et al., 2010; Spyropoulos C, Argentou MI, Petsas T, Thomopoulos K, Kehagias I, Kalfarentzos F. Endoscopy Against Weight Gain After Bariatric Gastric Bypass Surgery. Obes Surg. 2009; 19: 228–33).

Weight regain

In spite of the efficacy of gastric bypass surgery to produce significant increase weight loss, the longest effects can be compromised by secondary regain of body weight. Over a post-operative period of 4 years, significant weight regain may happen in more than half of the patients (Balducci BK et al., 2011). The diameter of the gastrojejunal stoma shows a significant association with weight regain after gastric bypass surgery and hence is seen as an independent risk factor for weight increase.

Different endoscopic techniques for reduction of the gastric pouch tears have been described in the literature as possible treatment options.

Fistula

Fistulae after bariatric procedures can be a complication with significant therapy resistance and require multiple treatments. A broad span of fistulae are known, including gastrogastric fistulae after gastric bypass surgery, gastrocutaneous, gastrobronchial and other locations. The incidence of fistulae in the literature varies between 2% and 5% (Balducci BK et al., 2010; Sallaberry C. et al., 2010).

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**The OTSC® system**

The OTSC® system is a new innovative closure system to be applied via flexible endoscopes. It offers the physician three particular advantages:

- Large volume of tissue secured
- High stability at the region of interest and constant dynamic tissue compression (constant force at lesion)
- Minimal strain on surrounding tissue

The use of the OTSC® system is based on a transparent application cap and is available in a variety of different sizes and types.

In addition, for precise and easy closure of even larger lesions, additional application sets are available: the OTSC® Anchor and the OTSC® Nano-Grasper® add you in approximating tissue in tearing scar and choledochus lesions (perforations, fistulas, etc.).

The range of application of the OTSC® system includes herniations, closure of lesions such as leaks, perforations, and fistulae as well as the endoscopic compression and approximation of tissue.

### Treatment of anastomotic leakage and chronic fistula

Due to the postoperative impairment of the blood supply in the stomach and the usually impaired wound healing in obese patients, anastomotic leakage, gastric fistula, and even higher in super obese patients (Rachet et al., 2006). A number of studies suggest that a weight gain may be due to the gradual enlargement of the stomach pouch or due to the dilatation of the gastric anastomosis because of overeating. Resumption with normal eating habits requires the conversion to some option (Mullady et al., 2009).

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### Modes of application

#### Treatment of weight regain due to dilation of the gastrojejunostomy after bypass surgery

Bariatric surgery is an undisputed option for morbid obesity. However, the long-term failure rate after gastric bypass surgery is 20-30%, and even higher in super obese patients (Rachet et al., 2006). A number of studies suggest that a weight gain may be due to the gradual enlargement of the stomach pouch or due to the dilatation of the gastric anastomosis because of overeating. Resumption with normal eating habits requires the conversion to some option (Mullady et al., 2009).

Recent studies have shown promising results in the treatment of fistulas with the OTSC® system (Kirschniak, 2011). Results of 44 fistulas treated with the OTSC® system have been published (Kirschniak, 2011). Two years after surgery they gained weight by around 15% or more again, faced a high rate of complications and an increased volume per meal and an increased number of meals. At this stage they were treated with the OTSC® system.

Heylen achieved best results by removing the pouch clip with two OTSC® clips deployed at both ends before advancing the gastric outlet by about 80%. Obviously it is recommended to approximate mucosa and mucosal layer by the OTSC® system (Kirschniak, 2011). After 11 months (mean 118 days, ±46 days) after OTSC® clip application patency were controlled by contrast swallow and by gastroscopy.

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