



Introduction of Laparoscopic Vertical Sleeve Gastrectomy into Bariatric Practice

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Introduction

Laparoscopic vertical sleeve gastrectomy (LVSG) has recently become popular as a bariatric procedure, not only as a first step in high-risk or super-obese patients or in cases of failed restrictive operations, but mainly as a stand-alone operation in morbidly obese. Our aim is to investigate safety, efficacy and consistency of LVSG in both weight loss and remission of patients' comorbidities.

Operative Technique

The patient is placed in a reverse Trendelenburg position to aid exposure. An orogastric tube is inserted to decompress the stomach and then removed. The surgeon stands to the patient's right and a six trocar technique is used (Fig. 1). The initial step after liver retraction is to take down the short gastric vessels of the greater curvature about 5 cm proximal to the pyloric channel, using the Harmonic scalpel (Ethicon Endosurgery). Dissection is continued along the greater curvature up to the gastroesophageal (GE) junction (Fig. 2). A 32-Fr bougie is placed trans-orally into the pyloric channel under direct vision. Sequential applications of Echelon (60mm) 4.5 mm (green) stapler (Ethicon Endosurgery) along the bougie with extreme care are carried out to create a gastric sleeve (Fig. 3) with an estimated capacity of 100 ml. The bougie is then removed. Tisseel fibrin glue (Baxter) is then applied to the staple line. Sleeve gastrectomy specimen is then removed in endobag through the 15 mm port in the midline. No drain is used. Patient is placed on a clear fluid diet for 2 weeks, followed by puree diet for the following fortnight. The patient is usually discharged on day 2 postoperatively on oral PPI (40 mg).

Study Design

We performed retrospective and prospective analysis of all LVSGs performed at John Flynn Private and the Tweed public hospitals in Gold Coast from January 2008 until July 2010. We also conducted patient telephone interviews to establish their overall satisfaction with the procedure, and the service provided.

Figure 1



Figure 2

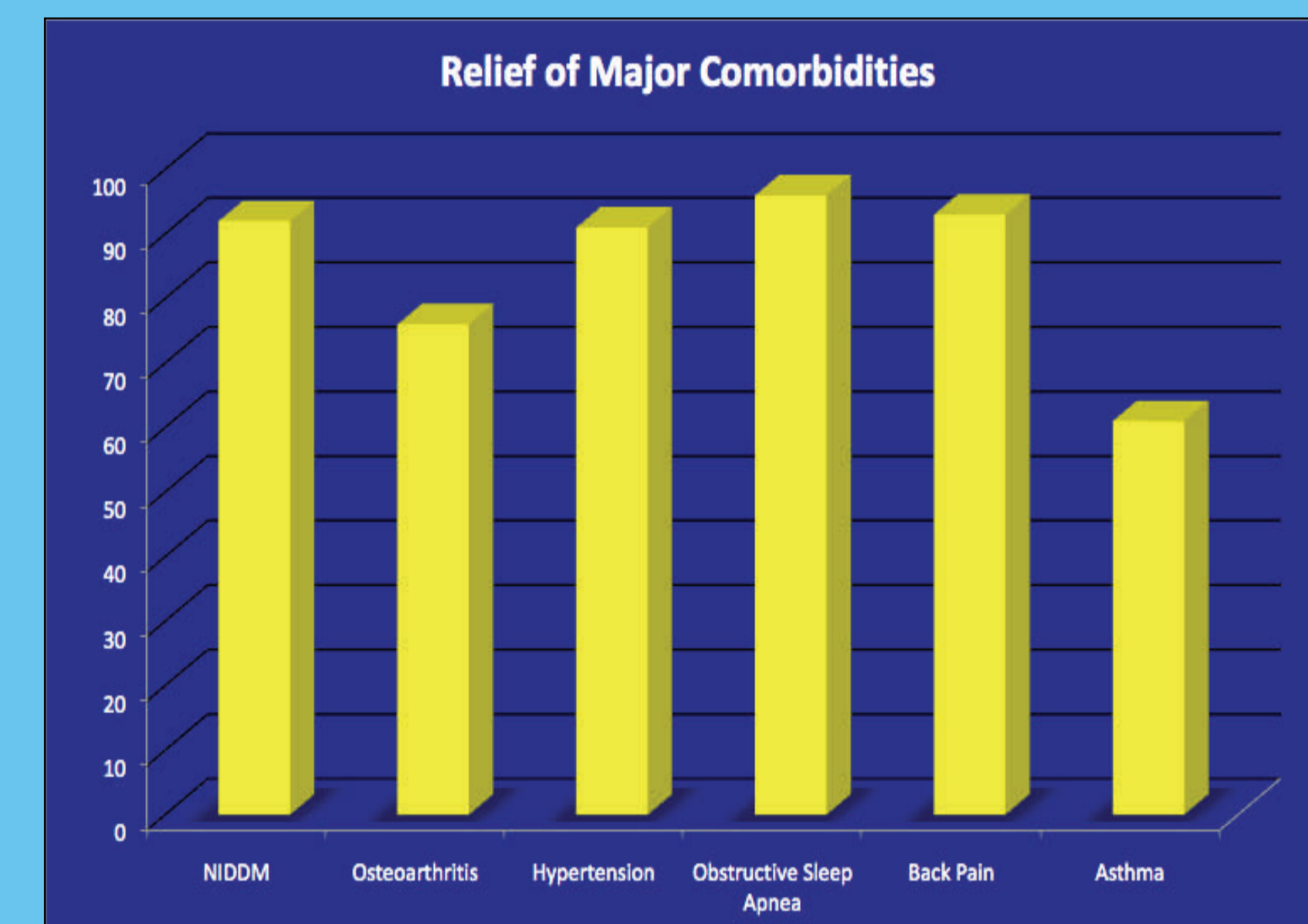
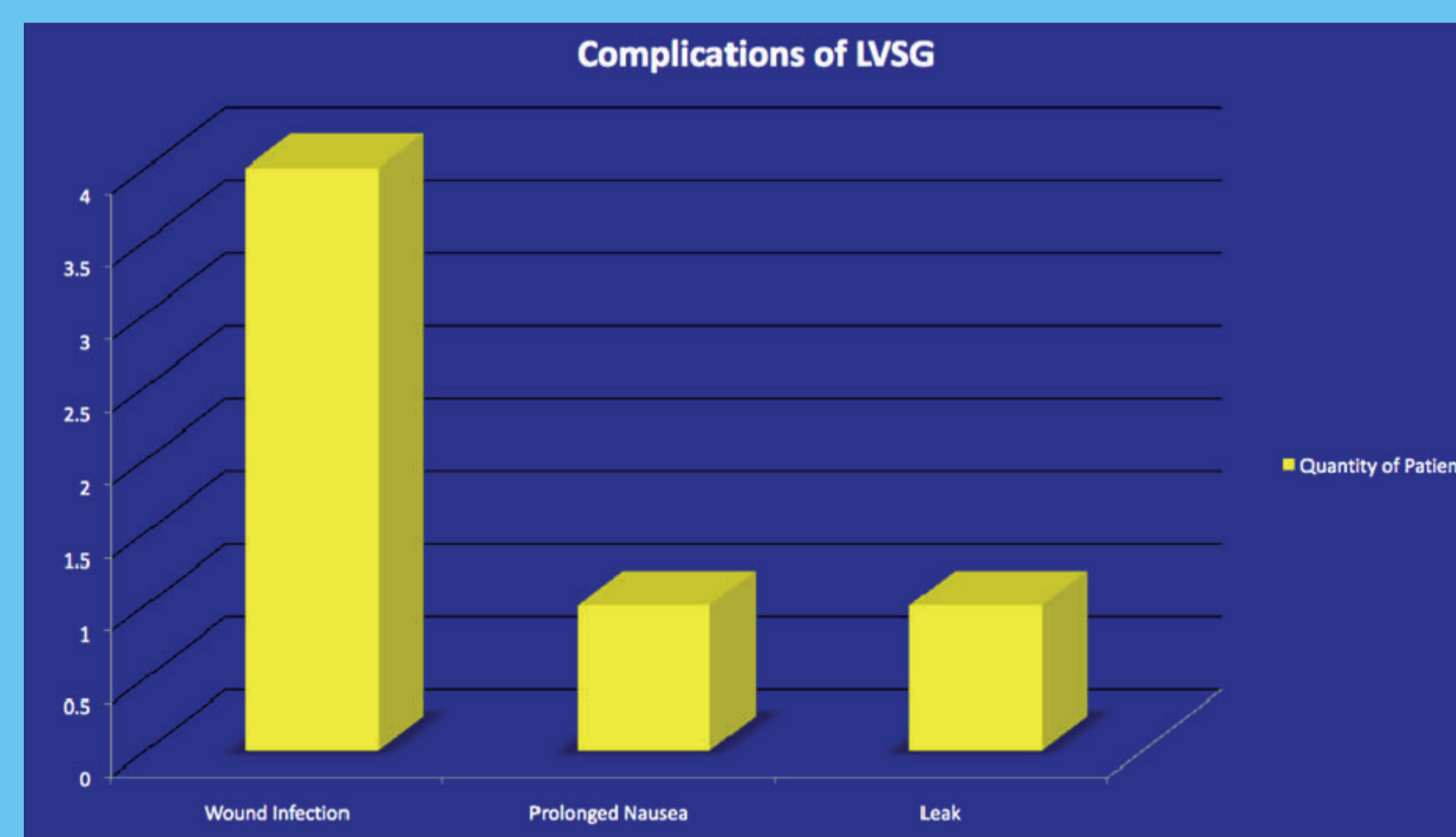
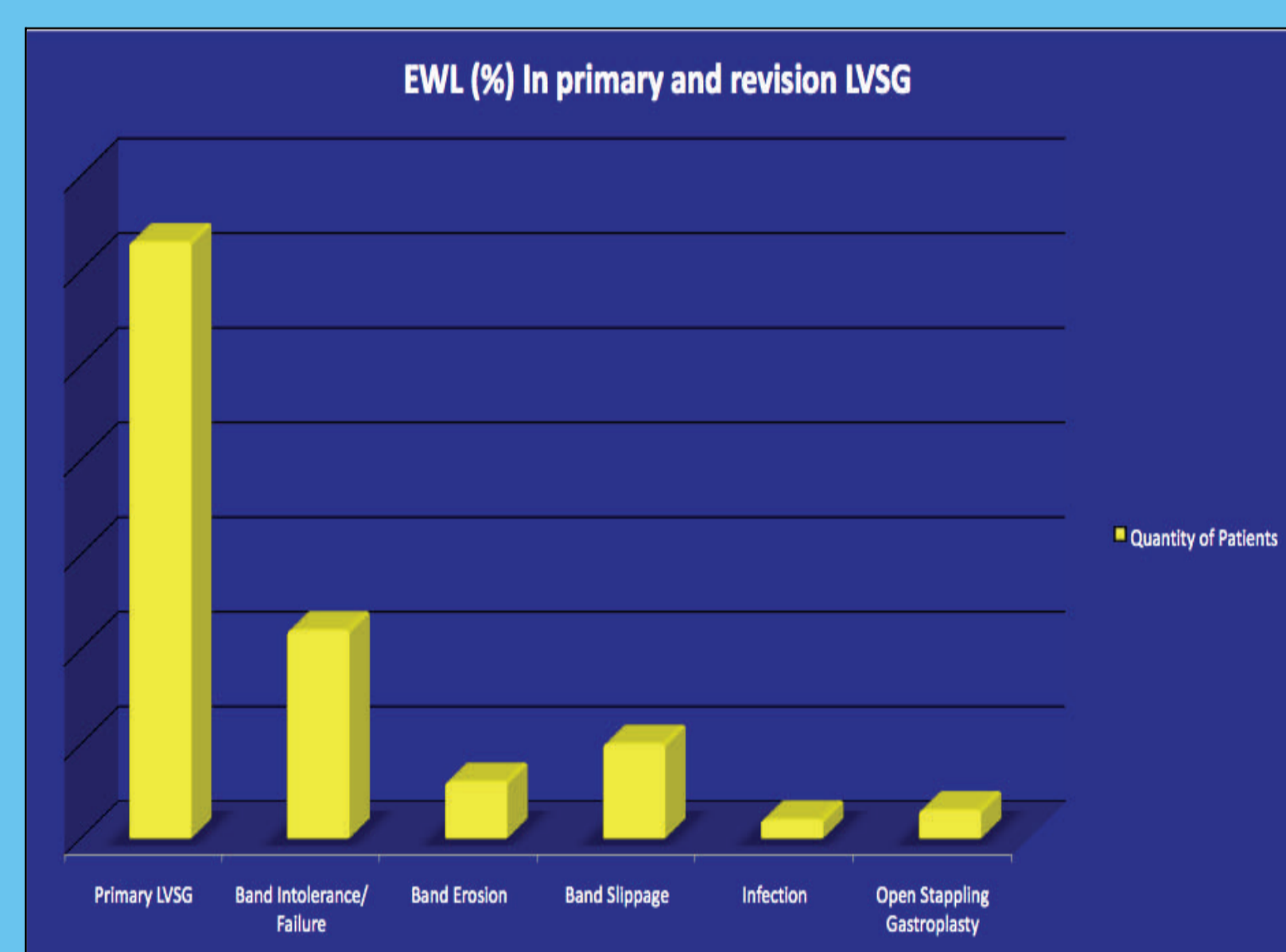


Figure 3



Results

106 patients underwent LVSG from 1 January 2008 up until 1 July 2010. Sex distribution male to female was 1:1.1. Median age and BMI were 47 (22-70), and 52 (35.5 - 81) respectively. 43 procedures were performed as a staged operation following failed LGB (40) and open stapling gastroplasty (3). Operative time was 79 min (range 38 - 133 min). There was no mortality. Postoperative complications included gastric leak (1), minor wound infection (4) and prolonged nausea (1). LOS was 2.1 days (1-5 days). Gastric leak LOS was not included as it occurred just prior to our data collection closure. Postoperative follow-up was achieved in 97 patients (92%). Mean EWL was 69.1% (23 - 100%) at 6-12 months for primary LVSG and 38.5% (16.7-76.6) for staged operations. Remission of major comorbidities was overwhelming (fig 2). 93 (88%) patients provided their feed back over telephone with an overall satisfaction rate 100%.



Discussion

Two-stage bariatric surgery has been advocated in superobese (BMI greater than 50 kg/m²) and/or high risk patients to decrease morbidity and mortality. Initial LVSG was proposed as the first step because it is a relatively fast and easy operation and successfully induces postoperative weight loss. It has now been widely accepted as a single stand alone bariatric operation.

Weight loss after LVSG is likely the result of both the restriction of oral intake resulting from the low distensibility of the sleeve as well as significant reduction in ghrelin levels, which appears to immediately decrease after LVSG and remain low up to 6 months postoperatively, thereby preventing a compensatory increase in hunger.

The reported acute complication rate for LVSG ranges from 0 to 29% but overall is likely to be approximately 5%. This is compared with acute complications in LGB and LRYGB, which occur in 5 to 10 per cent of patients. Anastomotic leak, and bleeding are two most common and significant complications after LVSG. In our series one patient had staple line leak, which required prolonged hospital management including endoscopic stent placements. There was no postoperative bleeding. There were 5 other minor complications and no mortality. Surgical technique is also very important and may affect the number of complications that occur after LVSG.

Short-term and midterm results for weight loss and resolution of comorbidities suggest that LVSG is an effective bariatric procedure. Reported %EWL at 1 year ranges from 48 to 83 %, and in our series was 69.1% for primary and 38.5% revisional LVSG at 6-12 months follow up. Similarly, early results for resolution or improvement of comorbidities demonstrated in our series (Fig. 3) are encouraging and consistent with the world data.

We would particularly recommend LVSG in supersuperobese patients (BMI greater than 60 kg/m²), particularly men, in whom other bariatric procedures are technically challenging or not possible; and in patients who desire LVSG over other bariatric procedures.

Conclusion

In competent hands, LVSG is safe, simple and an efficacious procedure. As a primary operation it achieves excellent results in weight loss and sustainable short and mid-term improvement of overall patients' health and quality of life. LVSG has hence become very attractive alternative in armamentarium of a bariatric surgeon. It does not require stringent follow up regimen in comparison with LGB and shows very high overall patient satisfaction. LVSG guarantees consistently good EWL in moderate term follow up, albeit worse in cases of revision operations. It also helps to relieve major comorbidities associated with obesity. Serious complications do however occur and pose high demands on care providers as well as patients and their families.

Abbreviations

LVSG – laparoscopic vertical sleeve gastrectomy
LGB – laparoscopic gastric banding
LRYGB - laparoscopic Roux-en-Y gastric bypass
LOS – length of stay
EWL - excess weight loss