Endoscopic Sleeve Gastroplasty: Best Obesity Treatment

Obesity and its related health problems like diabetes mellitus, stroke and heart disease are an epidemic not restricted to industrialized countries. However, around 115 million people in developing countries suffer from obesity-related problems.[1] Regarding treating obesity, GI weight loss surgery (GIWLS) has shown remarkable results.[2,3] However, a very small percentage of individuals requiring GIWLS undergo this treatment.[4,5] That is mainly due to the high risks associated with surgical procedures. The GIWLS has evolved from mechanical restriction resulting in malabsorption to manipulation of gut anatomy, causing changes in the gut neuroendocrine signalling to the associated organs for regulation of food intake by enhancing satiety & improving glucose homeostasis.[6,7]

Comparing the traditional Roux-en-Y gastric bypass with sleeve gastrectomy (SG) in randomized studies, we find that the latter reduces gastric volume by 75% to 80% and more attenuation in plasma ghrelin compared with the former. In contrast, the former involves multiple surgical alterations to the stomach and small intestines. [2,6]

With time, we have also seen advancement in endoluminal endoscopic procedures for gastric volume reduction in ways quite similar to SG (Figure). The endoscopic techniques are cost-effective and minimally invasive compared to the GIWLS.[7]

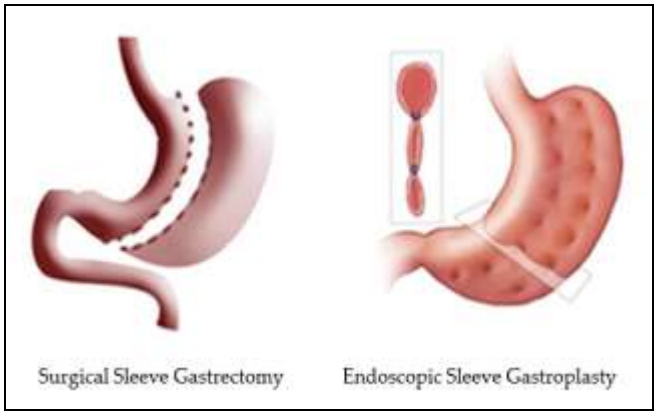

Figure: Surgical Sleeve Gastrectomy Compare to Endoscopic Sleeve Gastroplasty

Endoscopic sleeve gastroplasty (ESG) is an endoscopic gastric-restrictive procedure in which the stomach is sutured and re-shaped for a size reduction. Unlike SG, there are no incisions made during this procedure. However, similar to SG, a tube-like stomach is created by stapling the anterior and posterior stomach walls together. However, there has been some concern regarding the durability of the procedure, as staples and fasteners may not be holding the stomach tissue after twelve months.[8]

In 2022, the Food and Drug Administration of the USA approved an endoscopic suturing device designed for ESG procedures. This system is meant to be used on adults with a BMI between 30 and 50 kg/m^2 who cannot lose weight or maintain weight loss by conservative methods.[9] If we compare the mechanisms by which SG and ESG cause weight loss, it would appear that SG causes not only restricted food intake but also hormonal changes. ESG is a restrictive process with no hormonal effects since the stomach is very much intact. The effectiveness of ESG was established on 209 obese individuals in a multicenter US trial (MERIT). Weight loss was more in those undergoing ESG than controls (13.6 versus 0.8 mean percent total weight loss; 49.2 versus 3.2 mean percent excess weight loss [EWL]) at 52 weeks.[9]

Regarding the improvement in metabolic comorbidities, 80 percent of the individuals undergoing ESG showed some improvement, compared to 45 percent in the control group. On the other hand, twelve percent of those who underwent ESG got worse, compared to 50 percent in the control group. On follow-up at two years amongst those undergoing ESG, 68 percent maintained ≥25 percent excess weight loss (EWL); notable side effects happened in 2 percent but no mortality.[10,11]

The MERIT study results were similar to a systemic review done in 2019 and a meta-analysis performed in the same year. According to those, the mean percent total weight loss at 6, 12, and 24 months was 14.86, 16.43, and 20.01, respectively. In addition, serious adverse events happened in only 2.26 percent of individuals, with no mortality at all.[12]

This least invasive technique has considerable advantages with further potential advancements. However, the long-term effectiveness of ESG is yet to be established.[13]

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