

Endoscopic sleeve gastropasty for obesity: improved body composition at 1-year follow-up



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BACKGROUND

Endoscopic Sleeve Gastropasty (ESG) is an incisionless transoral endoscopic procedure whereby a gastric luminal sleeve is fashioned by application of a series of transmural sutures placed along the greater curvature of the stomach resulting in a reduction in functional gastric volume and delayed gastric emptying.^{1,2} The study aimed to report on 12-month outcomes following ESG for weight loss.

METHOD

We analysed 121 consecutive patients who underwent ESG from October 2016 to January 2018. All procedures were performed on an outpatient basis using the Apollo OverStitch device (Apollo Endosurgery, Austin, TX). Patient outcomes included Total Body Weight Loss (TBWL), weight circumference reduction (Δ WC), body composition change measured by DXA, and immediate and delayed adverse events.

FINDINGS

ESG resulted in 17% TBWL and Δ WC 14.8cm by 12 months (19.6% TBWL and 17.6cm Δ WC among patients naive to endoscopic bariatric procedures). For 86 patients where DXA body composition data were available, fat mass was reduced amongst all patients whereas fat free mass was increased amongst 68% of patients. By 12 months, on average patients lost 15.7kg of body fat mass including 1.4kg visceral fat mass and there was an average increased lean body mass by 3.5 kg. The Fat Mass vs. Fat-Free Mass ratio dropped from 0.7 (baseline) to 0.4 (12 months). Predictors of poor outcomes include the proceduralist being in the learning curve stage and previous patient experience with endoscopic bariatric treatment. Higher frequency of consultations with allied health professionals predicted better weight loss. There were no major intraprocedural or post-procedural complications. The most commonly reported early adverse symptoms included cramping (50.4%), nausea (28.9%), abdominal pain (22.3%), and vomiting (5.8%).

FINDINGS

Weight Loss	6 m	12 m
Δ Weight (kg)	15.1 \pm 7.9	16.6 \pm 9.8
Δ BMI (kg/m ²)	5.4 \pm 2.9	5.8 \pm 3.6
%TBWL	14.6 \pm 7.5	17.0 \pm 9.3
%EWL	45.4 \pm 24.6	50.0 \pm 27.1
Δ WC (cm)	13.6 \pm 9.7	14.8 \pm 10.0
TBWL \geq 10% (%)	66.1	80.0
TBWL \geq 15% (%)	38.9	61.5
EWL $>$ 25% (%)	77.8	81.5



Figure 1. ESG demonstration

Body Composition	Baseline	6 m	Δ 0 - 6 m	12 m	Δ 0 - 12 m
Within recommendation(%) ³	0	26.3	-	56.5	-
FM vs FFM ratio	0.7 \pm 0.1	0.5 \pm 0.1	-	0.4 \pm 0.1	-
Body fat mass (%)	40.7 \pm 4.5	32.4 \pm 4.4	-	30.1 \pm 4.1	-
Body lean mass (%)	56.2 \pm 4.1	64.0 \pm 4.1	-	66.3 \pm 3.6	-
Body fat mass (kg)	42.0 \pm 12.3	31.0 \pm 8.3	-12.6 \pm 6.7	26.1 \pm 5.5	-15.7 \pm 7.2
Body lean mass (kg)	56.9 \pm 11.7	57.8 \pm 8.8	1.3 \pm 4.4	57.5 \pm 10.1	3.5 \pm 6.1
Visceral fat mass (kg)	2.1 \pm 1.1	0.8 \pm 0.5	-1.1 \pm 0.8	0.8 \pm 0.6	-1.4 \pm 0.9
Visceral fat area (cm ²)	309.2 \pm 191.4	138.1 \pm 67.5	-181.8 \pm 249.8	130.3 \pm 72	-248.6 \pm 297.7

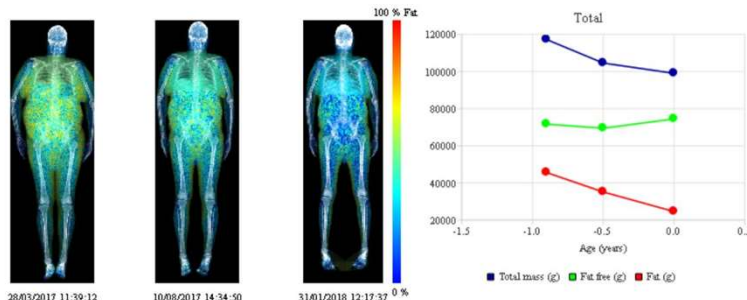


Figure 2. Example patient DXA scan at baseline, 6, and 12 months post ESG

DISCUSSION

ESG results in clinically significant weight loss and body composition improvements at 12 months follow-up with low risk of major complications. TBWL is understated owing to increases in lean mass, which suggests a lower risk of weight recidivism. Its efficacy is enhanced by more intensive adjuvant lifestyle intervention.

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