Endoscopic Sleeve Gastroplasty

A triumph of technology over common sense

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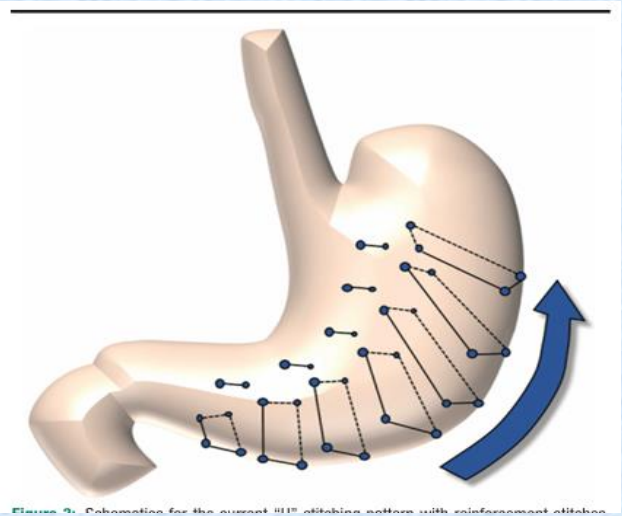
- Devel’s advocate
- Many concerns about ESG
- ESG need to be challenged

Potential advantages –Selling points

- Acceptable weight loss results (15-20% TWL)
- Less invasive –lower complications rate
- Anatomy is preserved - reversible
  - All surgical options are possible
- Cost effective compared to OMs and MBS
- Huge number of overweight and obese patients
  - Unmet demand



1) ESG achieves acceptable and beneficial WL

- Most published studies – 15-20% TWL vs 30-35% TWL with MBS
  - Short/medium term data
- Al Qahtani 2019 – 1000 cases baseline BMI 33.3
  - 12 months n= 216 – %TWL 15%
  - 18 months n= 54 - %TWL 14.8%
- The MERIT study Abu Dayyeh, Lancet 2022 ESG+LSM vs LSM
  - One year – %TWL 13.6% vs 0.8%
  - Two years –
    - 2/3 of patients maintained > 25% EWL
    - 1/3 of patient maintained less than 25% EWL

Paucity of long term results

- Most published studies - Short/medium term data
  - Little data on long term outcomes

De Moura et al. (2019) [4]	Retrospective review	N/A	N/A	Up to 20.9% total body weight loss	Up to 2 years	Favorable outcomes with 60.4% excess weight loss
Alqahtani, A. et al. (2019) [22]	Prospective observational study	109	33 (mean)	6 months: 14.4 12 months: 16.2% ± 8.3% total weight loss 24 months: 13.7% ± 8.0% total weight loss	2 years	Weight loss of approximately 12 k by 18 months
Sharaiha, R. Z. et al. (2020) [50]	Retrospective	216	39 ± 6 kg/m^2	%TBWL: 15.9% (95% CI: 11.7–20.5, $p < 0.001$)	5 years	90% of patients maintained at least 5% TBWL at 5 years, meeting ASGE and ASMBS criteria for primary bariatric intervention

SR and MA Long term results

Diabetes, Obesity and Metabolism

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ORIGINAL ARTICLE OPEN ACCESS

Short-Term Versus Long-Term Efficacy of Endoscopic Sleeve Gastroplasty in 8880 Obese Patients: A Systematic Review and Meta-Analysis

Mohammed Barghash[1] | Matthew Riad[2] | Yasser Khalil[3] | Khaled Mohamed[4] | Ahmed Elgamasy[5] | Omar Aly[6] | Mohanad Abdelfattah[7] | Mohamed Ibrahim Elgohary[8] | Zeyad M. Wesh[9] | Thilo Sprenger[10] | Hany Takla[11] | Amr Elserafy[12] | Ahmed Abdelsamad[13,14]

- May 2026, 33 studies (n= 8880)
- TWL 1,2 and 3 years – 18%, 16%, 15%

Weight regain after ESG

Diabetes, Obesity and Metabolism

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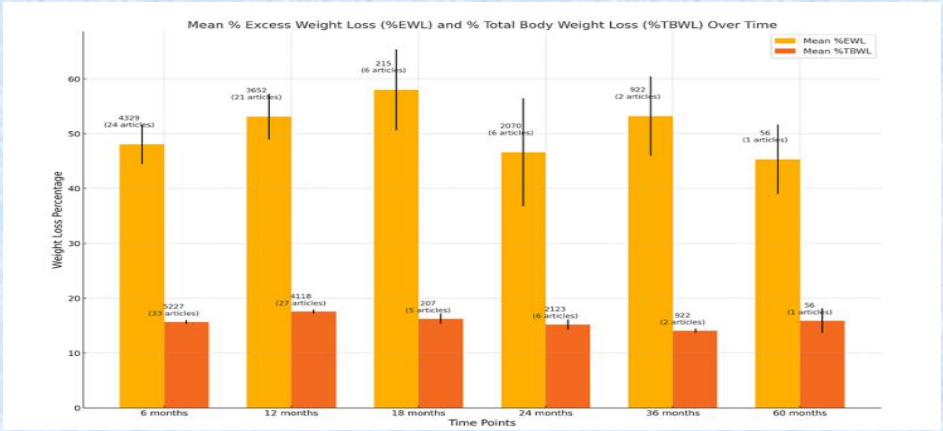
- 2026 SR and MA – 1-3 years of follow up
  - WR in only 6% of patients ….. BUT only reported in
  - 3/33 studies
  - FU 4-12 months
- Sharaidah 2021 Clin Gastroenterol Hepatol (n=216) 5-year FU
  - Mean TBWL 15.9%
  - At 5 years only 61% maintained TBWL>10%

IFSO statement 2024

Time point	Mean %EWL	Mean %TBWL
6 months	**48.04**	**15.66**
12 months	**53.09**	**17.56**
18 months	**57.98**	**16.25**
24 months	**46.57**	**15.2**
36 months	**53.18**	**14.07**
60 months	**45.3**	**15.9**



- 44 studies – 43 case series and cohort studies – only one RCT
- Conclusion: The IFSO Bariatric Endoscopy Committee endorses ESG for class I and II obesity, and for class III obesity when MBS is not suitable.
- The quality of evidence from the included observational studies was assessed as **very low**

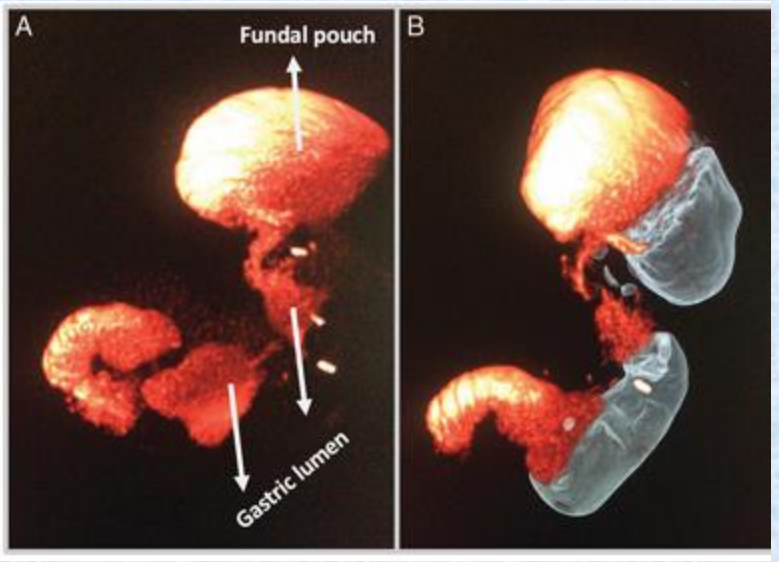
Why ESG is unlikely to give good long term results

Purely mechanical WL
No hormonal changes after ESG

- 2020 Lopez-Nava obes surg n=12 –at 6 months
  - ESG - No change in fasting ghrelin, GLP-1, and PYY.
  - LSG induced a significant reduction in the ghrelin, and leptin levels, and increase in peptide-YY, and adiponectin levels, respectively.

ESG preserves the fundus

- Early studies
  - Higher perigastric collection/leak rate when fundus is plicated
- Modern ESG - fundus is not plicated
  - Reduces the risk of collections
  - Pouch plays an important role in the physiology of the weight loss as it delays gastric emptying



- LSG –both hormonal and mechanical restriction are important

The integrity of the ESG in the long term

- Nedelcu 2026 obes surg n=58 – 37 revised to LSG and 21 to RYGB
  - 90% complete or partial undo of the sutures on pre op endoscopy
- Akio Kozato 2026 0besity surgery n=20 (11 to LSG and 9 to RYGB)
  - Flouroscopy and EGD – no tubularised stomach or evidence of gastroplasty in half of the patients

ESG appearance on EGD after 6 months

- Pizzicannella 2020 surg Endosc (n= 87) ESG was
  - Completely or partially open ESG in
    - 50% at 6 months
    - 75% at 12 months
    - %EWL in the completely open group was only 8.9%

Gastroplasty appearance	At 6 months	At 12 months	%TBWL at 12 months
Intact	43 (49.4%)	10 (24.4%)	17.2 ± 5.4
Partially intact	38 (43.7%)	24 (58.5%)	13.1 ± 8.9
Completely open	6 (6.9%)	7 (17.0%)	8.9 ± 6.1

ESG – Mechanical-only WL

- Durability and structural integrity
  - Stomach is highly muscular, constantly contracting organ
  - Sutures tear, stretch, loosen up, pull through tissue
  - Structural degradation with time – expansion with time
  - LOSS OF THE ONLY WEIGHT LOSS MECHANISM
- Weight loss is unlikely to be sustained
  - Patients rely on mechanical restriction
  - No hormonal alterations – Ghrelin
  - No biochemical resetting of the hunger signal
  - Long term compliance is difficult

- **Clear trajectory towards weight regain**

2) ESG has low complications

- Due Petersson Dan Med J 2020 Danish literature review and meta-analysis 23 studies, n= 2142 patients.
  - Adverse events 5.2%.
- 2026 Al Qahtani obesity surgery A Systematic Review and Evidence Synthesis LSG vs ESG n=1.3 million (14000 ESGS)
  - Readmission rates were higher following ESG (RR 1.44, 95% CI 1.29-1.59).
  - ESG was associated with a slightly higher risk of overall adverse events (RR 1.16)
- Hamza 2026 obes surg n=1.1 million ESG 12000
  - ESG had a higher risk of sepsis (RR = 2.49; 95% CI: 1.21–5.13; p = 0.01)
  - Higher readmission (RR = 1.37; 95% CI: 1.22–1.53; p < 0.00001).

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CASE REPORT

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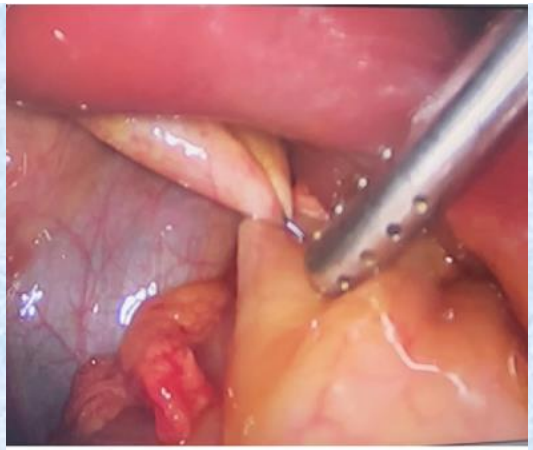

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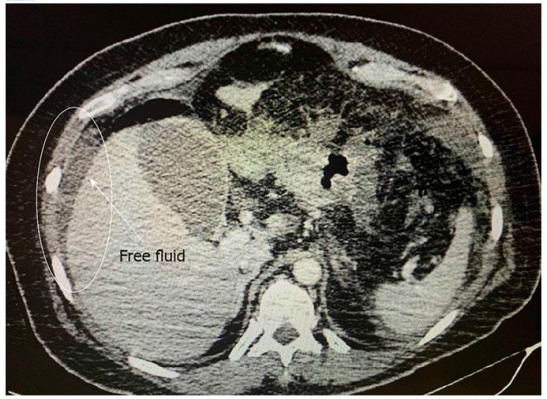


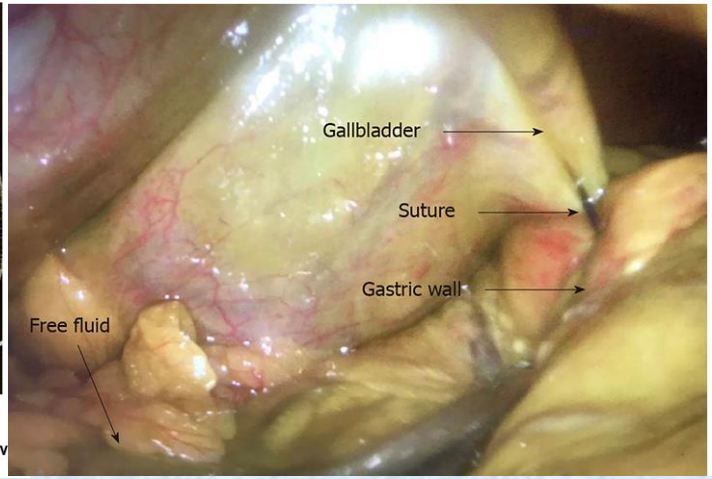


Figure 2 Computerized tomography showing free fluid in the abdominal cav

Case Report

Liver abscess after endoscopic sleeve gastroplasty: A case report☆,☆☆

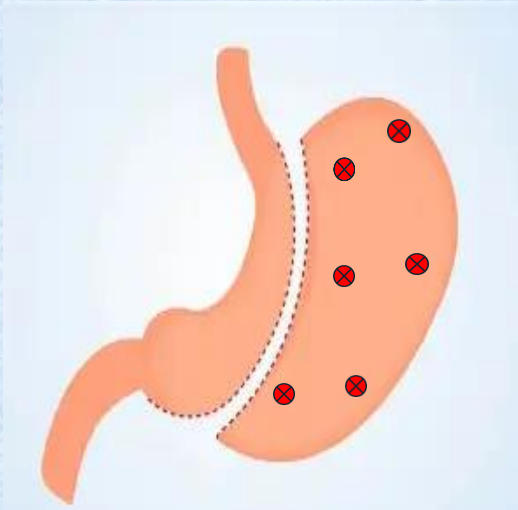
Vincenzo Cirimele[a,*], Giulia D'Amone[a], Daniele Vertulli[a], Giuseppe Spagnolo[b], Matteo Pileri[a], Edoardo Montanari[a], Eliodoro Faiella[a], Bruno Beomonte Zobel[a]

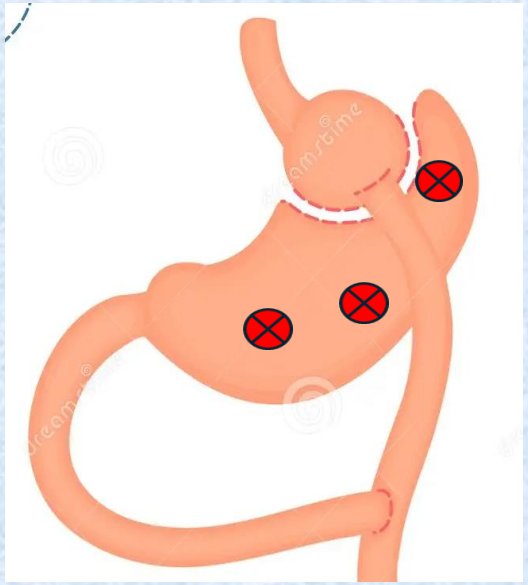
Less invasive – lower complication rates
It's just an illusion .....

- Recent data challenge this assumption
- Large scale studies – 2% **SERIOUS** complication rates
  - Statistically comparable/higher than LSG

3) ESG does not interfere with future MBS

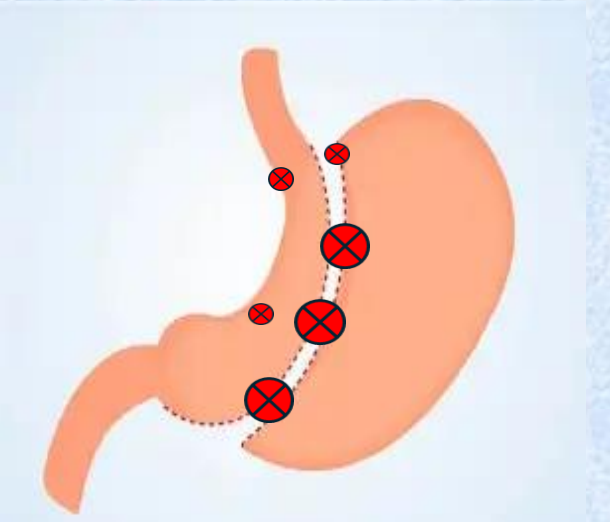
- Sutures are placed outside the staple line (LSG)
- Sutures can easily be removed endoscopically
- It is ok to leave sutures in the remanent stomach (GB)

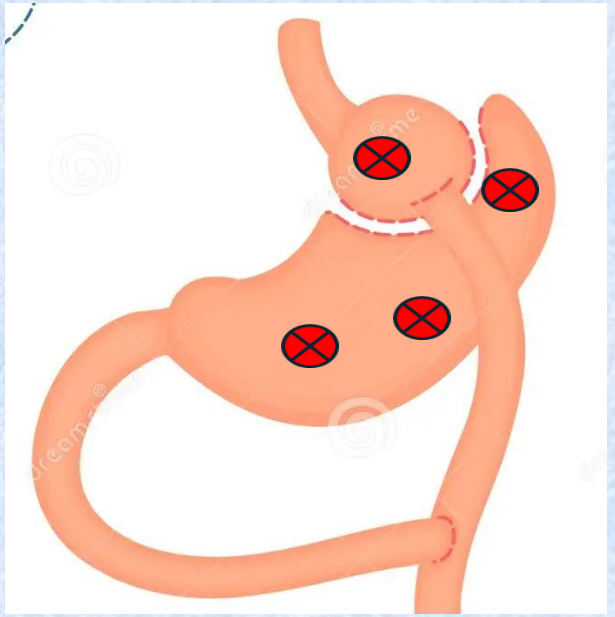




Reality is different – ESG is not as benign as it may look

- Sutures and anchors can be anywhere
- They are not always easy to locate or remove
  - Within staple line – staple misfiring
  - Close to GEJ
  - With the sleeved stomach or gastric pouch
  - In the gastric remanent – inaccessible
- No FB should be left behind
  - Ulceration – inaccessible stomach
  - Pain/symptoms – difficult to explain





ESG can make uncomplicated procedure complicated

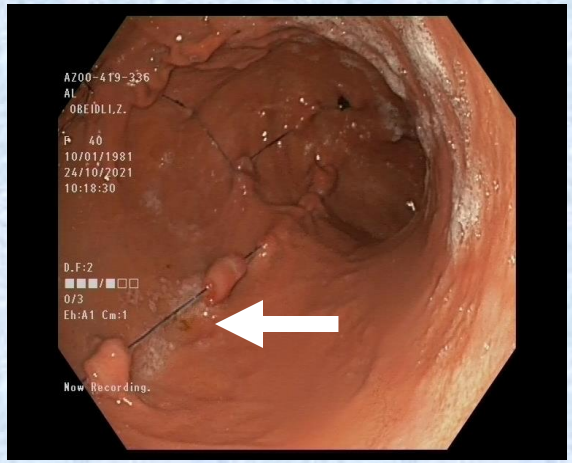
ESG is easily converted to other MBS procedures

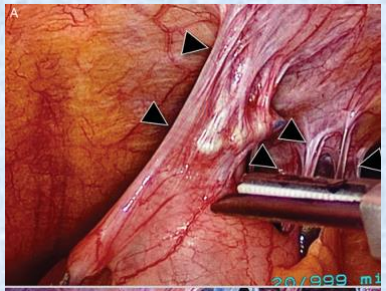
- 2019, alqahtani obe surg n=20
  - No technical problems – feasible and safe
- Nedelcu 2026 obes surg n=58 – 37 revised to LSG and 21 to RYGB
  - 67% required additional intra op techniques (opening of the stomach, EGD, fluoroscopy)
- Nedelcu 2026 obes surg n=58 – 37 revised to LSG and 21 to RYGB
  - 4 patients (7%) intraop incidents related to the sutures

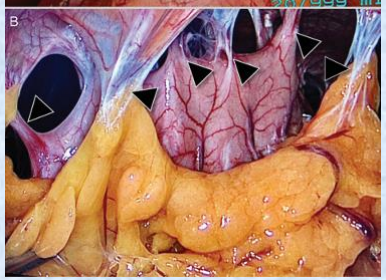
Endoscopic findings

- **Sutures very close to GEJ**

- **Loose sutures with distortion**







- **Deep ulcers**

ESG violates an important principle in surgery

Always think about the next Surgery

Always think about the next surgeon

4) The Economics of ESG
ESG is more cost effective than MBS – is it really?

- Upfront cost of ESG is cheaper than LSG/RYGB
- But what does not go into the calculations include
  - ESG delivers less weight loss (higher cost/Kg)
  - Expected high weight recurrence
    - Need for revisional surgery
  - 2% complication rate – costly to deal with
- The financial trap of ESG
  - It is a costly temporary fix – band aid
  - It does not replace the cost of MBS, it merely delays it

The economics of ESG
ESG vs Semaglutide

- Jagtap 2026 Endoscopy %TBWL ESG n=50 vs GLP-1 n=100
  - At 6 months, 12.72±5.67% vs 8.67±3.84%, P=0.0001)
  - At 12 months, 11.92±6.93 vs10.91±4.66 (P=0.41).
  - Initially WL is better with ESG but at 1 year WL is equivalent

The economics of ESG
ESG vs Obesity medications

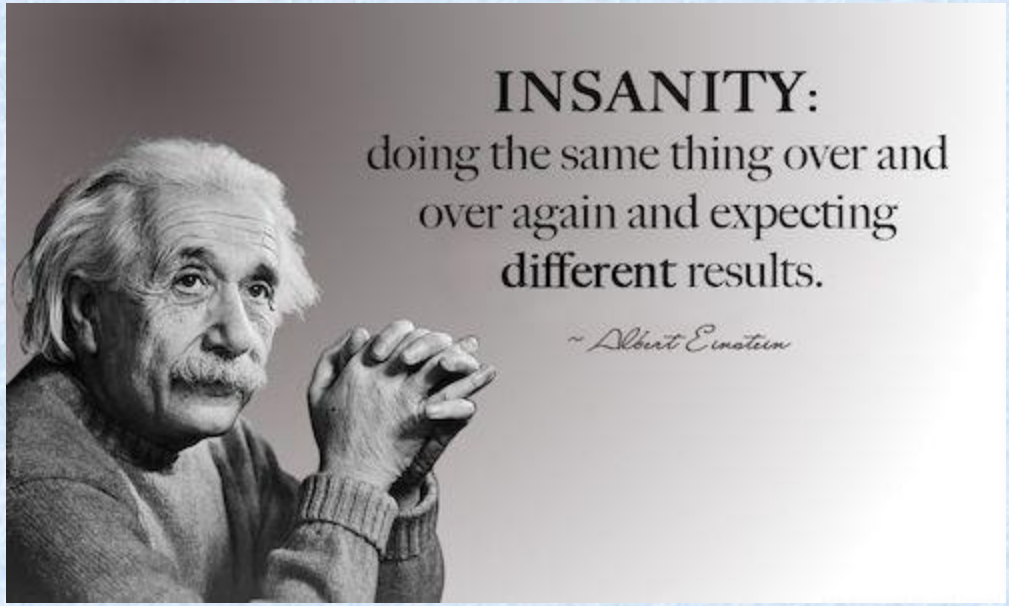
- Some short term models suggest that ESG is more cost effective than OMs
- These studies do not take into account
  - Similar wt loss to OMs
  - Potent OMs are constantly being developed
  - Lower serious complications with OMs
- Cost effectiveness my swing in favour of OMs
  - Increase usage and upscaling of manufacturing
  - Rapid price deflation
  - Well documented cardiovascular benefit of Oms

Conclusion

- The evidence for ESG is based on low quality studies
- Why accept a procedure with equal or higher complication rates for
  - Half the weight loss that can be achieved with MBS
  - Equal or higher complication rate
  - Higher weight recurrence
  - Potentially difficult/challenging future revision
- Why accept ESG when emerging potent OMs offer
  - Similar weight loss with lower complications
  - potentially better cost effectiveness in the long term
  - No interference with future MBS

In conclusion - History repeats itself

- Why accept ESG when Laparoscopic sleeve plication has been tried and failed before
  - More controlled plication
  - Fell the wayside – it did not work
- ESG
  - New technology to do a failed procedure
  - Reinventing the wheel – a bad wheel



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