



Primary Obesity Surgery Endoluminal

Transoral Endoscopic Gastroplasty

Development of Technology from Transoral Endoscopic Gastroplasty 1 to 2 and 3

Because We Have Understood the Mode of Action

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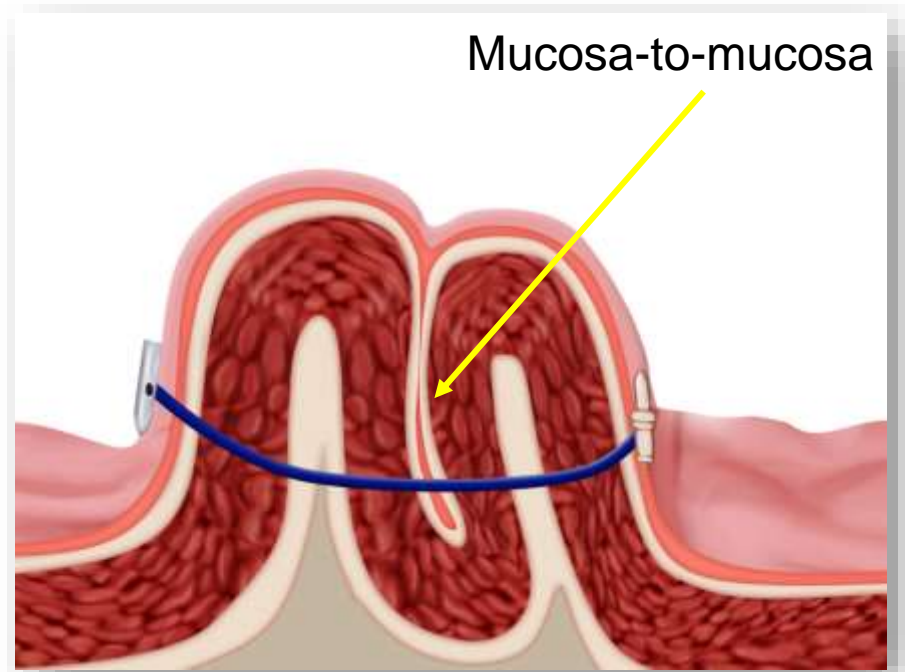
IFSO
31st August 2023



Disclosures

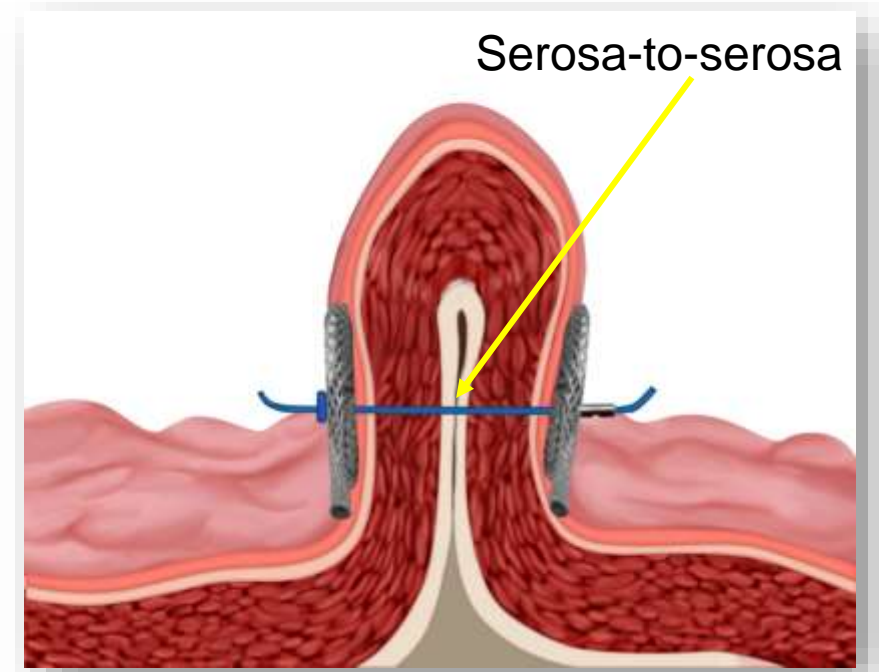
- **Apollo EndoSurgery** – consultant, research support, advisory board
- **Boston Scientific** – research support
- **EndoSim** – royalty
- **ERBE** – consultant
- **Fractyl** – research support
- **GI Dynamics** – consultant, research support
- **Spatz Medical** – consultant
- **USGI Medical** – research support

Suturing vs Plication



Endoscopic Suturing (ESG)

Tissue is approximated in a mucosa-to-mucosa fashion



Endoscopic Plication (POSE)

Tissue is approximated in a serosa-to-serosa fashion

Endoscopic Plication Device



Incisionless Operating Platform (IOP)

Cleared by the FDA for tissue approximation in 2006

Received the CE mark in 2010



Transport

54F handle with 4 channels



G-Lix

Tissue grasper



G-Cath

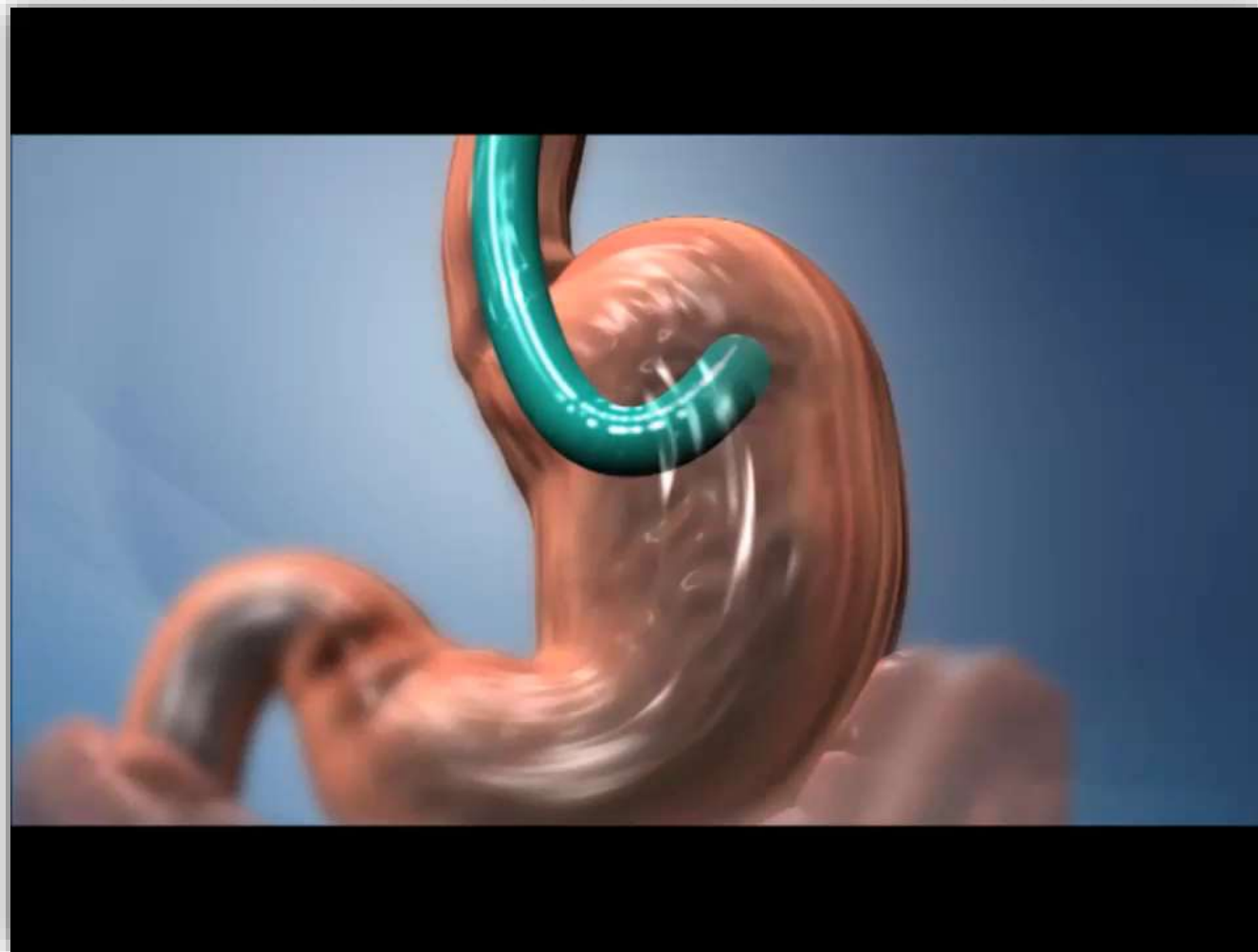
Tissue anchor delivery system



G-Prox

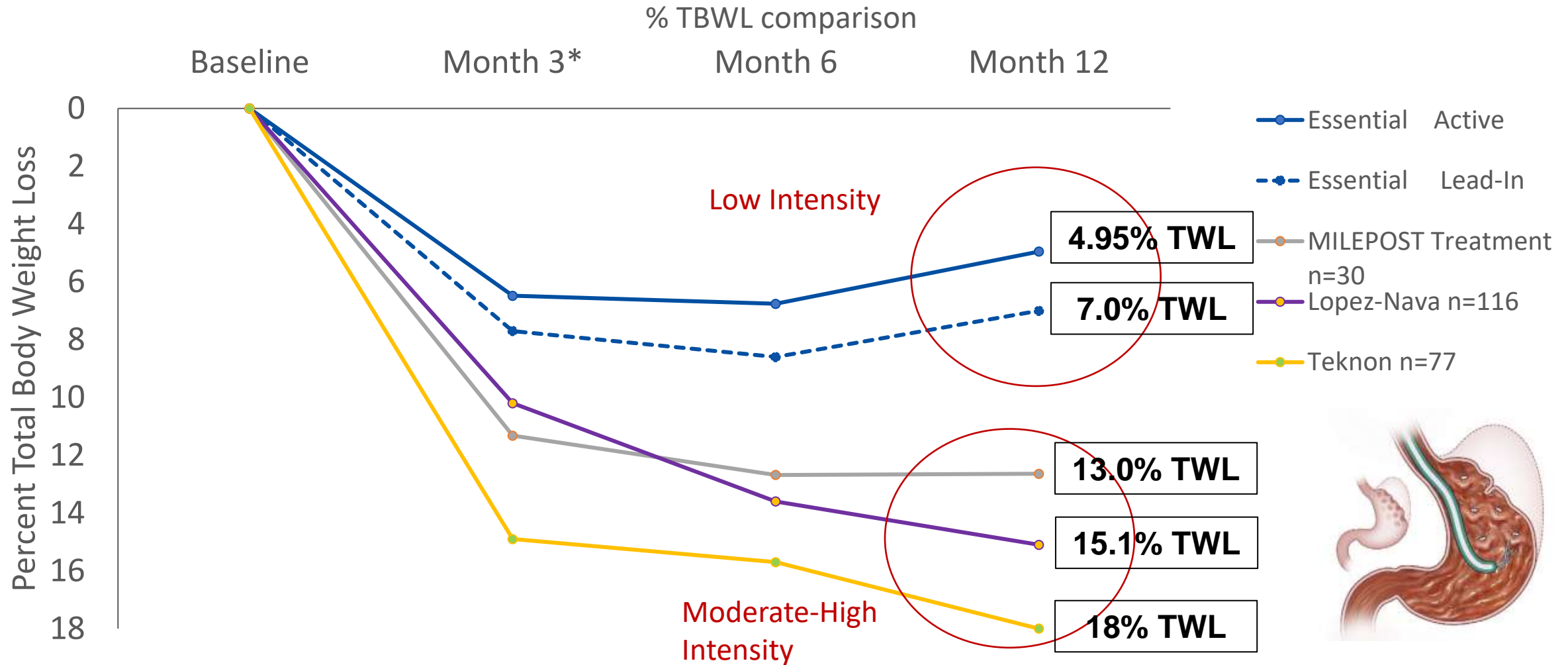
Tissue anchors

Original POSE Procedure



Courtesy of Chris Thompson

Efficacy of the Original POSE Procedure

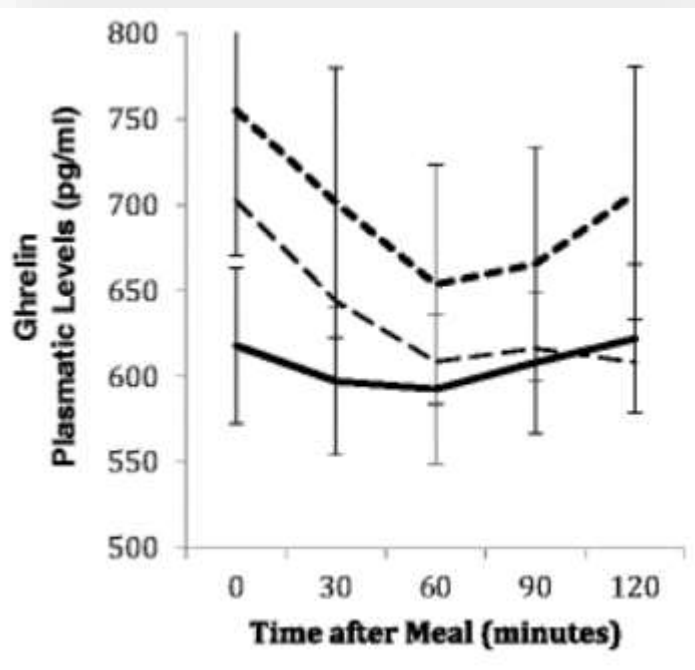


Courtesy of Shelby Sullivan

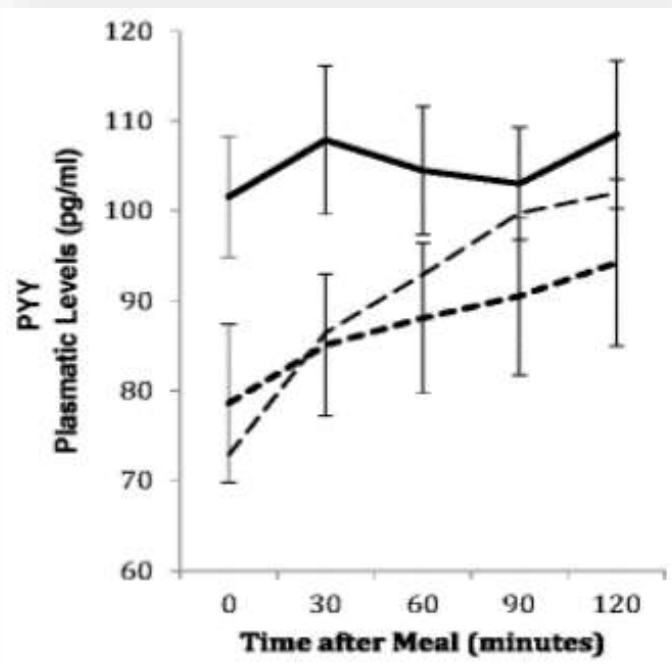
Miller K. Obesity Surgery. 2017;27(2):310-322
 Lopez-Nava G. SOARD. 2015;11:861-865
 Sullivan S. Obesity. 2017;25(2):294-301.

Mechanisms of the Original POSE Procedure

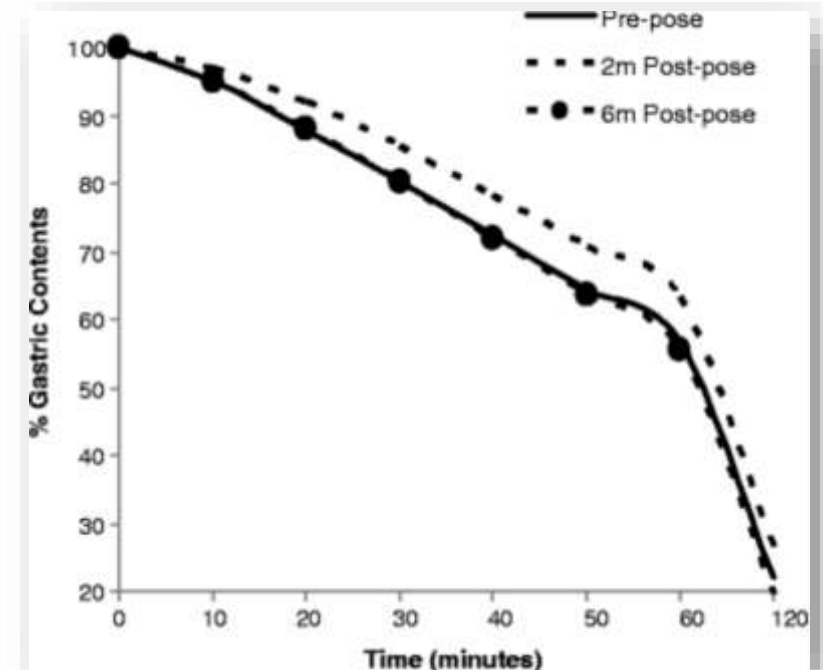
- A mechanistic study on 18 patients who underwent traditional POSE



Enhanced postprandial inhibition of ghrelin



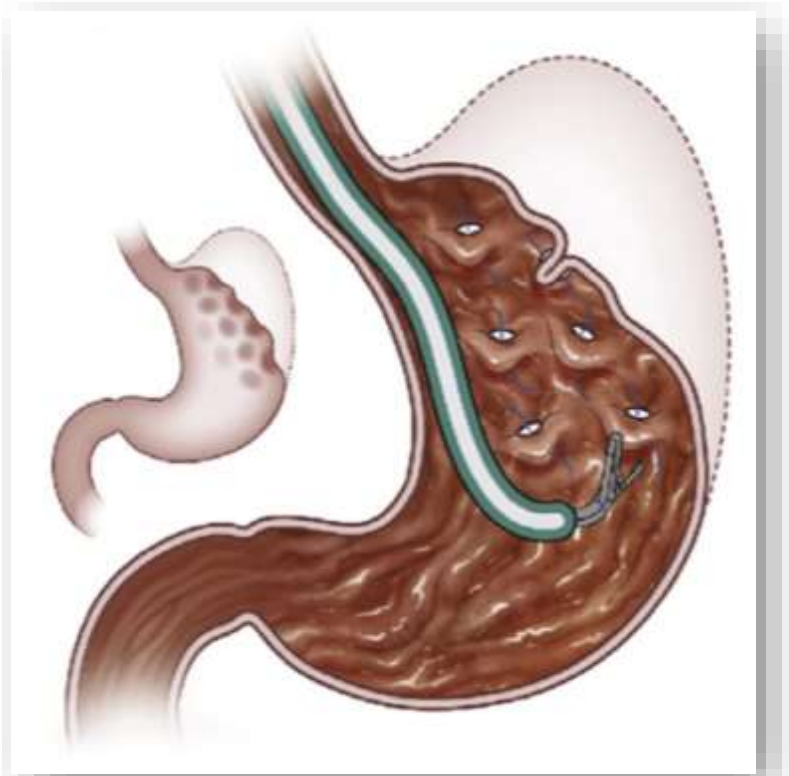
Enhanced postprandial stimulation of PYY



Delayed gastric emptying

Current Technique of POSE

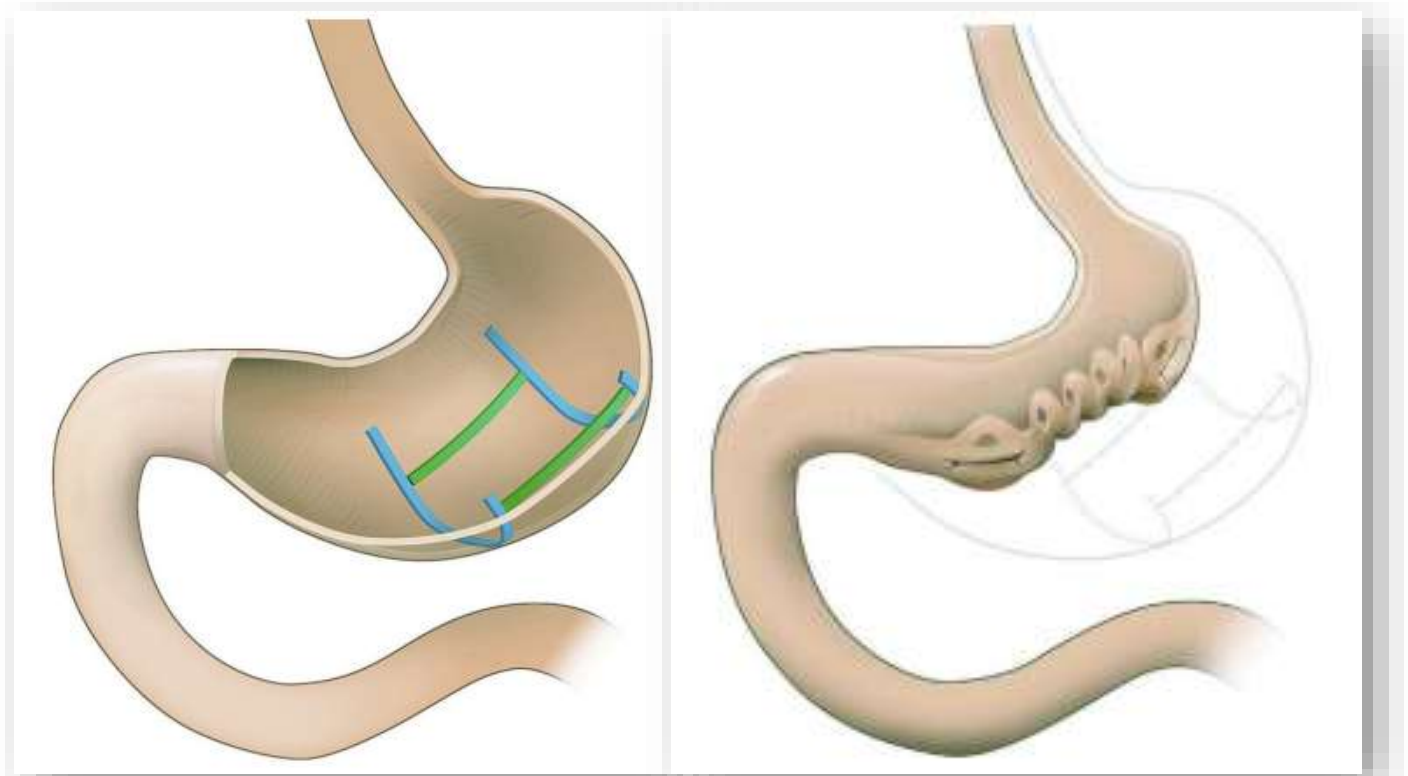
Traditional POSE



Jirapinyo P, Thompson CC. CGH. 2017;15:619-630.

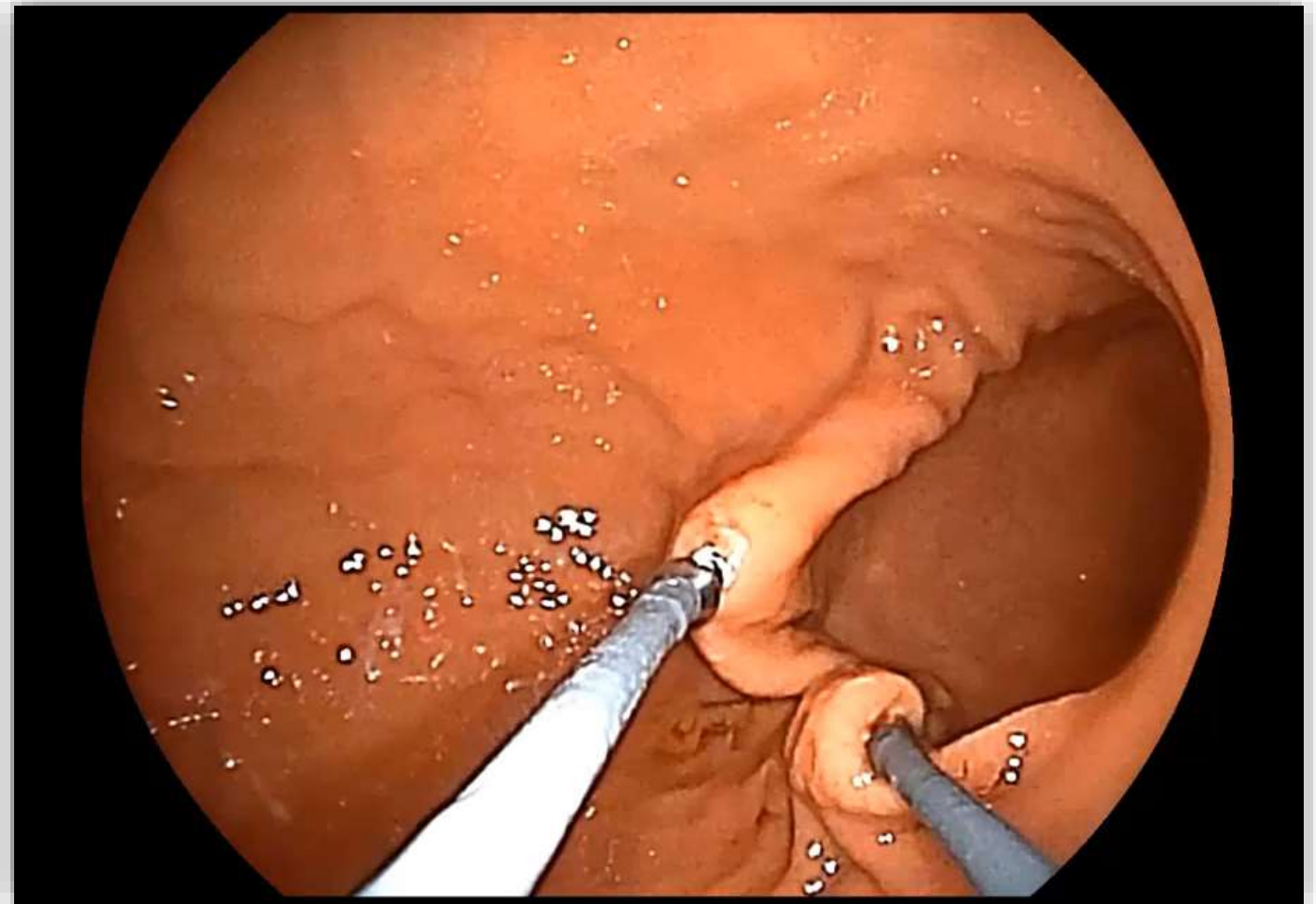
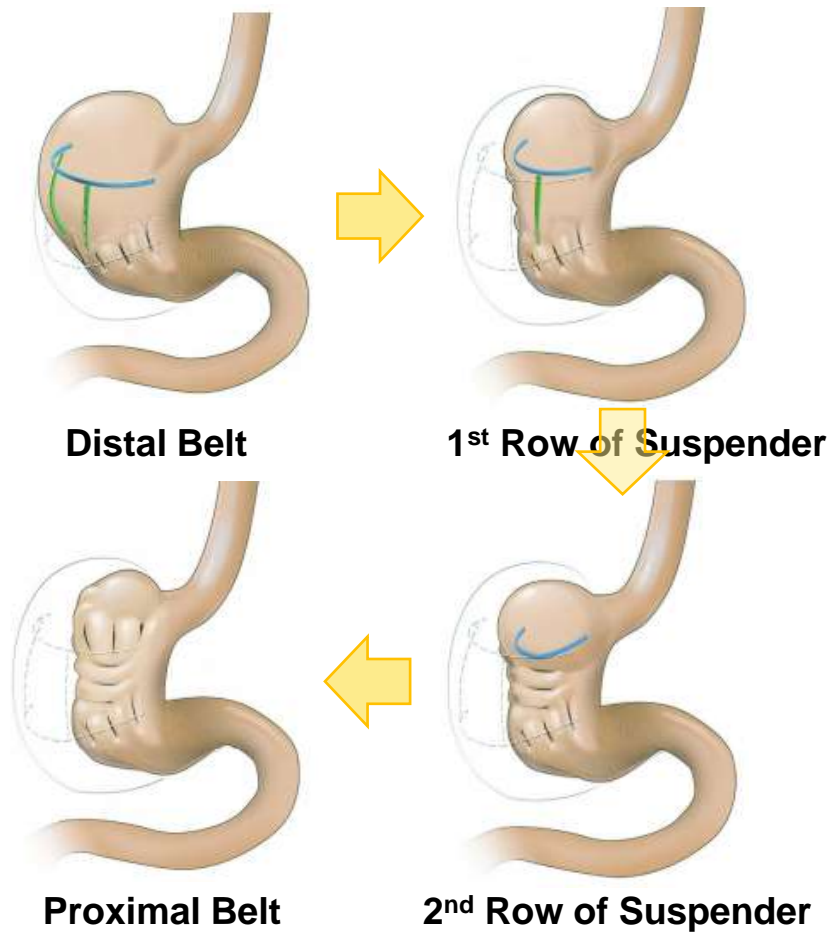


Distal POSE



Jirapinyo P, Thompson CC. VideoGIE. 2018;3:296-300.

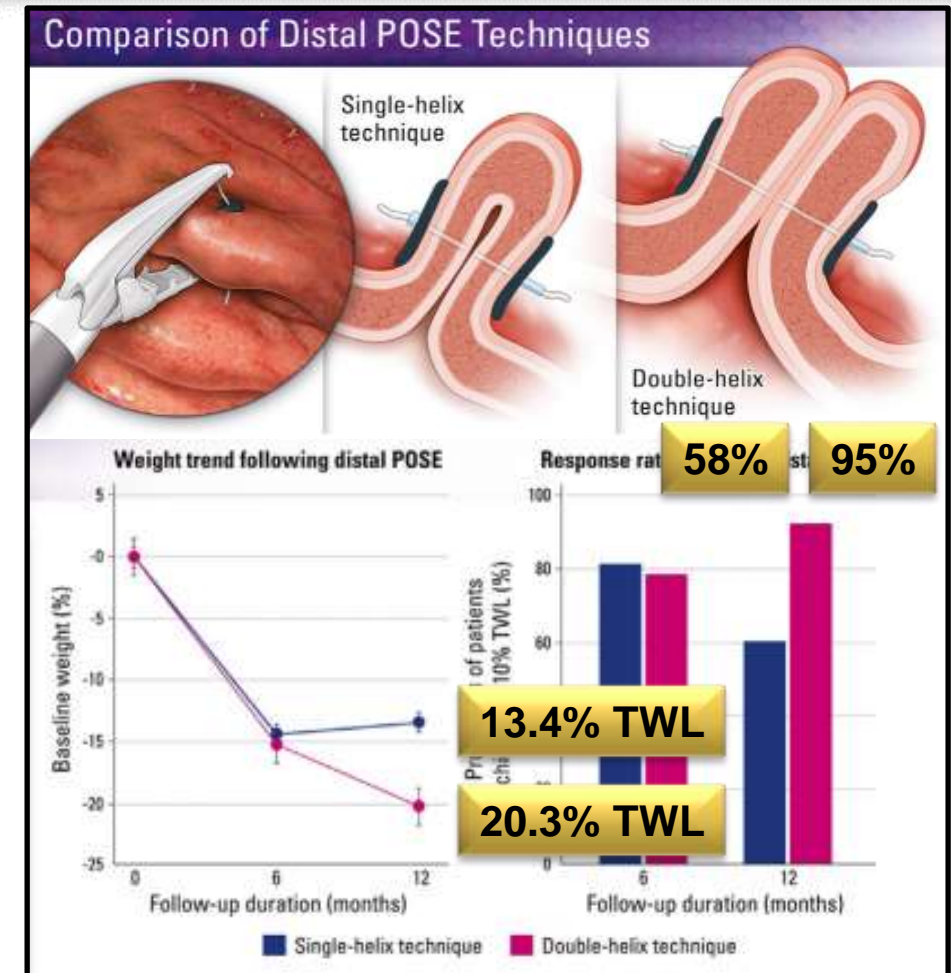
Current Distal POSE Technique



Comparison of distal primary obesity surgery endolumenal techniques for the treatment of obesity (with videos) CME

Pichamol Jirapinyo, MD, MPH,^{1,2} Christopher C. Thompson, MD, MSc^{1,2}

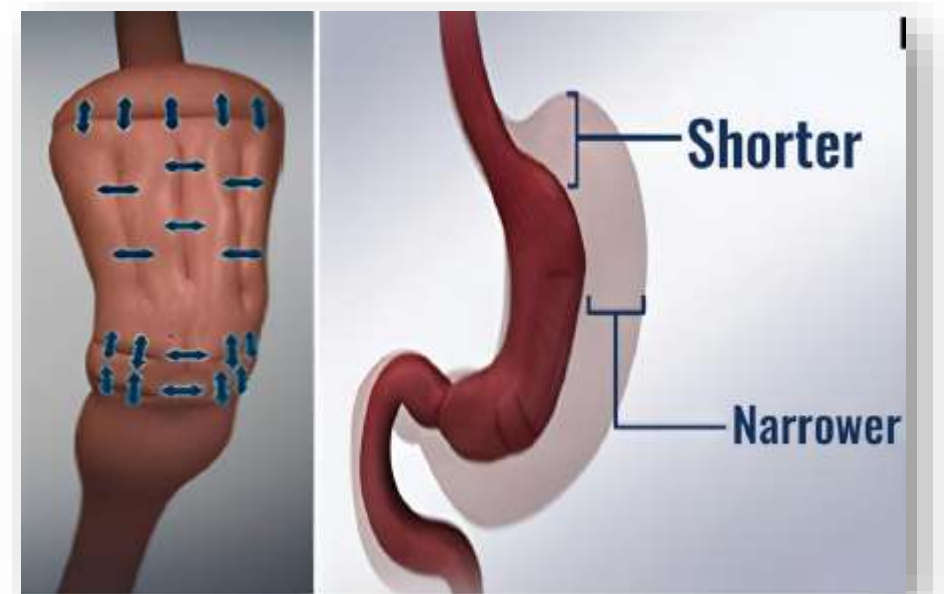
- A single center prospective registry study of patients who underwent distal POSE (n = 110)
- Baseline BMI $38.2 \pm 6.1 \text{ kg/m}^2$
- Average of 21 ± 5 plications were placed per case
- The stomach was shorted by 74%
- Efficacy: **$15.8 \pm 8.9\%$ TWL** at 12 months
- Serious adverse events: **0.9%** (perforation)
- The double helix technique was associated with greater weight loss and response rate compared to the single helix technique



Prospective Multicenter Study of the Primary Obesity Surgery Endoluminal (POSE 2.0) Procedure for Treatment of Obesity

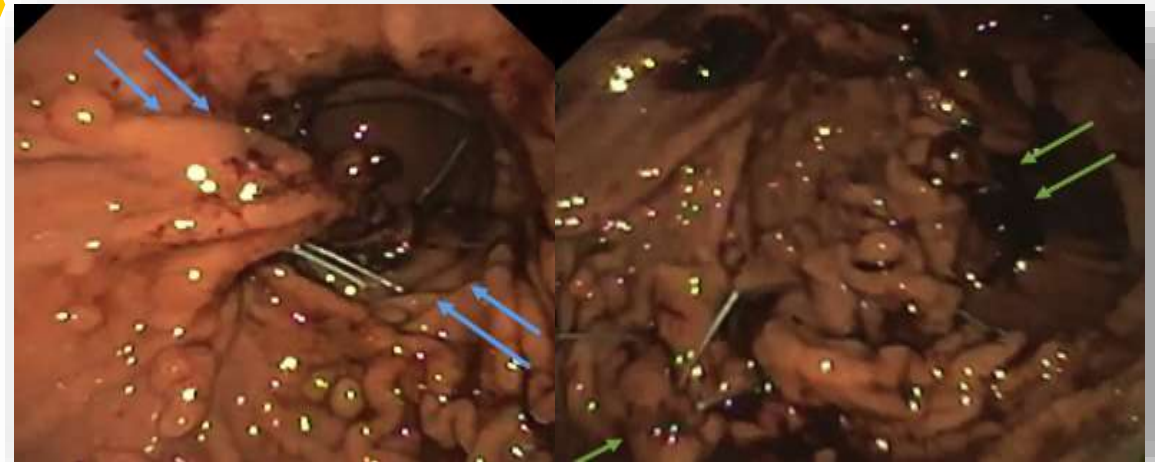
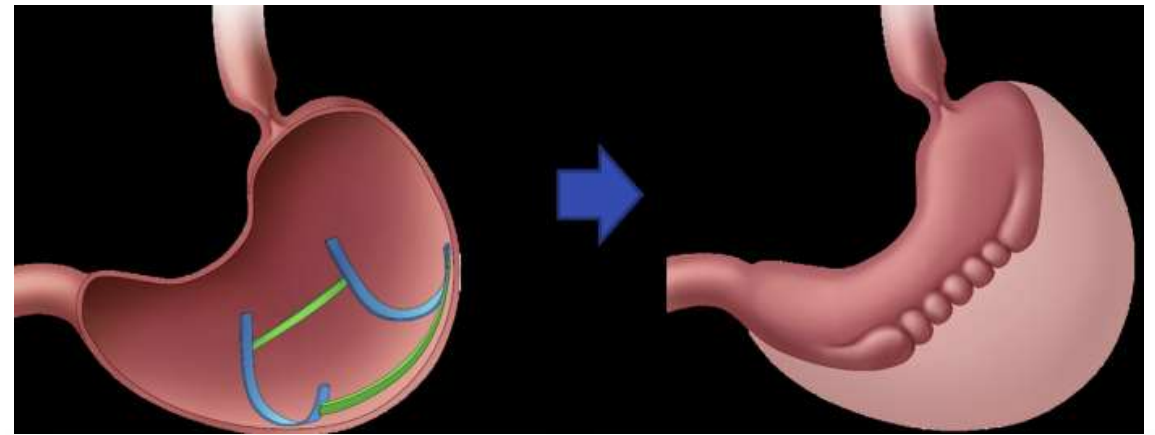
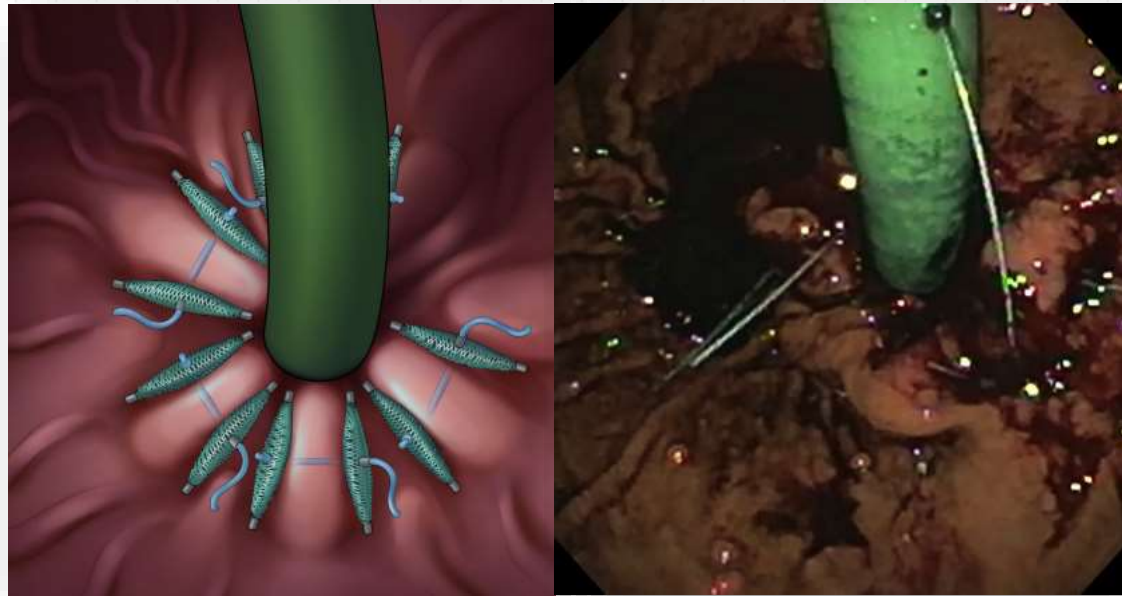
Gontrand Lopez Nava,^{1,*} Roman Turro Arau,² Ravishankar Asokkumar,^{1,3,*}
Daniel B. Maselli,⁴ Babusai Rapaka,⁴ Reem Matar,⁴ Inmaculada Bautista,¹
Jorge Carlos Espinos Perez,³ Alfredo Mata Bilbao,³ Veeravich Jaruvongvanich,⁴
Eric J. Vargas,⁴ Andrew C. Storm,⁴ Manoel Galvao Neto,^{5,6} and
Barham K. Abu Dayyeh⁴

- A 3-center prospective study of patients who underwent POSE 2.0 (n = 44)
(39 patients from 2 centers in Spain + 5 patients from Mayo as part of the US IDE study)
- Baseline BMI 37 ± 2.1 kg/m²
- Average of 19 plications were placed per case
- Efficacy: **$15.7 \pm 6.8\%$ TWL** at 12 months
- No serious adverse events



Endoscopic gastric plication for the treatment of GERD and underlying class I obesity

Pichamol Jirapinyo, MD, MPH,^{1,2} Christopher C. Thompson, MD, MSc^{1,2}



Class I obesity + GERD is a challenging population

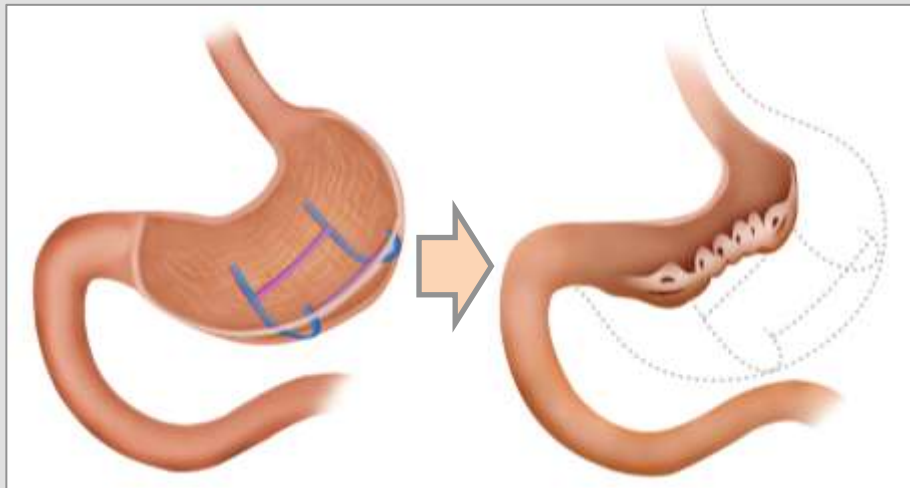
- Fundoplication is suboptimal when BMI ≥ 30 kg/m²
- SG may worsen GERD symptoms
- RYGB is rarely performed in class I obesity



Regression of Hepatic Fibrosis After Endoscopic Gastric Plication in Nonalcoholic Fatty Liver Disease

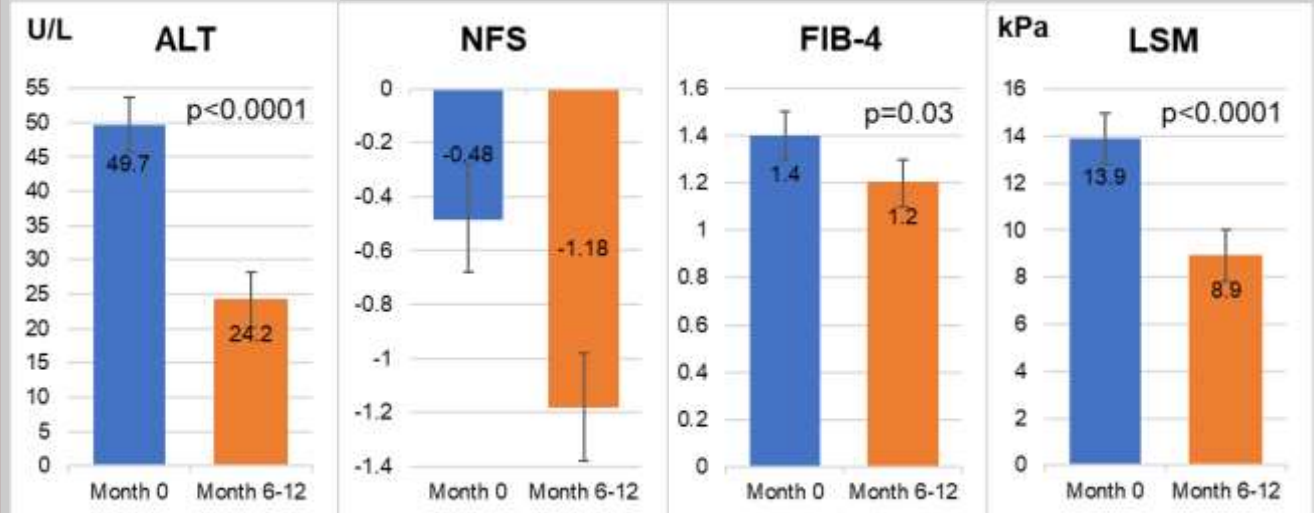
Pichamol Jirapinyo, MD, MPH^{1,2}, Stephen D. Zucker, MD^{1,2} and Christopher C. Thompson, MD, MSc^{1,2}

Endoscopic Gastric Plication



- 45 patients with obesity and MASLD and F2-F4 fibrosis
- All underwent endoscopic gastric plication to reduce gastric volume

Significant improvements in non-invasive tests for hepatic fibrosis



ALT: alanine aminotransferase, NFS: NAFLD fibrosis score, FIB-4: fibrosis-4 index, LSM: liver stiffness measurement on vibration-controlled transient elastography

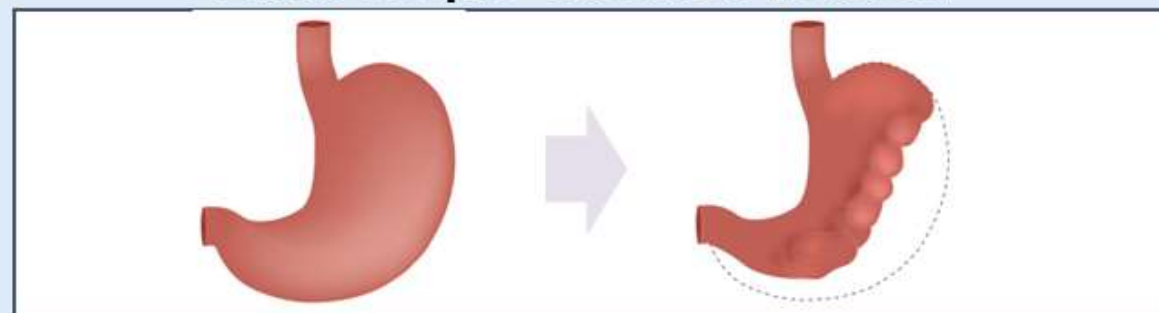
- At 12 months, patients experienced **15.5% total weight loss** and **68% experienced fibrosis regression (on LSM)**



Endoscopic Gastric Plication Reduces Portosystemic Pressure Gradient in Patients with NAFLD and Compensated Advanced Chronic Liver Disease

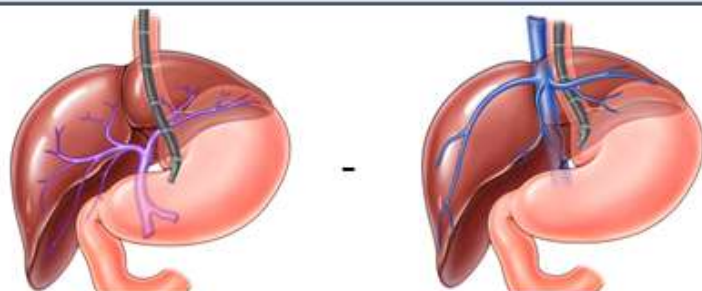
Pichamol Jirapinyo, Christopher C Thompson, Guadalupe Garcia-Tsao, Stephen Zucker, Marvin Ryou.

Endoscopic Gastric Plication



- 20 subjects with obesity and concomitant MASLD with compensated advanced chronic liver disease

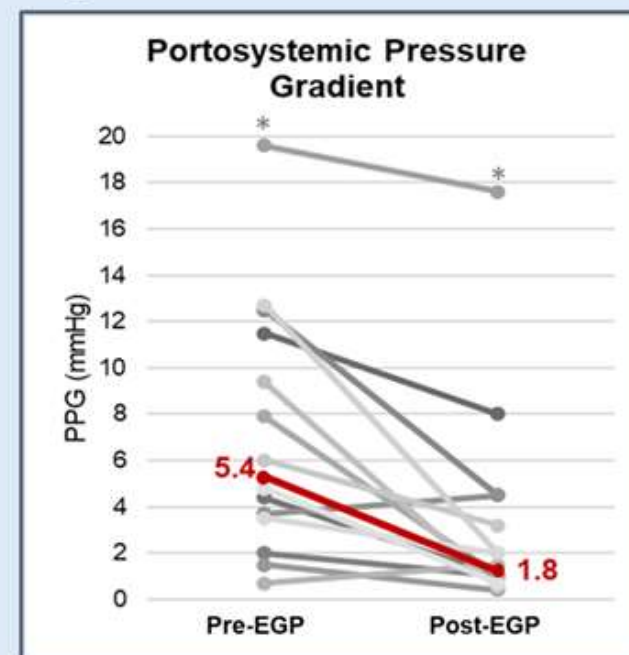
Portosystemic pressure gradient (PPG)



- EUS-guided PPG measurement at 0 and 6 months following endoscopic gastric plication (EGP)

PVP: portal venous pressure; HVP: hepatic venous pressure

Significant Improvement in Portosystemic Pressure Gradient



- At 6 months, 79% of the cohort experienced $\geq 20\%$ reduction in PPG
- Subjects lost 12.5% of baseline weight

Conclusion

- Endoscopic gastric plication (POSE) appears safe and effective at treating obesity
- Traditional POSE focuses on placing plications in the fundus
Distal POSE, i.e. POSE 2.0, focuses on placing plications in the gastric body
- The double-helix technique is associated with greater weight loss compared to the single-helix technique
- POSE may be considered in patients with obesity with concomitant GERD or MASLD/MASH ± advanced fibrosis (including those with portal hypertension)

Thank You

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