Magnetic Assisted Anastomosis

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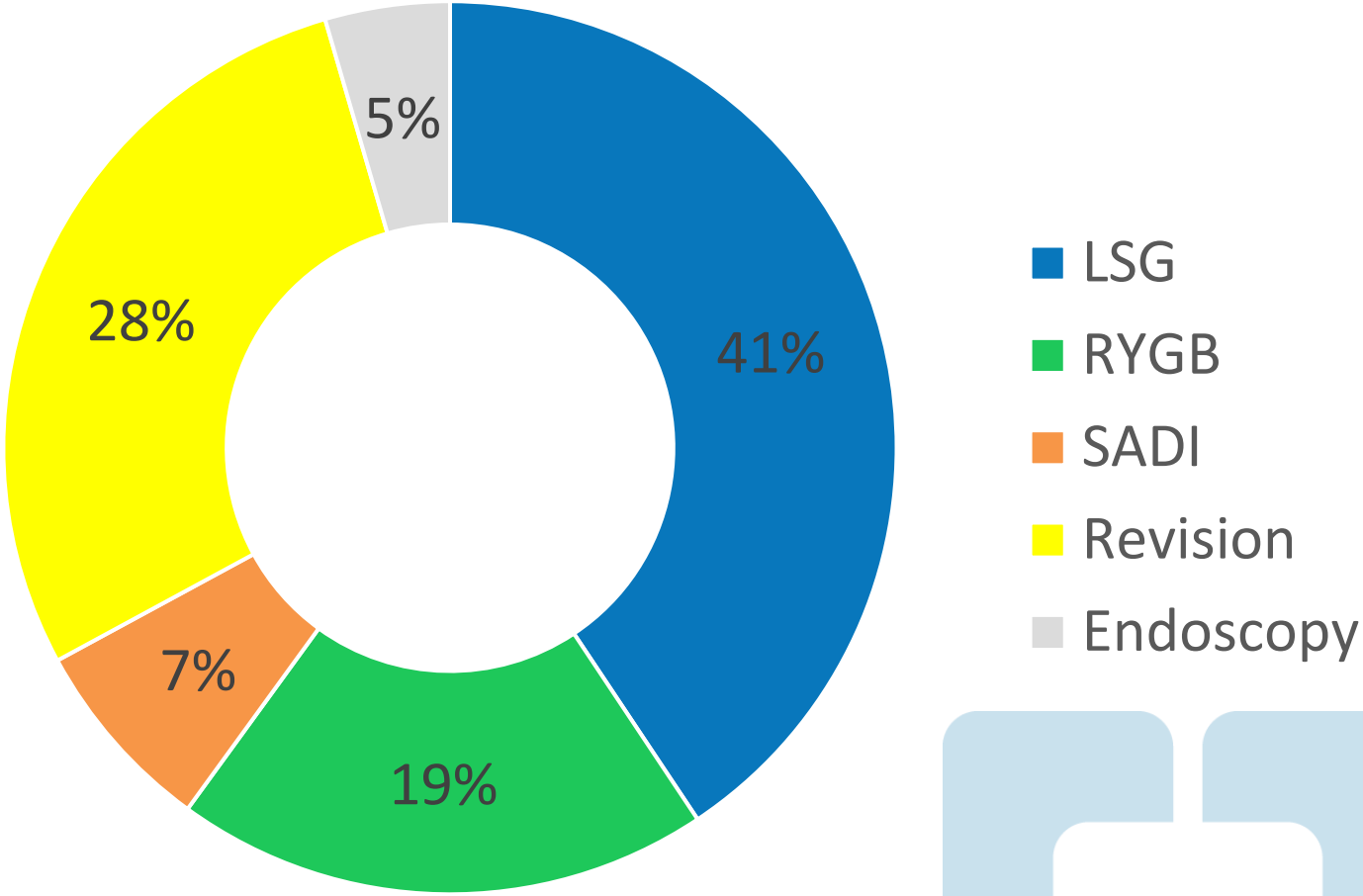
Disclosures

Medtronic – Speaker/Proctor
BD – Speaker/Proctor
JnJ - Proctor
Intuitive – training

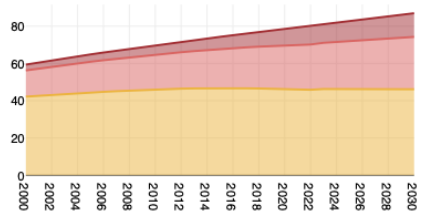


Chile

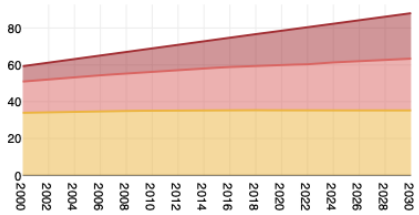
Overweight and obesity prevalence over time

Projected proportion of adults living with high Body Mass Index (25kg/m^2 and above)

% men with high BMI



% women with high BMI



BMI 25-<30 BMI 30-<35 BMI 35+

Adult population living with high BMI estimated in 2010, 2015 and projected to 2030 (in thousands)

	Men			Women		
BMI (kg/m^2)	2010	2015	2030	2010	2015	2030
25-<30	2,730	3,020	3,660	2,150	2,360	2,860
30-<35	1,100	1,360	2,230	1,300	1,540	2,290
35+	300	430	1,010	770	1,020	2,010
All high BMI	**4,130**	**4,800**	**6,900**	**4,220**	**4,910**	**7,160**

Totals may not add up due to rounding

83%
Adults with high BMI in 2025

42%
Adults living with obesity in 2025

14.06m
Adults with high BMI in 2030

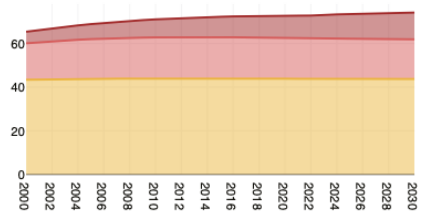
3,572
Premature NCD deaths due to high BMI, 2021

United Arab Emirates

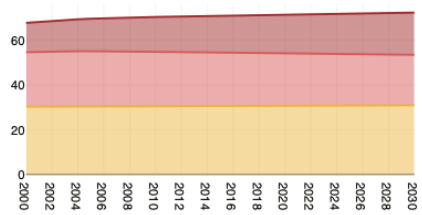
Overweight and obesity prevalence over time

Projected proportion of adults living with high Body Mass Index (25kg/m^2 and above)

% men with high BMI



% women with high BMI



BMI 25-<30 BMI 30-<35 BMI 35+

Adult population living with high BMI estimated in 2010, 2015 and projected to 2030 (in thousands)

	Men			Women		
BMI (kg/m^2)	2010	2015	2030	2010	2015	2030
25-<30	1,680	2,050	2,820	480	650	1,010
30-<35	720	880	1,170	390	510	730
35+	320	440	790	250	350	620
All high BMI	**2,720**	**3,370**	**4,790**	**1,120**	**1,510**	**2,360**

Totals may not add up due to rounding

73%
Adults with high BMI in 2025

35%
Adults living with obesity in 2025

7.14m
Adults with high BMI in 2030

2,058
Premature NCD deaths due to high BMI, 2021

- “Despite these numbers…the world remains heavier than ever.”
  - **IFSO Worldwide Survey 2020–2021: Current Trends for Bariatric and Metabolic Procedures**

The number and the type of operations worldwide in 2018, 2020, and 2021

	2018	2020	2021
Sleeve gastrectomy (SG)	386,096	304,352	351,689
Roux-en-Y gastric bypass (RYGB)	203,769	133,007	159,543
One anastomosis gastric bypass (OAGB)	46,406	29,117	46,113
Biliopancreatic diversion (BPD)	6506	6896	7973
Adjustable gastric banding (AGB)	9757	6116	5010
Other surgical operations	14,346	13,949	13,238
Intragastric balloons	27,780	11,492	12,421
Other endoluminal procedures	1531	2877	2707
Total	**696,191**	**507,806**	**604,099**

Worldwide

Angrisani L Obes Surg 2024

Current Techniques

- Established
  - LSG
  - RYGB - **Mason 1960**
  - DS
  - SADI-s – **Sanchez Pernaute 2007**
  - OAGB – **Rutledge/Carbajo 1997**
- **Emergent**
  - **SASI**
  - **TB**
  - **(MAGNETS)??**

Guerron AD et al Endocrino Metab Clinic N Am 2021

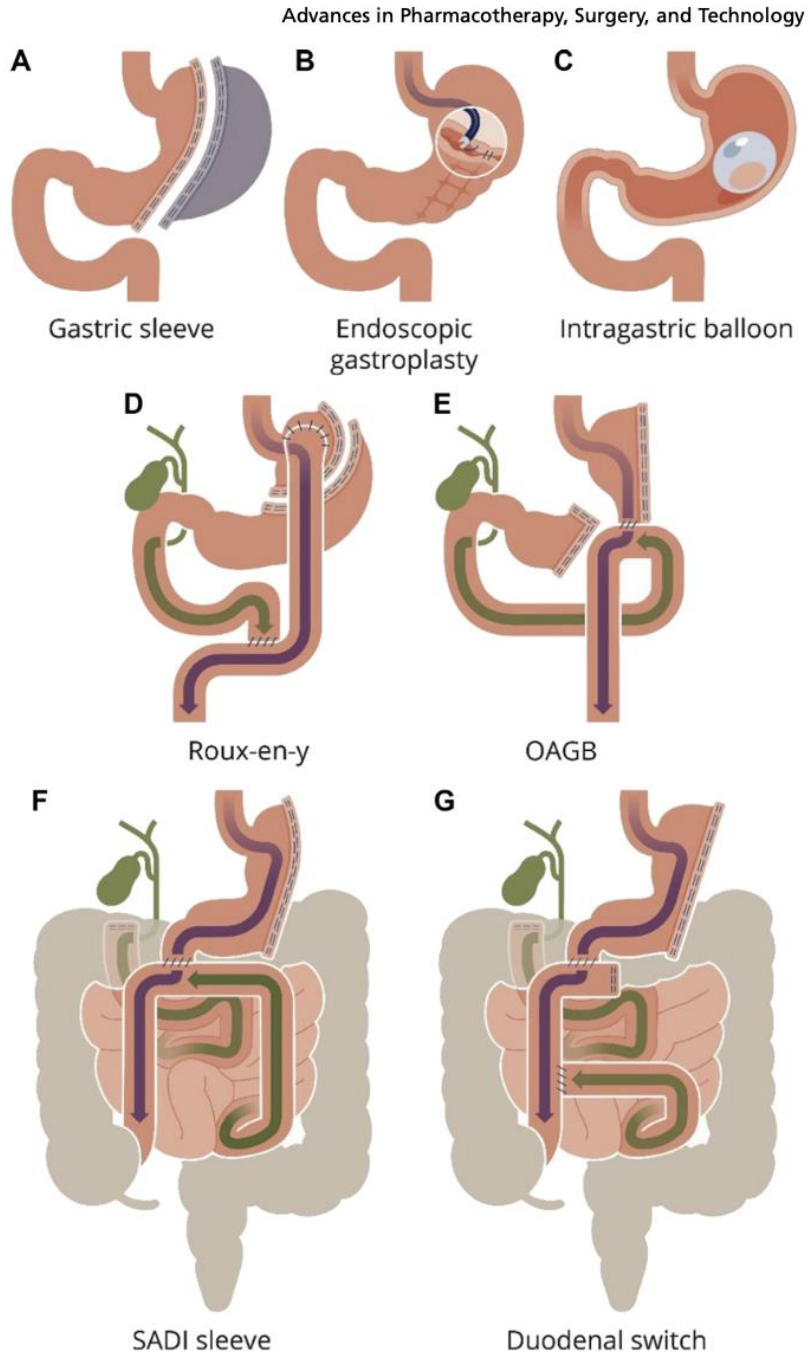


Fig. 2. Metabolic surgery techniques. (*A*) SG: a purely restrictive procedure that has gained popularity due to its technical simplicity and low incidence of complications.[86] (*B*)

Future Trends: 2025–2035

Hybrid hormonal surgeries

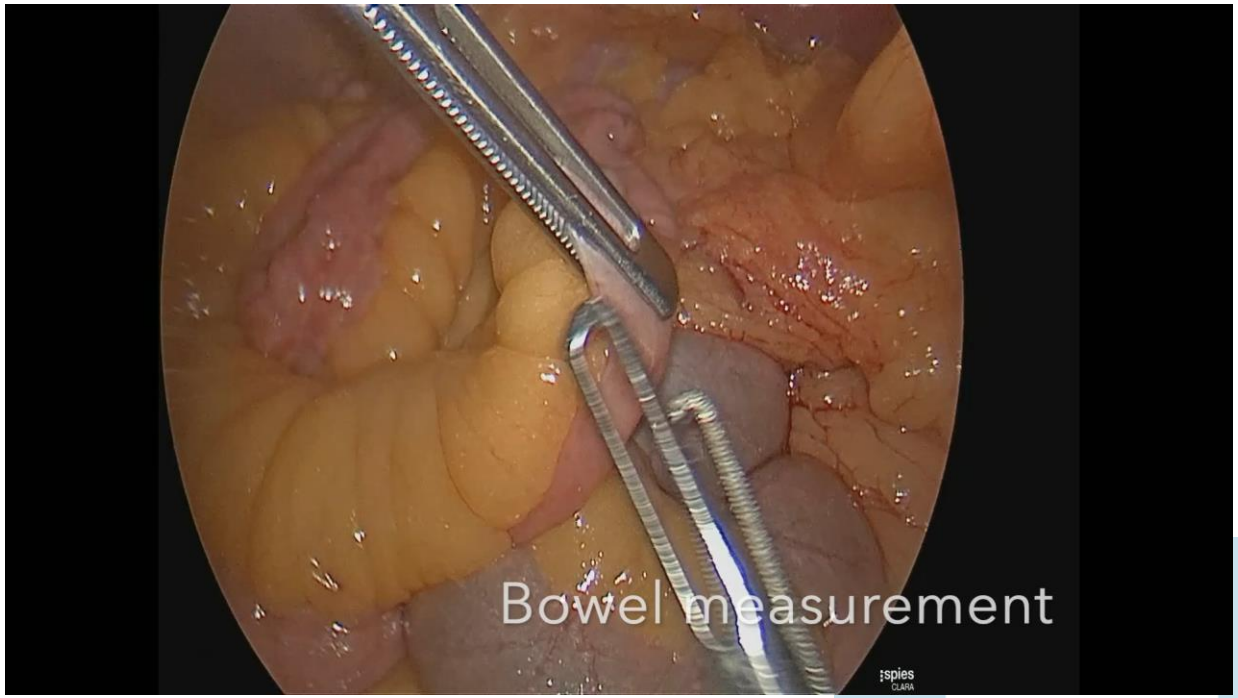
AI phenotype profiling

Endoluminal devices

Adolescent early interventions

Ileal-Based Surgery: The New Frontier

- Stimulation of GLP-1 and PYY via early ileal exposure



> Obes Surg. 2019 Mar;29(3):1068-1073. doi: 10.1007/s11695-018-03655-w.

Magnetic Liver Retraction: an Incision-Less Approach for Less Invasive Bariatric Surgery

Matthew Davis [1], Gerardo Davalos [1], Camila Ortega [1], Sugong Chen [1], Scott Schimpke [1], Kunoor Jain-Spangler [1], Jin Yoo [1], Keri Seymour [1], Ranjan Sudan [1], Dana Portenier [1], Alfredo D Guerron [2]

Affiliations + expand

PMID: 30604079 DOI: 10.1007/s11695-018-03655-w

> J Laparoendosc Adv Surg Tech A. 2021 Feb;31(2):194-202. doi: 10.1089/lap.2020.0388. Epub 2020 Jul 14.

Magnetic Liver Retraction Decreases Postoperative Pain and Length of Stay in Bariatric Surgery Compared to Nathanson Device

Leonard K Welsh [1], Gerardo Davalos [1], Ramon Diaz [1], Andres Narvaez [1], Juan Esteban Perez [1], Melissa Castro [1], Maragatha Kuchibhatla [2], Thomas Risoli [2], Dana Portenier [1], Alfredo D Guerron [1]

Affiliations + expand

PMID: 32678701 PMCID: PMC7885817 DOI: 10.1089/lap.2020.0388

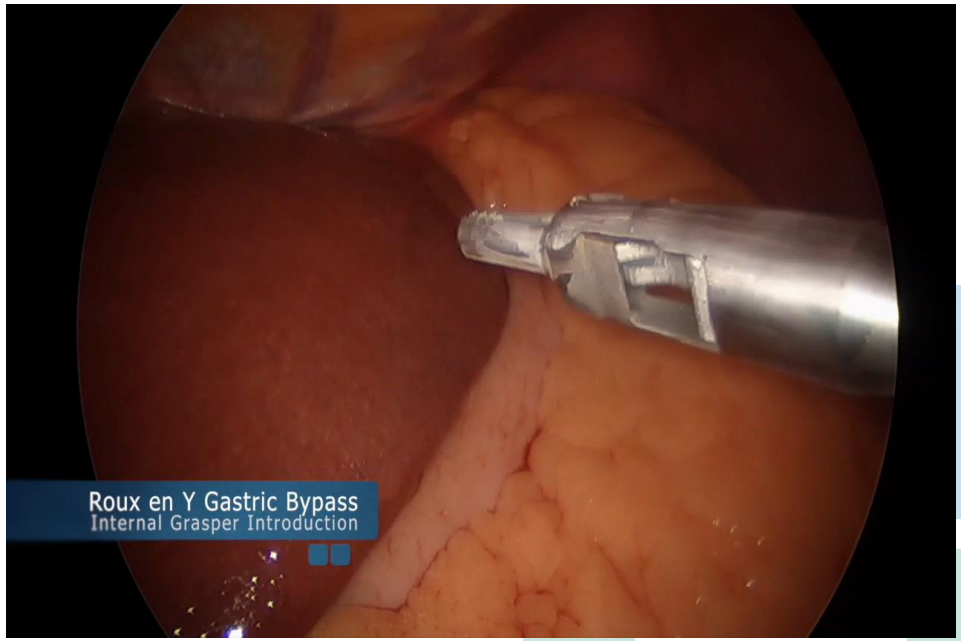
Clinical Trial > Surg Obes Relat Dis. 2021 Jan;17(1):147-152. doi: 10.1016/j.soard.2020.08.017. Epub 2020 Aug 26.

First prospective clinical trial of reduced incision bariatric procedures using magnetic liver retraction

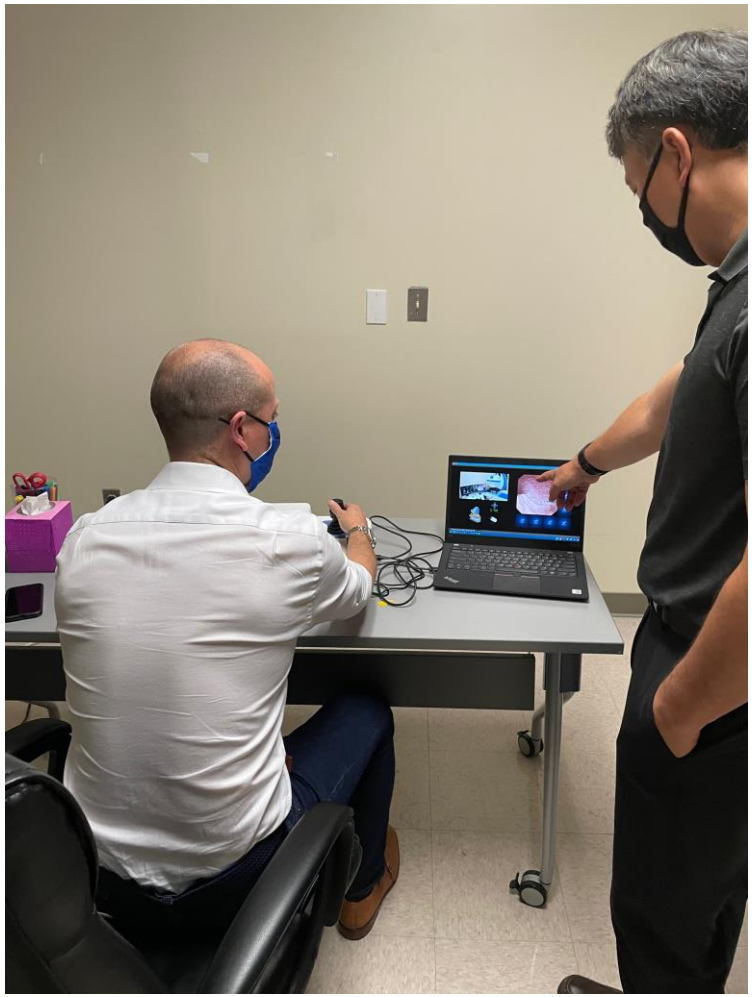
Rafael Luengas [1], Jose Galindo [1], Melissa Castro [2], Andres Marambio [3], Guillermo Watkins [4], Mario Rodriguez Del Rey [3], Cristobal Davanzo [3], Dana Portenier [2], Alfredo D Guerron [5]

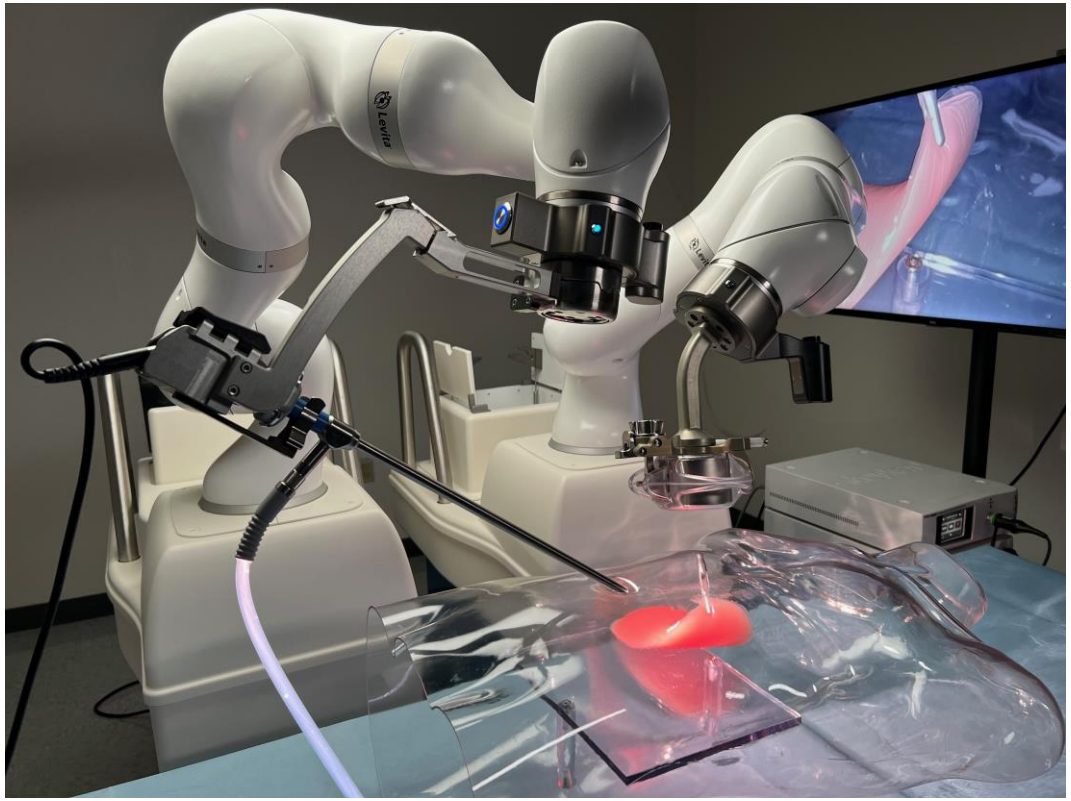
Affiliations + expand

PMID: 33011073 DOI: 10.1016/j.soard.2020.08.017




NAVIEC - 1000

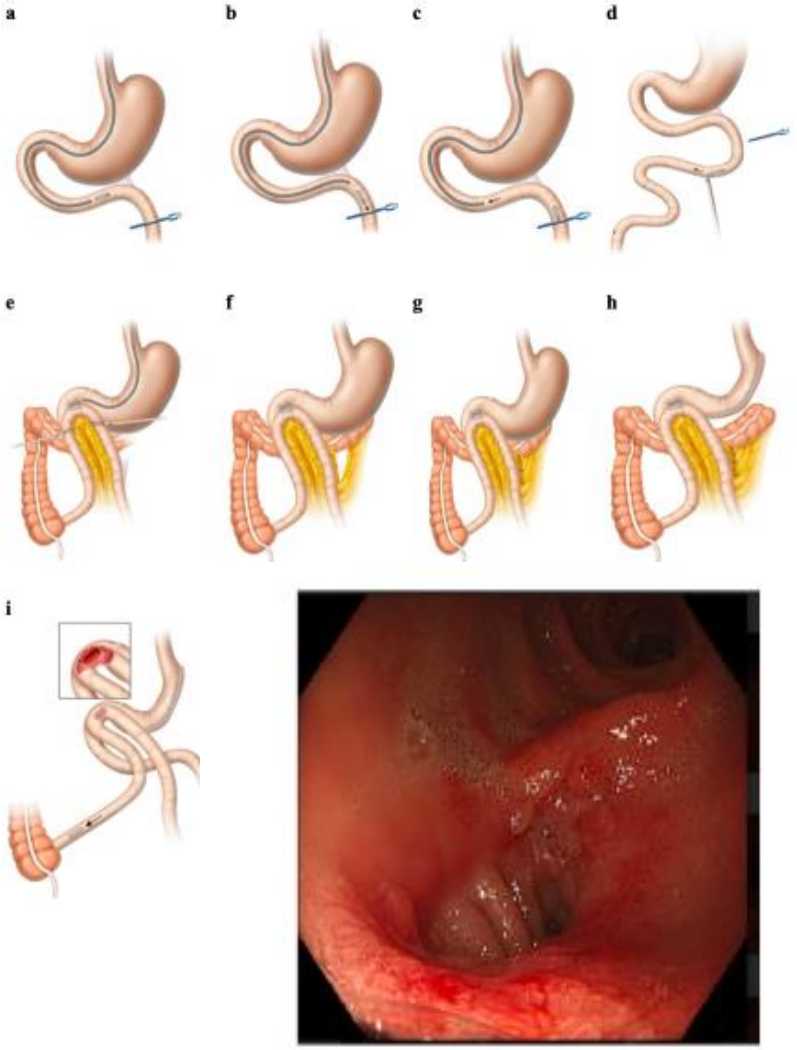


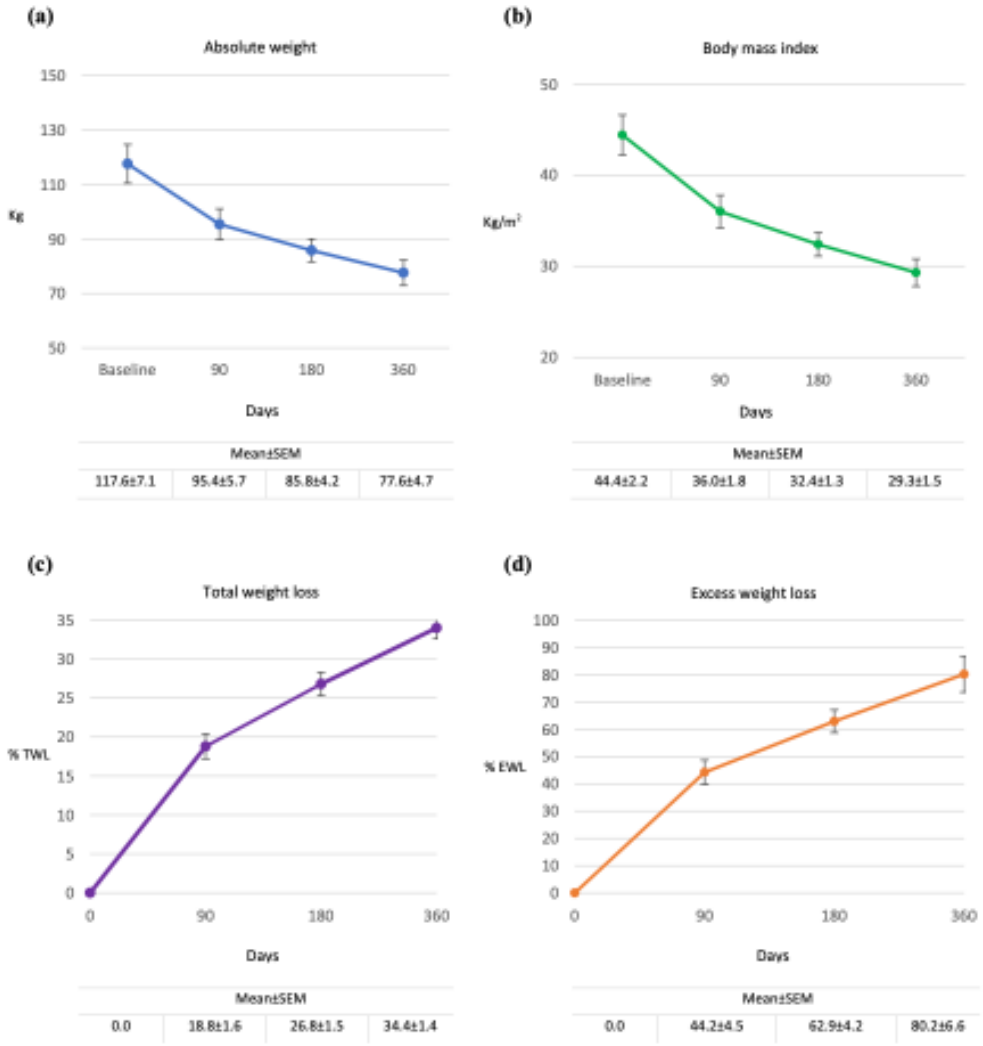


Levita - MARS

First-in-Human Side-to-Side Magnetic Compression Duodeno-ileostomy with the Magnet Anastomosis System

Michel Gagner[1] · David Abuladze[2] · Levan Koiava[2] · J. N. Buchwald[3] · Nathalie Van Sante[4] · Todd Krinke[5]





First-in-Human Side-to-Side Duodeno-Ileal Bipartition for Weight Loss and Type-2 Diabetes with the Swallowable Biofragmentable Magnetic Anastomosis System

METHODS

Anastomosis creation using a novel magnetic compression technique may provide an alternative MIS approach to GI surgery.

The biofragmentable magnetic anastomosis system (BMAS) consists of 2 magnets endo-laparoscopically aligned in duodenum and ileum to effect magnetic duodenoileal anastomosis (MagDI).

First-in-human study of MagDI in a cohort of low-BMI patients with T2D. BMAS device can be swallowed, eliminating 1 of 2 endoscopic procedures.

7-21 days: fused magnets expelled by peristalsis.

RESULTS

- 15 patients: mean BMI 33.0 kg/m^2; $HbA1_c$ 8.2%; FPG 187.9 mg/dL; all on T2D medication
- 100% of patients swallowed the magnet successfully and magnets were placed feasibly, no reintervention
- Mean operative time 51.3 mins; hospital stay 1.0 d
- 1 year: 100% patent anastomoses; mean BMI 30.1 kg/m^2; (n = 8 completed 1 y at publication) excess weight loss 38.8%; $HbA1_c$ 6.6%; FPG 142.8 mg/dL

- 89.4% of adverse events were mild; 1 serious device-related adverse event resolved without sequelae
- 0.0% leakage, bleeding, infection, stricture, mortality

CONCLUSIONS

✓ The novel swallowable BMAS device and MagDI procedure were feasible, safe, and effectively achieved incisionless, suture/staple-free magnetic duodeno-ileostomy bipartition.

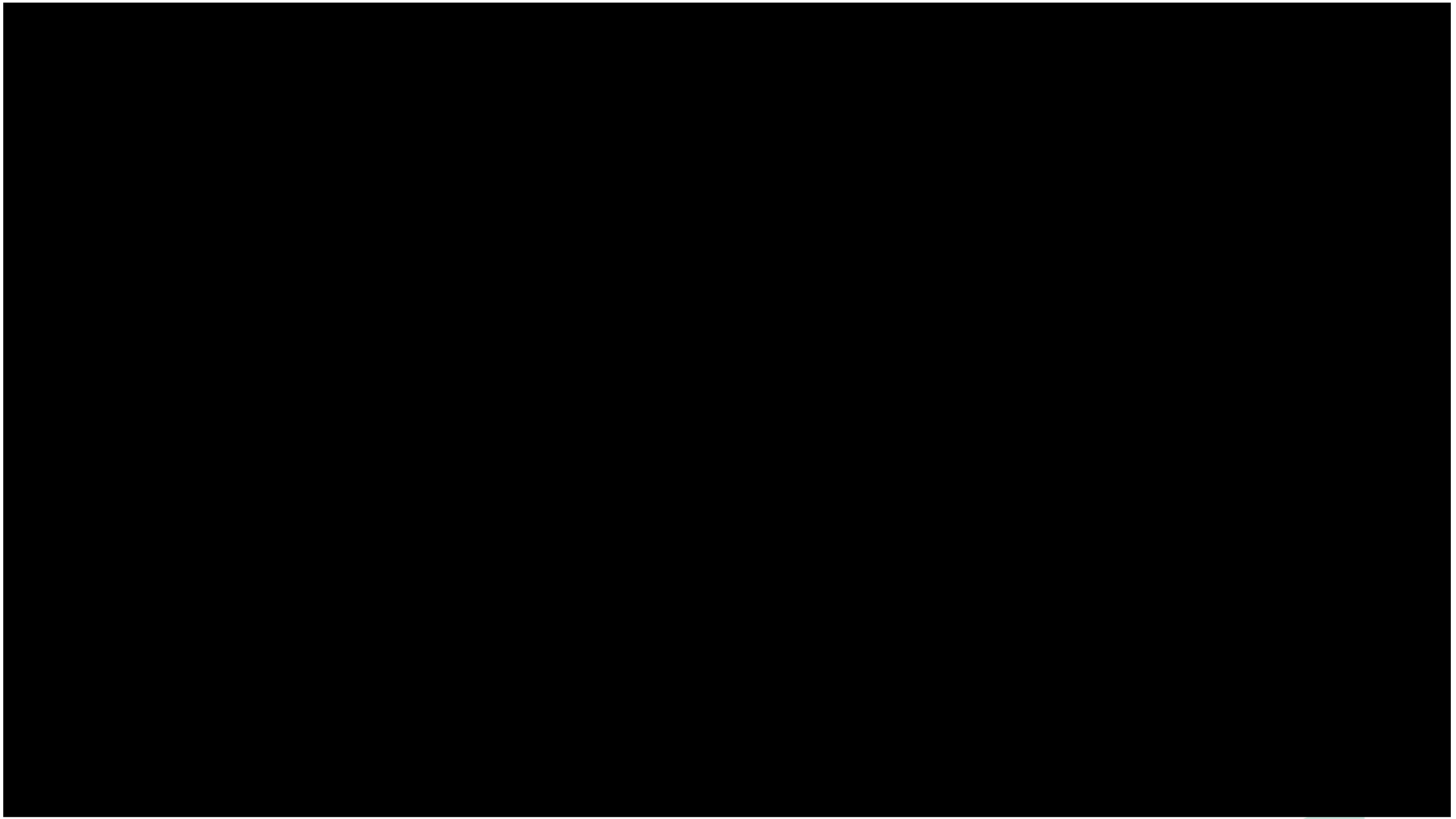
✓ MagDI bipartition facilitates alimentary flow through native duodeno-jejunal + new duodeno-ileal route.

✓ No enterotomy, stapling/suturing, retained foreign materials, or major complication with MagDI.

✓ BMAS MagDI is promising MIS approach to moderate weight loss and T2D mitigation.

Gagner et al, *J Am Coll Surg*, September 2025

JACS JOURNAL OF THE AMERICAN COLLEGE OF SURGEONS



Courtesy: Dr Rafael Luengas

First-in-Human Linear Magnetic Compression Gastro-Ileostomy: Feasibility and Early Outcomes

BACKGROUND / METHODS

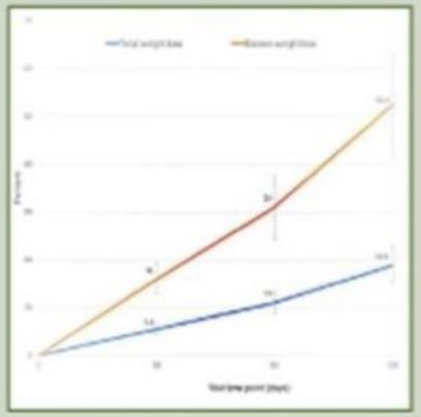
Conventional stapling/suturing requires tissue fixation with retained, potentially inflammatory materials. A novel minimally invasive ***magnetic*** compression anastomosis device (MCAD) was studied as an incisionless, fixation-free option to revise sub-optimal sleeve gastrectomy (SG). Magnetic gastro-ileostomy (MagGI) was evaluated in a first-in-human series.

- Ileal magnet delivered endo-laparoscopically
- Gastric magnet placed by endoscope in antrum
- Magnets align, gradually form gastro-ileostomy

RESULTS

Cohort: 7 patients (mean BMI 38.8±0.9 kg/m²) underwent MagGI for revision of SG with 6-mo. follow-up

Feasibility:
- MCAD and procedure feasibility confirmed in 100.0% of patients
- 100.0% patent GI anastomoses



Complications:
- 0.0% device-related adverse events
- 0.0% anastomotic leak, bleed, obstruction, infection, or stricture (0.0%)

Outcomes:
- BMI reduction of 7.4 kg/m² ($P<.05$)
- Excess weight loss 52.4±11.0%;
- Total weight loss 18.9±3.9%
- No sutures, staples, or hardware retained in body

CONCLUSIONS

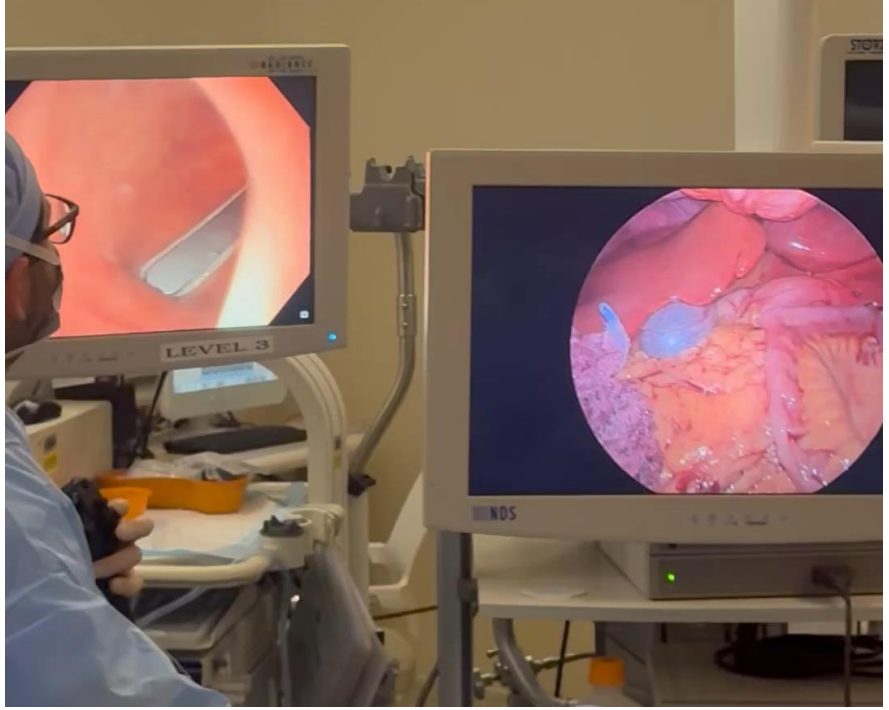
The novel linear MCAD achieved 100.0% patent side-to-side magnetic anastomoses in all patients.

There was no anastomotic leak or other device-related adverse event.

In a first-in-human study, the MagGI procedure for revision of clinically suboptimal SG was technically straightforward, incisionless, and staple-free. MagGI incurred no major complications and renewed clinically meaningful weight loss at 6-month follow-up.

Michel Gagner, Lamees Almutlaq, Gismonde Gnanhoue, JN Buchwald. *J Gastrointestinal Surgery*. 2025.

JOURNAL OF GASTROINTESTINAL SURGERY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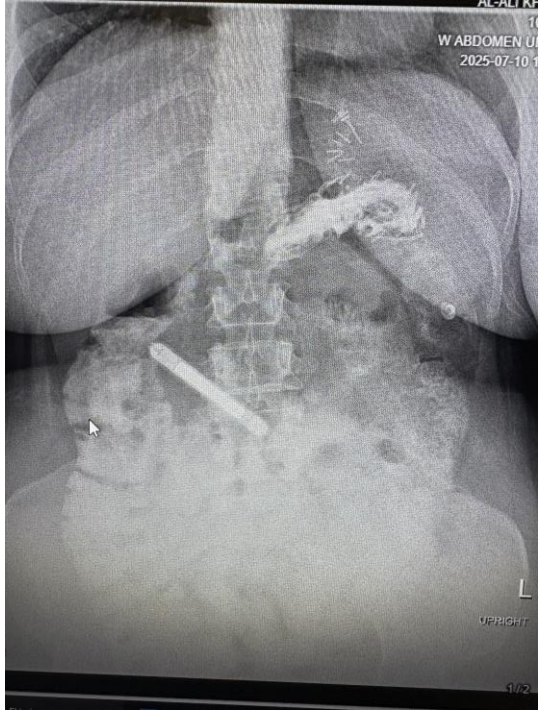
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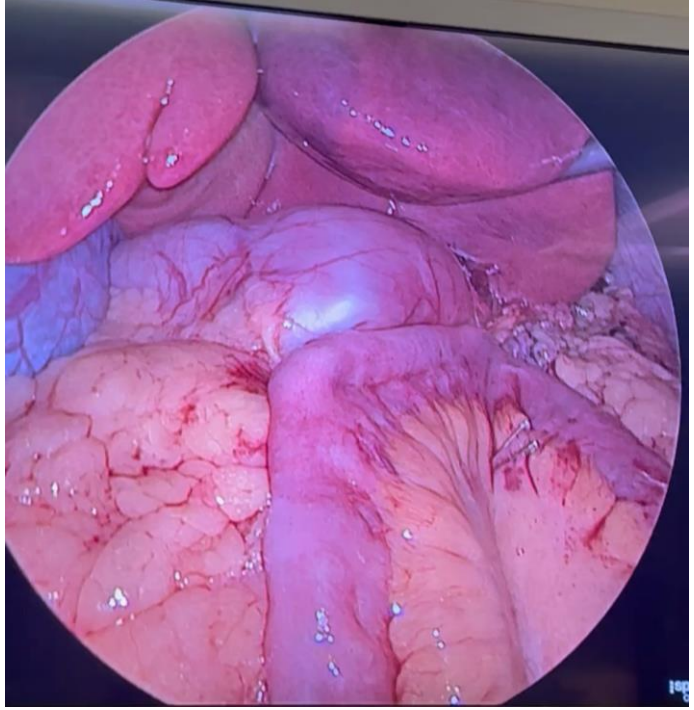
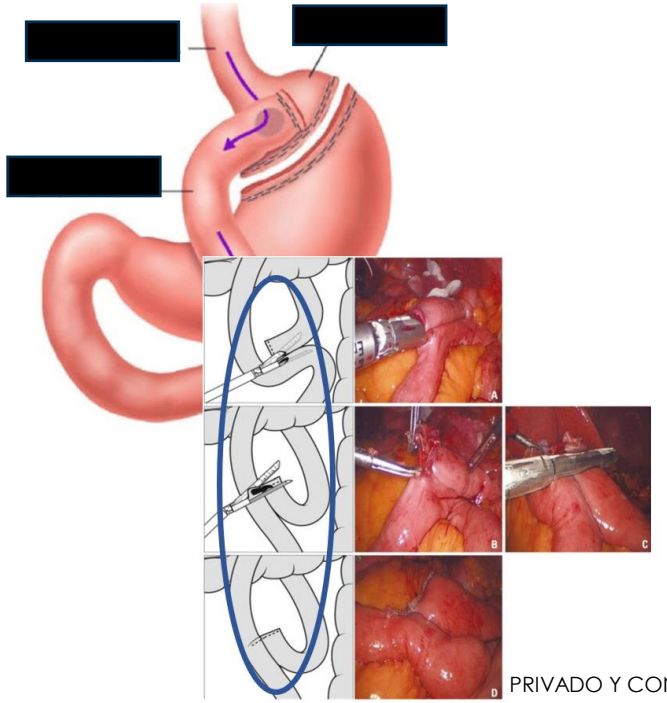
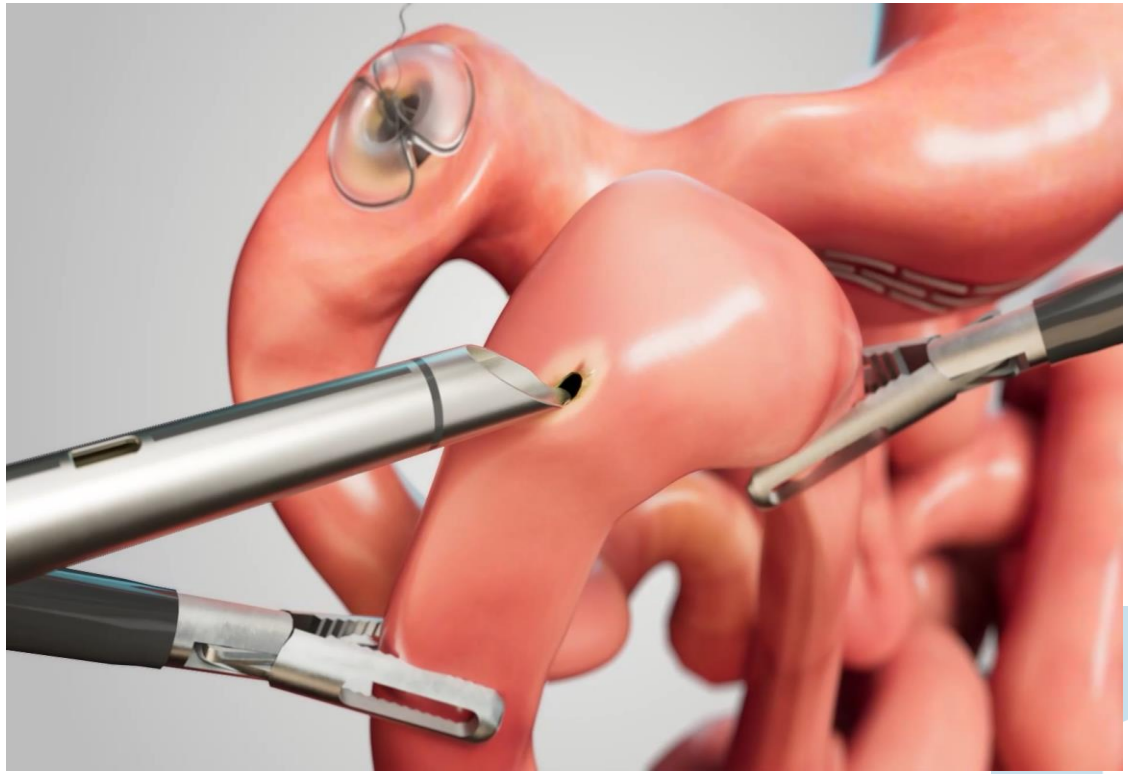



التمريض
Nursing Station
إستقبال
Reception
الإعداد / الإفاقة
Prep / Recovery
FIRE EXTINGUISHER

SFM MAGNETIC ANASTOMOSIS & NOVEL ENTEROTOMY CAPTURE TECHNOLOGY

ROUX-EN-Y BYPASS
(Jejunojejunostomy)





PRIVADO Y CONFIDENCIAL

Courtesy: Dr. Juan Eduardo Contreras

RYGB J-J SINGLE CENTER CLINICAL RESULTS

Patient Demographics

- 5 Pts were recruited (60% Female)
- Mean age of 35.8
- Initial BMI of 44.8 ±7.6 kg/m2

Procedures

- All procedures were performed laparoscopically
- There was no conversion or peri-operative mortality.
- All ECC's & SFMs were delivered and connected with no delivery malfunctions
- Average anastomosis creation time of 10 min (enterotomy to coupling)
- All ECC and SFMs passed with no retentions

Serious Adverse Events

- 1 procedure adverse events (AE) occurred due to poor tolerance to oral intake from gastro-jejunal anastomosis inflammation.
- No device or procedure SAEs related to the magnet J-J anastomosis

Courtesy: Dr. Juan Eduardo Contreras

OBESITY IS A CHRONIC DISEASE

Why this fact **changes everything** when it comes to **health** and the **evolution of benefits plans**

A White Paper for plan sponsors, benefits providers and advisors

Daniel Guerron 🇪🇨 🇦🇪

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