

Sleeve + Jejunal Bypass vs Sleeve

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Multicenter Study

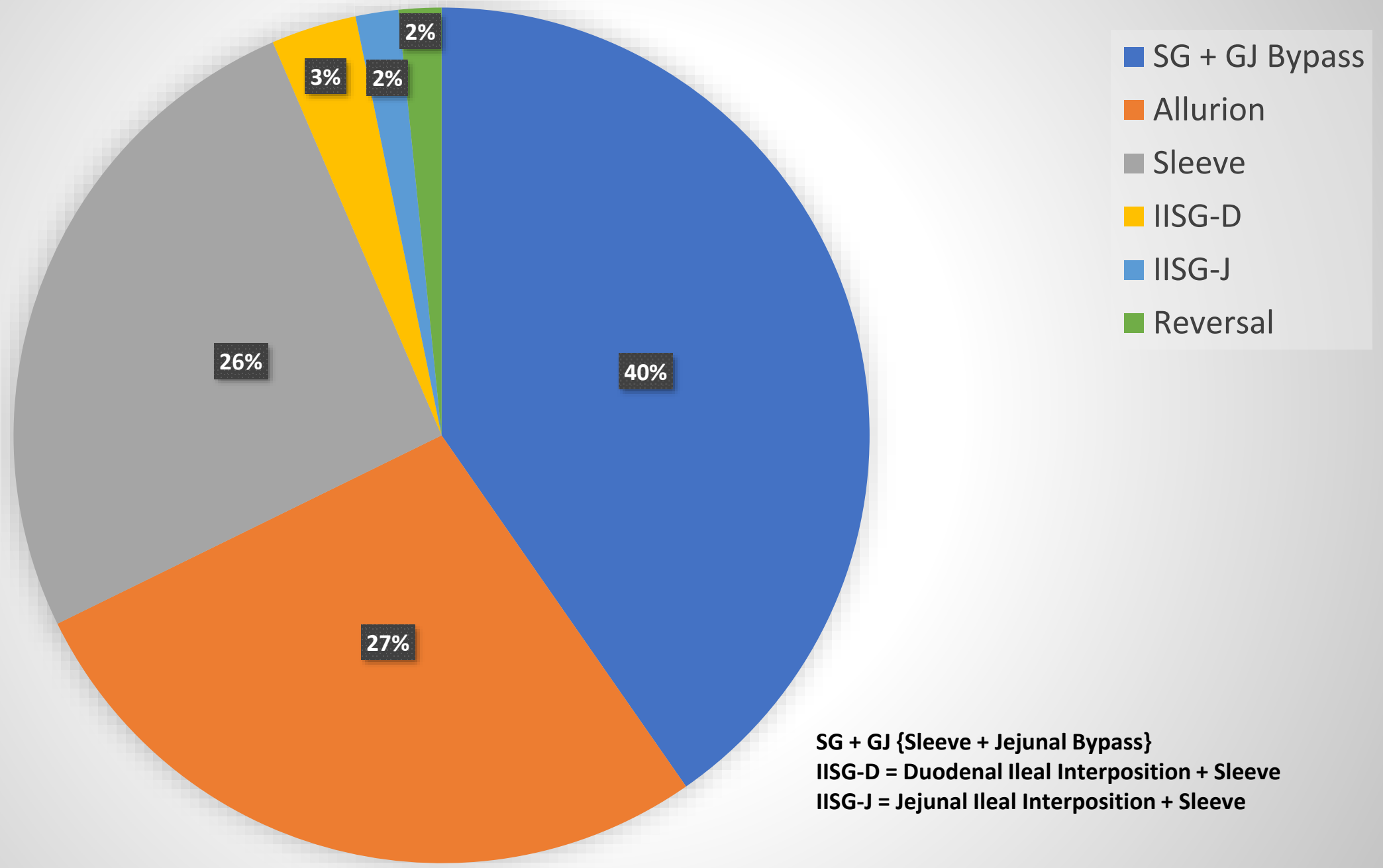


COI

I have no potential conflict of interest to report



CASE MIX - 2023



Need for Newer Procedures ??

****Surgeons Not Satisfied**

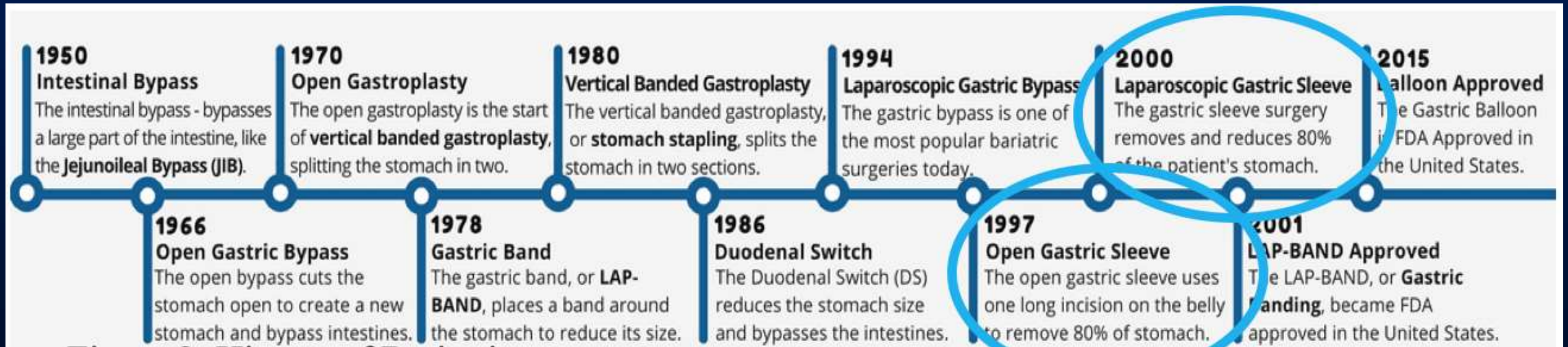
...with existing Standard Procedures !!

***Physicians & patients – Encounter Complications**

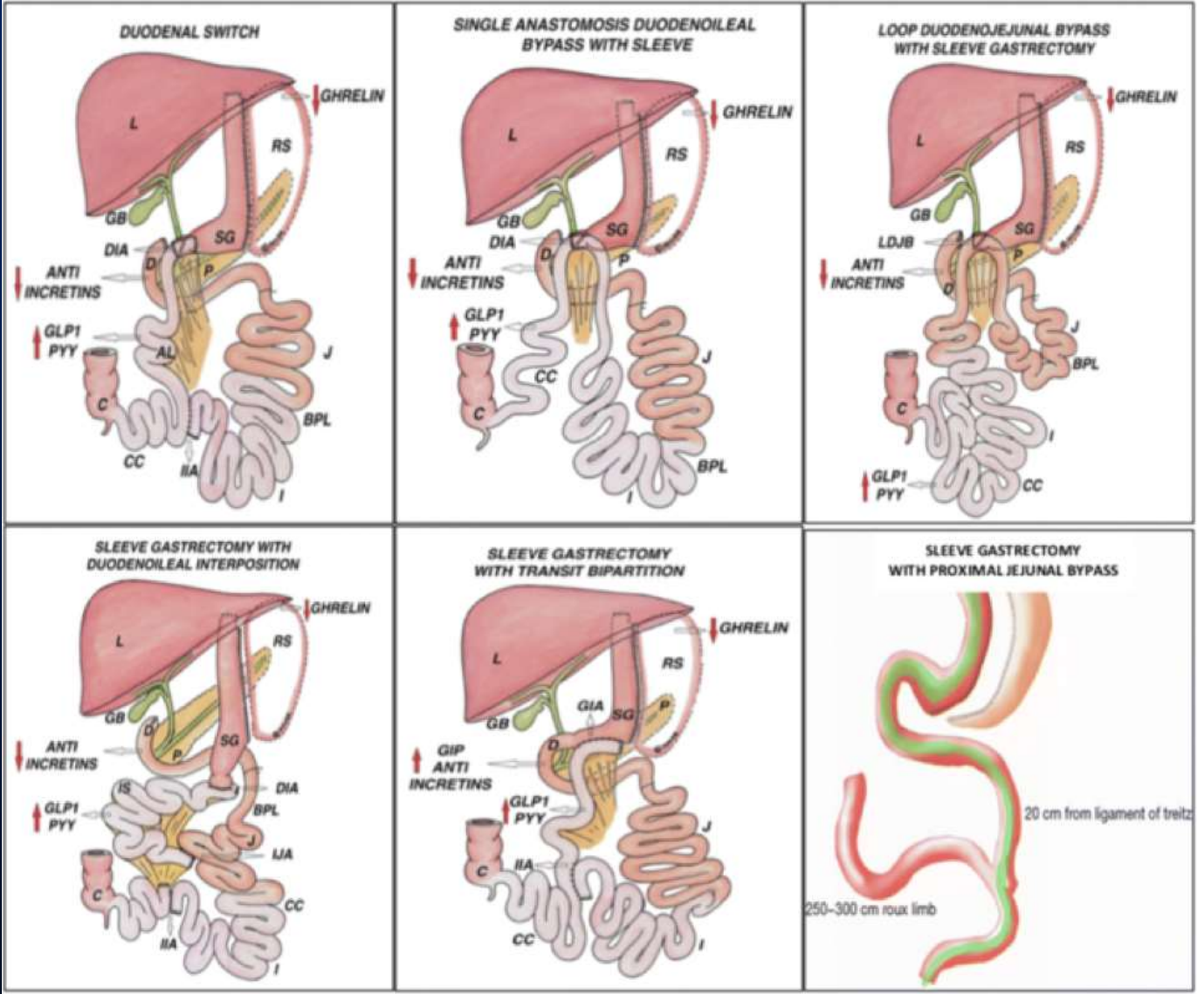
→Either Less Efficacy or More Side-effects !

→Continued Search for Ideal Operation !!

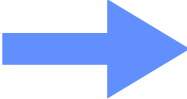
Evolution of Procedures → Hasn't stopped !



Sleeve Plus Procedures



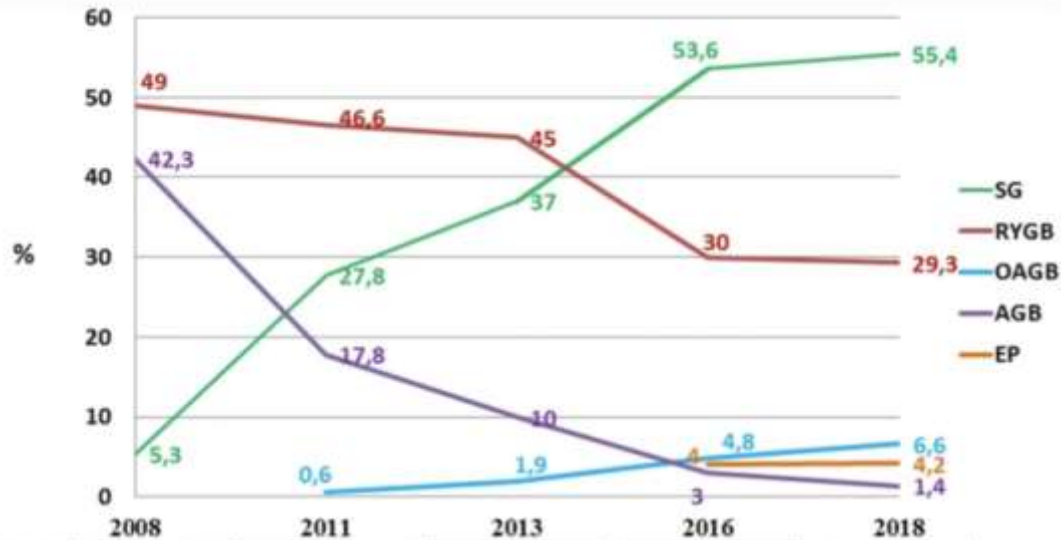
Preserving the Pylorus → any physiological importance ?

- Delaying gastric emptying proved to be an efficient way of **reducing postprandial glucose excursions** in diabetics and healthy subjects secondary to incretin effect
 - The higher the glucose loads  pronounced decrease in gastric emptying
 - **Glucose excursions are dampened and prolonged, serving to avoid proximal bowel glucose overload**
- **PRESERVING THE PYLORUS MAY BE IMPORTANT TO DM CONTROL AFTER GI SURGERY**



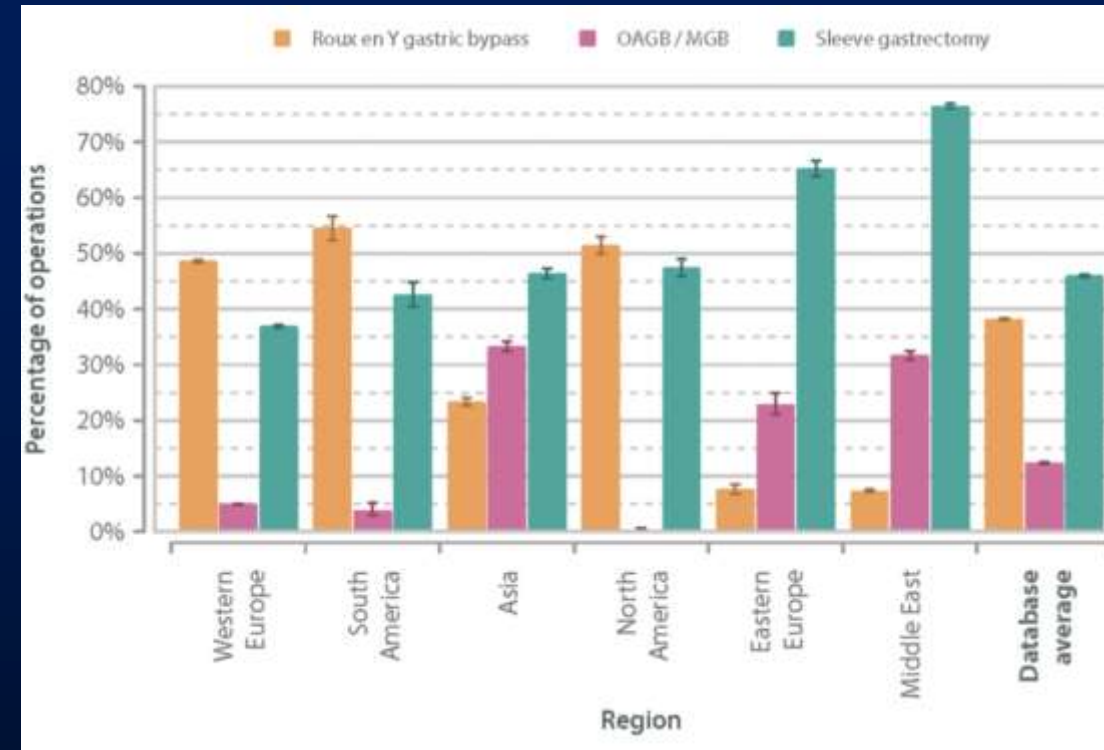
Nauck, 1986; Pilichiewicz, 2007; Bagger, JCEM, March 2011

Worldwide Trends in Procedure Numbers



Bariatric procedures (N)	2008	2011	2013	2016	2018
	344,221	340,768	468,609	685,874	696,191

Long-term trend and total number of bariatric/metabolic surgical operations from 2008 to 2018, and endoluminal procedures in the world from 2016 to 2018



Angrisani, L., Santonicola, A., Iovino, P. *et al.* Bariatric Surgery Survey 2018: Similarities and Disparities Among the 5 IFSO Chapters. *OBES SURG* 31, 1937–1948 (2021). <https://doi.org/10.1007/s11695-020-05207-7>

Sleeve Gastrectomy With Sleeve-Jejunal Bypass

- maintain biliary access by avoiding duodenal transection
- creating a functional bypass to achieve weight loss and resolution of the metabolic syndrome.
- Aimed at making a bypass procedure easier for all Bariatric (including younger) surgeons

[combines the ease of a SG, with the widely accepted OAGB-MGB & benefits of a Bipartition, using a loop anastomosis to create a bypass]

Best of both Worlds !!!

Technique

- Loop anastomosis is done at 200cm from DJ flexure on the jejunum with the distal aspect of the sleeve using a 45mm blue cartridge + endosuturing (BPL 100-150cm if Total Small Bowel Length [TSBL] is \leq 500cm)
- after measuring the total small bowel to ensure the common channel is 300 cm or longer.
- Leak test is done with methylene blue
- Petersen's space is closed with non-absorbable sutures.

Pros & Cons

Advantages

- *Maintains Biliary access
- *Easier for all surgeons
- *Partial Reversal very simple c
Disconnection of G-J
[Keeps a SG in place]

Disadvantages

- # Possibly a reduced incretin effect-
since duodenum is not excluded

Retrospective multi-center data analysis of 112 patients

3 centres

Follow-up of 1-5 yrs

Demographics

Preop Data	Mean
Age	42
Gender [M/F]	41 Male; 71 Female
Weight	121kg
BMI	45.8kg/m ²
Diabetes	73 of 112 = 65%
HbA1c	7.5% [4.9–16%]

Prevalence of Comorbidities

Preop Data	No. of Pts	Percentage [%]
<u>Dyslipidemia</u>	69 of 112	61.6
Hypertension	58 of 112	51.8
OSA	46 of 112	41.1
Nephropathy	1 of 112	0.89
Hypothyroidism	26 of 112	23.2

Inclusion criteria

- BMI >30kg/m² ±comorbidities
- At least 12 months follow up
- Underwent this procedure as a primary surgery

Exclusion criteria

- Previous Bariatric surgery
- Those lost to follow up

Outcomes

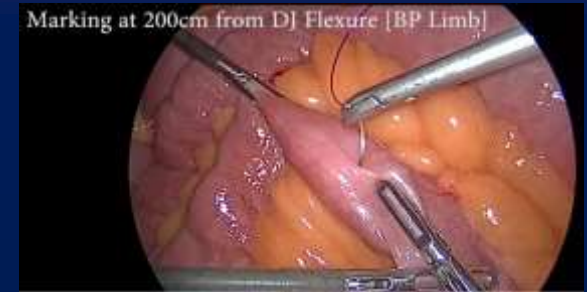
Primary outcome - Weight loss and Partial Remission of T2DM (Clinically relevant -[HbA1c ≤ 6.5% without medication])

Secondary outcomes - Maintenance of weight and BMI; Nutritional Status and Complications.



Procedure

- Laparoscopically, using 6 ports.
- Stapled Sleeve Gastrectomy -36-38 F gastric bougie for calibration.
- Jejunum is measured and marked at 200 cm from the DJ flexure, with a 2-limb suture; proximal to that with a 1-limb suture to establish the proximal and distal aspects.
- Remaining small bowel is measured proximally from ileo-caecal valve (ICV)
→ evaluate total small bowel length → ensure sufficient common channel remains
- Antecolic stapled anastomosis of marked jejunal loop to antral end of the sleeve
→ Blue 45 mm cartridge.
- Enterotomy is closed with 3-0 PDS with intracorporeal suturing.
- Leak test is done with methylene blue
- Petersen's space is closed with continuous 3-0 prolene sutures → prevent internal herniation.



Bowel Lengths Measured during Surgery

	Mean	Range
TSBL	793cm	530 to 1035cm
CC	587cm	330 to 835cm
BP limb	212cm	250cm[32 pts] 200cm [n=74] 180cm [n=3] 150 cm [n=2] 100 cm [n=1]

RESULTS → Follow-Up %

	1-yr	3-yrs	5-yrs
Total No. of patients	112	58	25
No. at follow-up	110	45	14
% Follow-up	98.2	77.6	56

Weight Loss

	BMI [kg/m ²]	TBWL [%]
Pre-OP	45.8	-
1 yr	28.2	37.9
3 yr	27.4	40.7
5 yr	27.3	40.6

Surprisingly, there was no reduction in weight loss efficacy, even with longer common channel lengths

	No. of Patients	%TBWL – 1yr	3yrs	5yrs
CC of 400-500cm	16/112	38.56	40.88	43.3
CC of 500-600cm	27/112	38.97	41.16	39.54
CC of 600-700cm	36/112	39.68	41.92	41.32
CC of 700-800cm	15/112	37.34	37.44	43.8
CC >800cm	5/112	34.8	37.3	43.3

Remission of Diabetes

	No. of patients in remission	% in Remission	Mean HbA1c [%]
Pre-OP	0/73	-----	7.5
1 yr	70/73	95.9	5.2
3 yr	32/33	97	5
5 yr	11/12	91.7	4.96

UNCONTROLLED Group → HbA1c >8

Diabetes				
	Pre Op	1-yr	3-yrs	5-yrs
Total Number of patients	22/112	20	12	4
Mean HbA1c %	9.61	5.25	4.89	4.93
Range of A1C	8.1 - 16	4.7 - 6.7	4.8 - 5	4.8 - 5.1
Insulin usage %	59.10%	0%	0%	0%

Resolution of Comorbidities

% Resolution	1-yr	3-yrs	5-yrs
<u>Dyslipidemia</u>	83.1	90.5	80
Hypertension	96.4	52.6	100
OSA	88.9	100	100

Nutritional Stability
→ Duodenal route
also available !!!

	Mean	Range
TSBL	793cm	530 to 1035cm
CC	587cm	330 to 835cm
BP limb	212cm	<ul style="list-style-type: none"> 250cm [32 pts] 200cm [n=74] 180cm [n=3] 150 cm [n=2] 100 cm [n=1]

Nutritional Factors	Pre-Op	1-yr	3-yrs	5-yrs
Hb	12.3	12.3	11.1	11.4
T Protein	7.3	7.3	7.4	7.6
Albumin	4.2	4.2	4.3	4.5
Calcium	9.2	8.9	8.2	--
Vit D3	25.2	30.5	28.3	29.2
Vit B-12	379.5	364	348	335
Iron	85.7	84.3	82.2	93.6

Complications

No mortality was seen in this study.

Minor Complications --2 patients (1.79 %) → nausea, vomiting and diarrhoea; managed conservatively.

**# Major Complications -- 2 patients (1.79 %) → dumping syndrome, hypoproteinemia and hypoalbuminemia → reduced quality of life
→ did not improve with medication
→ → Required a partial reversal → Disconnection of the jejunal loop was done by a single stapler firing across the anastomosis**

Comparison with Sleeve Gastrectomy

TWL [%]	Sleeve	SG + Jejunal Bypass
1 yr	26 to 35.7	37.9
3 yr	37.5	40.7
5 yr	26 to 35	40.6



@ Magdalena M, Michał W, Katarzyna B; Type 2 Diabetes Remission 5 Years After Laparoscopic Sleeve Gastrectomy: Multicenter Cohort Study; *OBES SURG* (2021) 31:980–986.

@ Soong, T., Lee, M., Lee, W., Almalki, O.M., Chen, J., Wu, C., & Chen, S. (2021). Long-Term Efficacy of Bariatric Surgery for the Treatment of Super-Obesity: Comparison of SG, RYGB, and OAGB. *Obesity Surgery*, 31, 3391 - 3399.

Comparison with Sleeve Gastrectomy

% DM Remission	Sleeve	SG + Jejunal Bypass
1 yr	38.3	95.9
3 yr	24.5	97
5 yr	46.3; 27.5; 42.6	91.7



@ Magdalena M, Michał W, Katarzyna B; Type 2 Diabetes Remission 5 Years After Laparoscopic Sleeve Gastrectomy: Multicenter Cohort Study; OBES SURG (2021) 31:980–986

@ Sharples AJ, Mahawar K. Systematic Review and Meta-Analysis of Randomised Controlled Trials Comparing Long-Term Outcomes of Roux-En-Y Gastric Bypass and Sleeve Gastrectomy. Obes Surg. 2020 Feb;30(2):664-672. doi: 10.1007/s11695-019-04235-2. PMID: 31724116.]

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Advantages & **CONCLUSION**

1. **Maintains endoscopic access to the biliary tree**
2. There is no excluded remnant stomach → important in countries with high incidence of gastric cancer.
3. No blind end - avoids bacterial overgrowth and blind loop syndrome.
4. **Easy to perform - sleeve with a single anastomosis**
5. If necessary, **Partial Reversal** can be done in a simpler manner compared to other bypass procedures **[leaving a Sleeve in place]**
6. **Nutritional stability even at 5 years → both routes from stomach are open**
7. **Could be positioned as the main bypass procedure in Bariatric and Metabolic surgery**



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***Safety and Efficacy of Sleeve Gastrectomy with Sleeve-Jejunal
bypass: an Advantage over other Bypass procedures – Multicenter
3 and 5 year Data***

***-----Surendra Ugale; Rajkumar Palaniappan; Manoj Bharucha; Ayushka Ugale; Nikhilesh
Krishna; Akshan Ugale; Trilok Ram @Under Review in Journal of Bariatric Surgery***



GOING FORWARD →

- # Prospective & Retrospective Data – Research Protocol thru OSSI***
- # Multi-center data analysis of 500 patients***
- # 7 centres – High-Volume & OSSI Centers of Excellence***
- # Follow-up of 7 yrs***



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