Single Anastomosis Sleeve Ileal Bypass (SASI) vs Sleeve Gastrectomy (SG) Outcomes: Systematic Review and Meta-analysis

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BACKGROUND

- SASI bypass combines metabolic and restrictive approaches, evolving from Santoro's technique by adding ileal bipartition to sleeve gastrectomy.
- Sleeve gastrectomy alone is less morbid but has higher risks of weight regain, GERD, and lower metabolic syndrome resolution.
- The key question is whether the benefits of SASI bypass stem from the sleeve gastrectomy or the ileal bipartition.

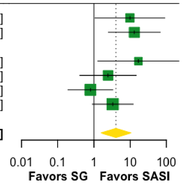
METHODS

- Primary outcomes were comorbidity remission, Excess Weight Loss (EWL) and Body Mass Index (BMI).
- We included 11 studies after search and screening on PubMed, Scopus, Embase, and Cochrane databases

Figure 1A. Diabetes Mellitus Remission OR was significantly greater towards SASI Bypass (p<0.05).

Studies	SASI DM Remission	SASI DM Total	SG DM Remission	SG DM Total	Weight	OR	95% CI
Emile 2020	23	24	14	20	12.5%	9.86	[1.07; 90.65]
Khalil 2019	24	26	12	25	18.0%	13.00	[2.52; 67.16]
Madyan 2020	5	5	1	1	0.0%		
Mahdy 2021	42	43	5	7	10.1%	16.80	[1.28; 220.23]
Mohamed 2020	11	14	6	10	16.3%	2.44	[0.41; 14.75]
Yildirak 2023	26	31	26	30	20.7%	0.80	[0.19; 3.32]
Yu 2024	15	18	65	108	22.5%	3.31	[0.90; 12.11]
Total (95% CI)	**146**	**161**	**129**	**201**	**100.0%**	**4.05**	**[1.56; 10.51]**

Heterogeneity: Tau^2 = 0.6136; Chi^2 = 9.01, df = 5 (P = 0.11); I^2 = 45%
Test for overall effect: Z = 2.88 (P = 0.004)



High obesity-related medical problems remission rates are observed in both SASI and SG.

Data suggests SASI's superiority in treating DM, dyslipidemia, and GERD.

RESULTS



EWL %
Mean difference
9.82
(95%-CI [5.82; 13.80])
Favors SASI

BMI Change
Mean difference
2.30
(95%-CI [-3.87; -0.73])
Favors SASI

Maximum patients included: 1208

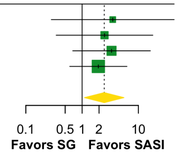
Obesity-related medical problems remission was assessed based on improvement from baseline.

Follow-up: from 6 to 60 months

Figure 1B. Dyslipidemia Remission OR was significantly greater towards SASI Bypass (p<0.05).

Studies	SASI Dyslipidemia Remission	SASI Dyslipidemia Total	SG Dyslipidemia Remission	SG Dyslipidemia Total	Weight	OR	95% CI
Emile 2020	7	8	6	9	10.3%	3.50	[0.28; 43.16]
Mahdy 2021	10	13	4	7	16.6%	2.50	[0.35; 18.04]
Mohamed 2020	10	13	9	18	25.7%	3.33	[0.68; 16.30]
Yu 2024	13	17	92	147	47.4%	1.94	[0.60; 6.26]
Total (95% CI)	**40**	**51**	**111**	**181**	**100.0%**	**2.47**	**[1.11; 5.53]**

Heterogeneity: Tau^2 = 0; Chi^2 = 0.37, df = 3 (P = 0.95); I^2 = 0%
Test for overall effect: Z = 2.20 (P = 0.028)



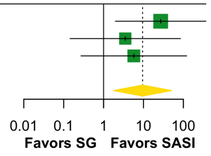
Obesity-related medical problems Remission

	SG	SASI	OR (95% CI)
Diabetes			4.05 (1.56-10.51) P=0.004
Hypertension			1.23 (0.55-2.73) **P=0.616**
Dyslipidemia			2.47 (1.11-5.53) P=0.028
GERD			9.5 (1.76-51.22) P=0.009
OSA			5.16 (0.86-30.98) **P=0.073**

Figure 1C. GERD Remission OR was significantly greater towards SASI Bypass (p<0.05).

Studies	SASI GERD Remission	SASI GERD Total	SG GERD Remission	SG GERD Total	Weight	OR	95% CI
Emile 2020	6	7	2	11	41.5%	27.00	[1.98; 368.38]
Mahdy 2021	7	9	1	2	27.9%	3.50	[0.14; 84.69]
Yu 2024	3	3	16	29	30.5%	5.73	[0.27; 120.84]
Total (95% CI)	**16**	**19**	**19**	**42**	**100.0%**	**9.50**	**[1.76; 51.22]**

Heterogeneity: Tau^2 = 0; Chi^2 = 1.10, df = 2 (P = 0.58); I^2 = 0%
Test for overall effect: Z = 2.62 (P = 0.009)



CONCLUSION

- Higher comorbidity remission rates are observed in both SASI and SG, with data suggesting SASI's superiority in treating DM, dyslipidemia, and GERD. Hypertension and OSA should be reanalyzed when more data is available.