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# Quale intervento in caso di GERD post-operatorio? « Altre tecniche »

PD Dr. med. habil. Sonja Chiappetta

Head of the Department of General and Laparoscopic Surgery

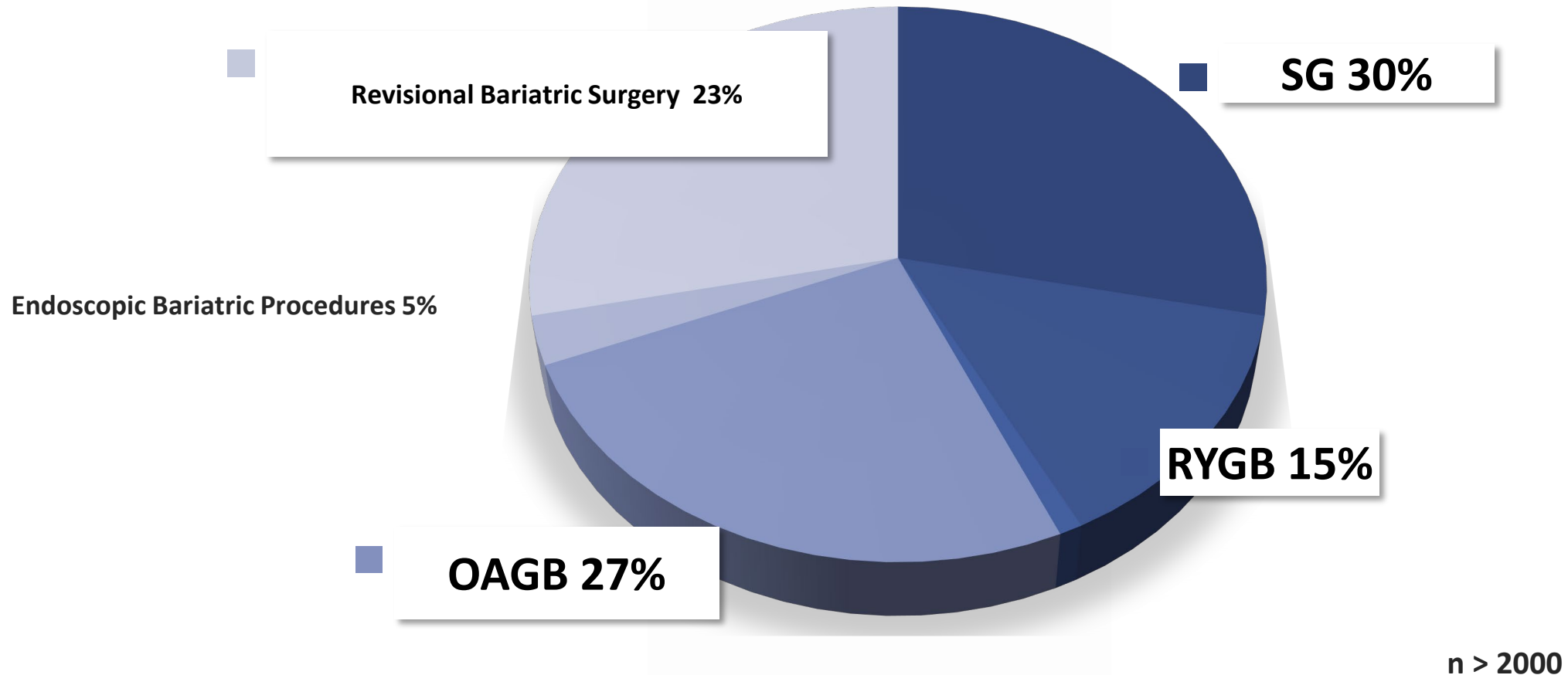
Center of Excellence Bariatric and Metabolic Surgery

Ospedale Evangelico Betania, Naples, Italy

# Conflict of interest disclosure (COI)

- I have the following potential conflict of interest to report
  - Receipt of honoraria or consultation fees:
    - Johnson & Johnson America (2021, 2024)
    - Novo Nordisc (2021)
    - Genesis Medtech (USA) (2023)

# Case mix disclosure





# Gastroesophageal Reflux Disease as an Indication of Revisional Bariatric Surgery—Indication and Results—a Systematic Review and Metanalysis

Sonja Chiappetta<sup>1</sup> · Panagiotis Lainas<sup>2,3</sup> · Radwan Kassir<sup>4,5</sup> · Rohollah Valizadeh<sup>6</sup> · Alfonso Bosco<sup>1</sup> · Mohammad Kermansaravi<sup>7</sup>

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“revisional bariatric surgery,” “RBS,” “conversion,” “gastric banding revision,” “sleeve gastrectomy, revision,” “gastric bypass revision,” “GERD,” “gas- troesophageal reflux disease,” “GERD after bariatric surgery,” “GERD after gastric banding,” “GERD after sleeve gastrectomy,” “GERD after gastric bypass,” “bile reflux,” “acid reflux,” “alkaline reflux,” “heart burn,” “dysphagia,” “esophagitis,” “erosive esophagitis,” “dys- pepsia,” “regurgitation,” “Barrett’s esophagus,” “Barrett esophagus,” “hiatal hernia,” “sleeve stenosis,” “sleeve twist

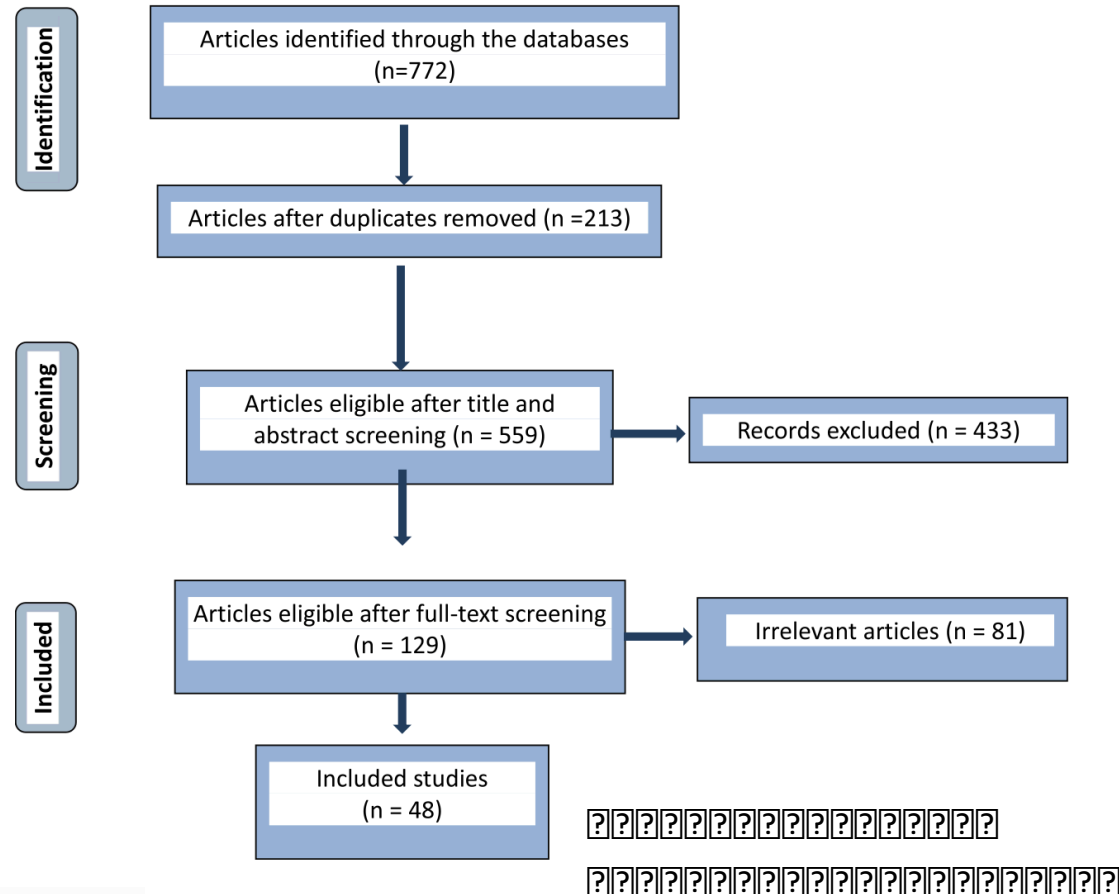
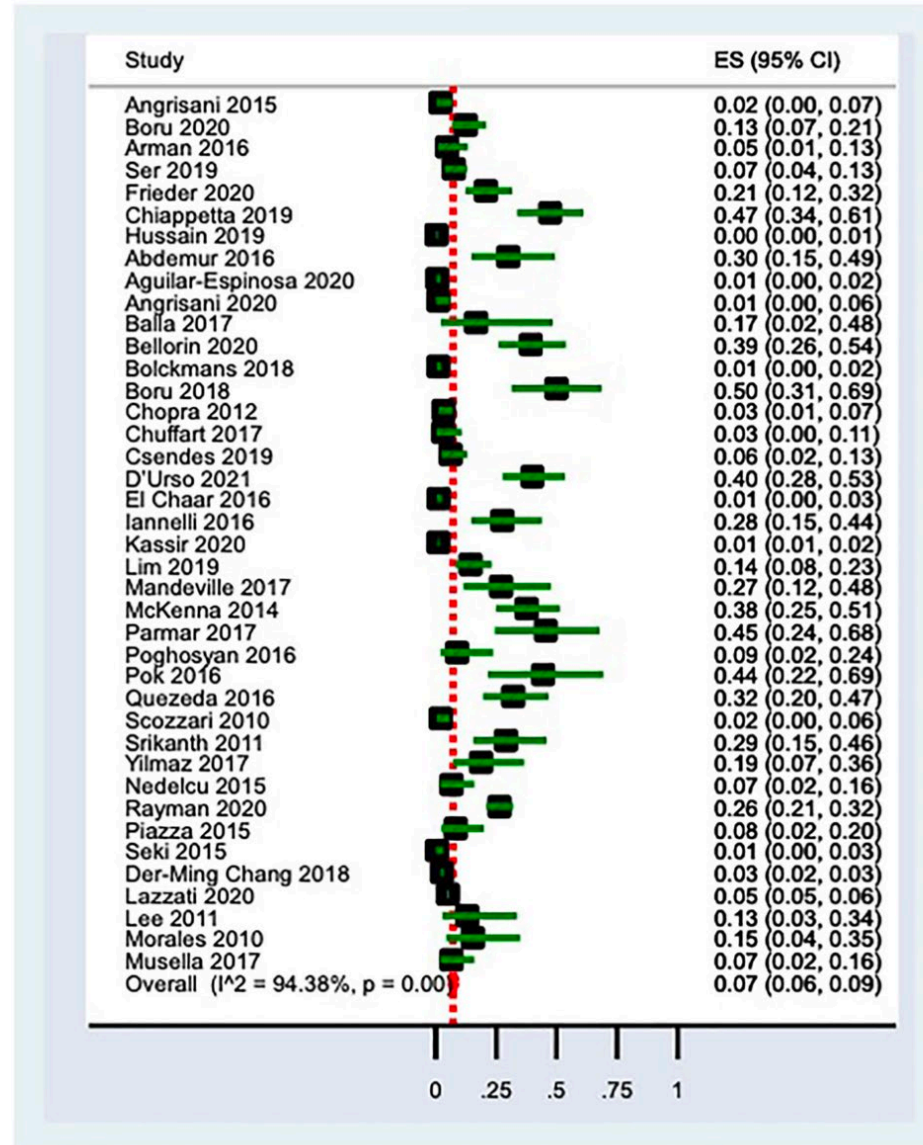


Fig. 2 Percent of GERD before secondary surgery as a forest plot



After primary BMS,  
pooled estimation of a meta-  
analysis of studies reported a  
**GERD of 7%**

# Postoperative GERD

**Table 3** Reasons to do reoperation following primary surgery

Variable	No. of patients reported in studies with listed reasons	Percent
intractable GERD including persistent GERD, de novo GERD	655	71.58
GERD + hiatal hernia	13	1.42
GERD + weight regain/weight loss failure	147	16.06
biliary reflux	57	6.22
GERD + band problems	3	0.32
GERD + stenosis	30	3.27
GERD + Barrett's esophagus	10	1.09



## RBS for GERD included 7 different procedures:

- Conversion in RYGB (32 studies, 310 patients)
- Conversion in RYGB with hiatal hernia repair (7 studies, 80 patients)
- Conversion in RYGB was the most performed RBS in this SR (390 of 533 patients, 73%)
- Hiatal hernia repair with gastropexy (2 studies)
- Braun Anastomosis (2 studies)
- Re-SG (2 studies)
- OAGB (2 studies)
- Seromyotomy
- secondary procedure was not named (n=4)



# Bile Reflux after OAGB

## Obesity Surgery

### Revision/Conversion Surgeries after One Anastomosis Gastric Bypass - an Experts' Modified Delphi Consensus --Manuscript Draft--

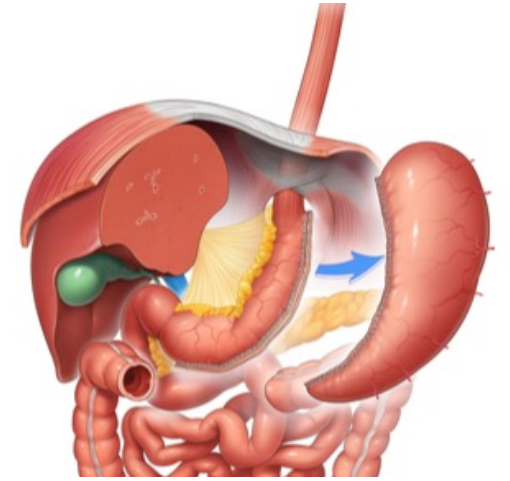
Manuscript Number:	OBSU-D-24-00115R2
Full Title:	Revision/Conversion Surgeries after One Anastomosis Gastric Bypass - an Experts' Modified Delphi Consensus
Article Type:	Original Contribution
Keywords:	OAGB; Revision; Conversion; reversal; Correction; Revisional Bariatric Surgery
Corresponding Author:	Sonja Chiappetta, MD, PhD Ospedale Evangelico Villa Betania: Fondazione Evangelica Betania Naples, Campania ITALY
Corresponding Author Secondary Information:	
Corresponding Author's Institution:	Ospedale Evangelico Villa Betania: Fondazione Evangelica Betania
Corresponding Author's Secondary Institution:	
First Author:	Mohammad Kermansaravi
First Author Secondary Information:	
Order of Authors:	Mohammad Kermansaravi Sonja Chiappetta, MD, PhD Chetan Parmar

*E-Persistent BR after OAGB*			
41. Conversion to RYGB with the pouch downsizing is an acceptable option	Consensus (AGREE) 87.23%	-	Consensus
42. Conversion to RYGB without downsizing the pouch is an acceptable option	65.96% Agree	Consensus (AGREE) 85.42%	Consensus
43. Braun Jejunio-Jejunostomy is an acceptable option	63.83% Disagree	Consensus (DISAGREE) 81.25%	Consensus
44. LINX is an acceptable option	Consensus (DISAGREE) 76.60%	-	Consensus
45. Nissen-like fundoplication with gastric remnant (with hiatal repair if present) is an acceptable option	59.57% Disagree	Consensus (DISAGREE) 83.33%	Consensus
46. Take down the GJ and refashion side-to-side GJ (Carbajo anti-reflux technique) is an acceptable option	68.09% Disagree	Consensus (DISAGREE) 93.75%	Consensus
47. Ligamentum teres cardiopexy is an acceptable option	Consensus (DISAGREE) 76.60%	-	Consensus

R2 under review

## Other techniques:

- ❖ Re-Sleeve, hiatal hernia repair with gastropexy
- ❖ Ligamentum teres hepatis
- ❖ Magnetic sphincter Augmentation
- ❖ SASI-S
- ❖ OAGB
- ❖ Seromyotomy



# Re-Sleeve, hiatal hernia repair, gastropexy

Obesity Surgery (2019) 29:2381–2386  
<https://doi.org/10.1007/s11695-019-03853-0>



ORIGINAL CONTRIBUTIONS



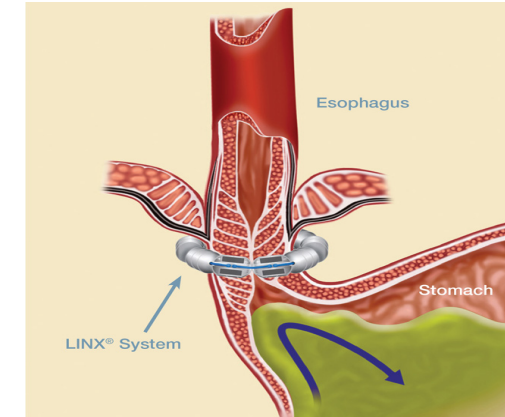
**28 patients**

## Revision of Sleeve Gastrectomy with Hiatal Repair with Gastropexy for Gastroesophageal Reflux Disease

Tien-Chou Soong<sup>1,2</sup> · Owaid M. Almalki<sup>2,3</sup> · Wei-Jei Lee<sup>2</sup> · Kong-Han Ser<sup>2</sup> · Jung-Chien Chen<sup>2</sup> · Chun-Chi Wu<sup>2</sup> · Shu-Chun Chen<sup>2</sup>

The mean GERD-HRQL score before revision surgery was 24.3 and decreased to 12.3 at 1 month after surgery. Mean GERD-HRQL scores at 6, 12, and 24 months after revision surgery were 16.8, 17.4, and 18.9, respectively. All patients required daily proton pump inhibitor pre-operatively; only 26% could discontinue them postoperatively. Of the 28 patients, 14 (50.0%) were satisfied with the surgery, 8 (28.6%) had a neutral attitude, and 6 (21.4%) were dissatisfied. Three (11.1%) patients agreed to undergo Roux-en-Y gastric bypass.

# Magnetic Sphincter Augmentation



"GERD" AND "LINX" AND "bariatric"

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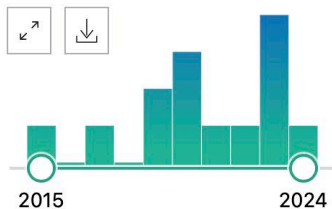
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RESULTS BY YEAR



TEXT AVAILABILITY

- Abstract
- Free full text
- Full text

ARTICLE ATTRIBUTE

- Associated data

**Gastroesophageal reflux disease and morbid obesity: To sleeve or not to sleeve?**

1 Rebecchi F, Allaix ME, Patti MG, Schlottmann F, Morino M.  
 Cite World J Gastroenterol. 2017 Apr 7;23(13):2269-2275. doi: 10.3748/wjg.v23.i13.2269.  
 PMID: 28428706 **Free PMC article.**

Share To date, either medical therapy with proton pump inhibitors or conversion of LSG to laparoscopic Roux-en-Y gastric bypass are the available options for the management of GERD after LSG. Recently, new minimally invasive approaches have been proposed in patients with GERD ...

**Safety of magnetic sphincter augmentation in patients with prior bariatric anti-reflux surgery.**

2 Leeds SG, Ngov A, O Ogola G, Ward MA.  
 Cite Surg Endosc. 2021 Sep;35(9):5322-53:  
 Share PMID: 32989530

There was no difference in several factors. GERD-HRQL and RSI scores, hiatal hernia HRQL and RSI scores were not different

## CONCLUSION

The findings of our review suggest that MSA has the potential to bridge the treatment gap between maxed-out medical treatment and LF. However, further studies with longer follow-up are needed for a better elucidation of these results.

World Journal of Clinical Cases

Submit a Manuscript: <https://www.f6publishing.com>

World J Clin Cases 2020 January 26; 8(2): 294-305

DOI: 10.12998/wjcc.v8.i2.294

ISSN 2307-8960 (online)

SYSTEMATIC REVIEW

**LINX® reflux management system to bridge the “treatment gap” in gastroesophageal reflux disease: A systematic review of 35 studies**

**Dysphagia 6-83%**  
**2.7-6.7% device removal /88% within the first 2 years**

# Lig. teres hepatis



"teres hepatis" AND "bariatric"



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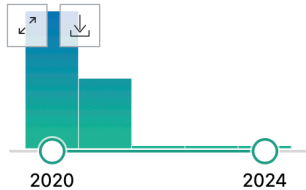
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Page 1 of 1

RESULTS BY YEAR



TEXT AVAILABILITY

- Abstract
- Free full text
- Full text

ARTICLE ATTRIBUTE

- Associated data

ARTICLE TYPE

- Books and Documents

[The New Interest of Bariatric Surgeons in the Old Ligamentum Teres Hepatis.](#)

1 Runkel A, Scheffel O, Marjanovic G, Runkel N.

Cite *Obes Surg.* 2020 Nov;30(11):4592-4598. doi: 10.1007/s11695-020-04918-1. Epub 2020 Aug 17. PMID: 32808167 [Review](#).

Share The systematic search of publications in the English language revealed 4 studies (total number of patients 53) in the non-**bariatric** literature with an unsatisfactory resolution of GERD. There were 5 reports from the **bariatric** literature with small patient numbers (t ...

[Augmentation of Hiatal Repair with the Ligamentum Teres Hepatis for Intrathoracic Gastric Migration After Bariatric Surgery.](#)

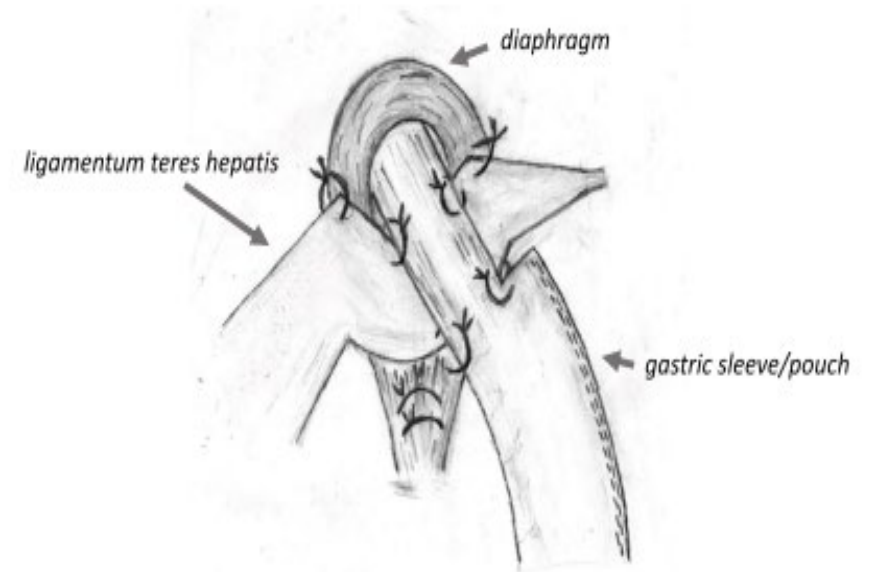
2 Runkel A, Scheffel O, Marjanovic G, Chiappetta S, Runkel N.

Cite *Obes Surg.* 2021 Apr;31(4):1422-1430. doi: 10.1007/s11695-020-05153-4. Epub 2021 Jan 6. PMID: 33409977

Share PURPOSE: The augmentation of hiatoplasty (HP) with the ligamentum **teres hepatis** (LTA) is a new concept for intrathoracic migration of a gastric sleeve or pouch (ITGM). ...

[Hiatoplasty for Intrathoracic Gastric Migration Associated with One Anastomosis Gastric Bypass \(OAGB\).](#)

3 Runkel A, Scheffel O, Chiappetta S, Marjanovic G, Runkel N.



Conclusions LTA reduces the risk of early ITGM recurrence. The long-term durability, however, needs to be further investigated.

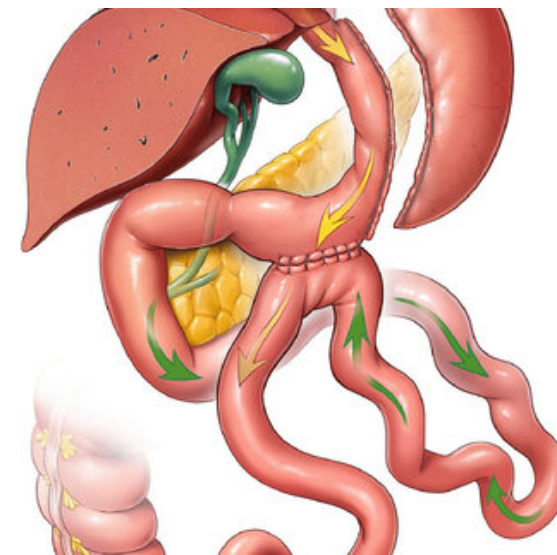
# SASI (Single Anastomosis Sleeve Ileal Bypass)

OBES SURG (2017) 27:143–147  
DOI 10.1007/s11695-016-2293-y



ORIGINAL CONTRIBUTIONS

Original paper Bariatric surgery



## A New Concept in Bariatric Surgery. Single Anastomosis Gastro-Ileal (SAGI): Technical Details and Preliminary Results

Maurizio De Luca<sup>1</sup> · Jacques Himpens<sup>2</sup> · Luigi Angrisani<sup>3</sup> · Nicola Di Lorenzo<sup>4</sup> · Kamal Mahawar<sup>5</sup> · Cesare Lunardi<sup>1</sup> · Natale Pellicanò<sup>1</sup> · Nicola Clemente<sup>1</sup> · Scott Shikora<sup>6</sup>

### Single anastomosis sleeve ileal (SASI) bypass as a primary and revisional procedure: a single-centre experience

Natalia Dowgiatto-Gornowicz, Kamil Waczyński, Kinga Waczyńska, Pawel Lech

Department of General, Minimally Invasive, and Elderly Surgery, University of Warmia and Mazury, Olsztyn, Poland

Videosurgery Miniinv 2023; 18 (3): 510–515  
DOI: <https://doi.org/10.5114/wiitm.2023.128021>

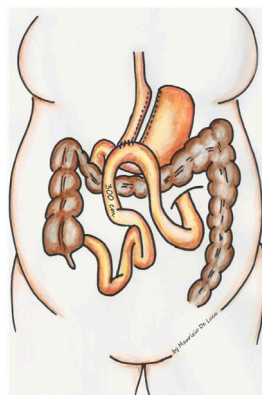


Fig. 3 Single anastomosis gastro-ileal bypass (SAGI)

Table IV. Improvement in comorbidities after SASI in the primary group (PG) and the revisional group (RG)

Parameter	Primary group			Revisional group		
	T2D	HT	GERD	T2D	HT	GERD
Remission	12 (92.3%)	7 (77.9%)	3 (30%)	2 (100%)	2 (100%)	5 (45.4%)
Partial remission	1 (7.7%)	1 (11.1%)	2 (20%)	–	–	4 (36.4%)
No changes	–	1 (11.1%)	1 (10%)	–	–	2 (18.2%)
Worsening	–	–	4 (40%)	–	–	–

T2D – diabetes mellitus type 2, HT – atrial hypertension, GERD – gastrointestinal reflux disease.



# Sleeve in OAGB

In weight regain – convert to OAGB  
 In GERD – convert to RYGB

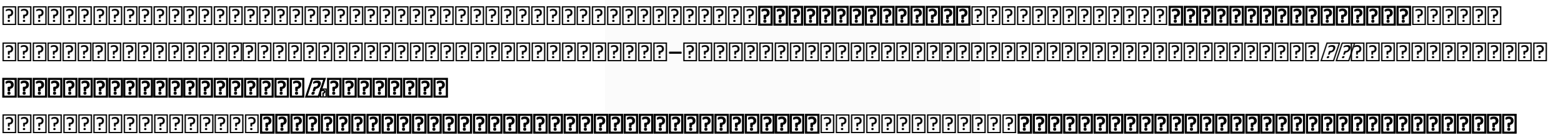
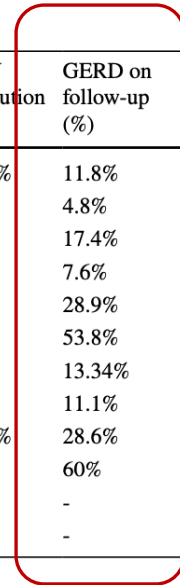
## One-anastomosis gastric bypass (OAGB) versus Roux-en-Y gastric bypass (RYGB) as revisional procedures after failed laparoscopic sleeve gastrectomy (LSG): systematic review and meta-analysis of comparative studies

Antonio Vitiello<sup>1</sup> · Giovanna Berardi<sup>1</sup> · Roberto Peltrini<sup>2</sup> · Pietro Calabrese<sup>2</sup> · Vincenzo Pilone<sup>2</sup>

**Table 2** Outcomes of the included studies

Study (year)	Revisional surgery	Operative time (min)	Sample (n)	Leaks (n, %)	Bleeding (n, %)	Marginal ulcer (n, %)	EWL%	TWL%	T2DM resolution (%)	HTN resolution (%)	GERD on follow-up (%)	NOS
Chiappeta (2019)	OAGB	79 ± 36	34	0 (0%)	0 (0%)	0 (0%)	29 ± 13	15.8 ± 7.8	100%	66.7%	11.8%	9
	RYGB	98 ± 24	21	0 (0%)	0 (0%)	1 (4.8%)	22 ± 18	10.3 ± 7.6	60%	0%	4.8%	9
Rayman (2021)	OAGB	-	144	2 (1.4%)	2 (1.4%)	0 (0%)	58.7	32 ± 9	-	-	17.4%	9
	RYGB	-	119	1 (1.7%)	3 (2.5%)	0 (0%)	44.2	27 ± 9	-	-	7.6%	9
Felsenreich (2022)	OAGB	-	13	0 (0%)	0 (0%)	0 (0%)	80.3 ± 23.7	39.5 ± 11.5	-	-	28.9%	9
	RYGB	-	45	0 (0%)	0 (0%)	0 (0%)	79.8 ± 34.1	37.7 ± 14.6	-	-	53.8%	9
Rheinwalt (2022)	OAGB	168 ± 7.2	55	2 (3.6%)	0 (0%)	0 (0%)	50	24 ± 2.6	92%	92%	13.34%	8
	RYGB	201 ± 6.8	68	4 (5.9%)	2 (2.9%)	0 (0%)	40	18 ± 3.0	100%	89%	11.1%	8
Wilczyński (2022)	OAGB	-	47	0 (0%)	1 (2.12%)	3 (6.4%)	84.04 ± 18.81	21.81 ± 12.48	97.3%	27.3%	28.6%	8
	RYGB	-	33	0 (0%)	1 (3%)	4 (12.1%)	72.95 ± 20.3	18.39 ± 11.85	33.3%	30%	60%	8
Hany (2022)	OAGB	85.6 ± 18.6	80	0 (0%)	1 (1.25%)	0 (0%)	-*	-*	75%	68%	-	8
	RYGB	104.9 ± 13.7	80	0 (0%)	1 (1.25%)	2 (2.5%)	-*	-*	71%	75%	-	8

NOS Newcastle–Ottawa Scale. T2DM type 2 diabetes. HTN hypertension. \*Hany et al. reported weight loss as %EBMIL



# Conclusions

- **Conversion to Roux-en Y Gastric Bypass is the only evidence-based revisional bariatric procedure in GERD after SG and AGB**

- **Other techniques as:**

**Re-Sleeve, hiatal hernia repair, gastropexy, Lig. teres hepatis Augmentation, Magnetic Sphincter Augmentation, SASI ...**

**→ are still investigative procedures**





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# Grazie



[drschiappetta@gmail.com](mailto:drschiappetta@gmail.com)



[chiappetta.obesity.intouch](https://www.instagram.com/chiappetta.obesity.intouch)



[Sonja Chiappetta](https://www.facebook.com/SonjaChiappetta)



[PD Sonja Chiappetta](https://www.linkedin.com/in/sonja-chiappetta)

Interdisciplinary Long-Term  
Treatment of Bariatric and  
Metabolic Surgery Patients

Christine Stier  
Sonja Chiappetta  
*Editors*

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