Rischio di Carcinoma Esofago-Gastrico dopo OAGB

PD Dr. med. habil. Sonja Chiappetta

Head of the Department of General and Laparoscopic Surgery

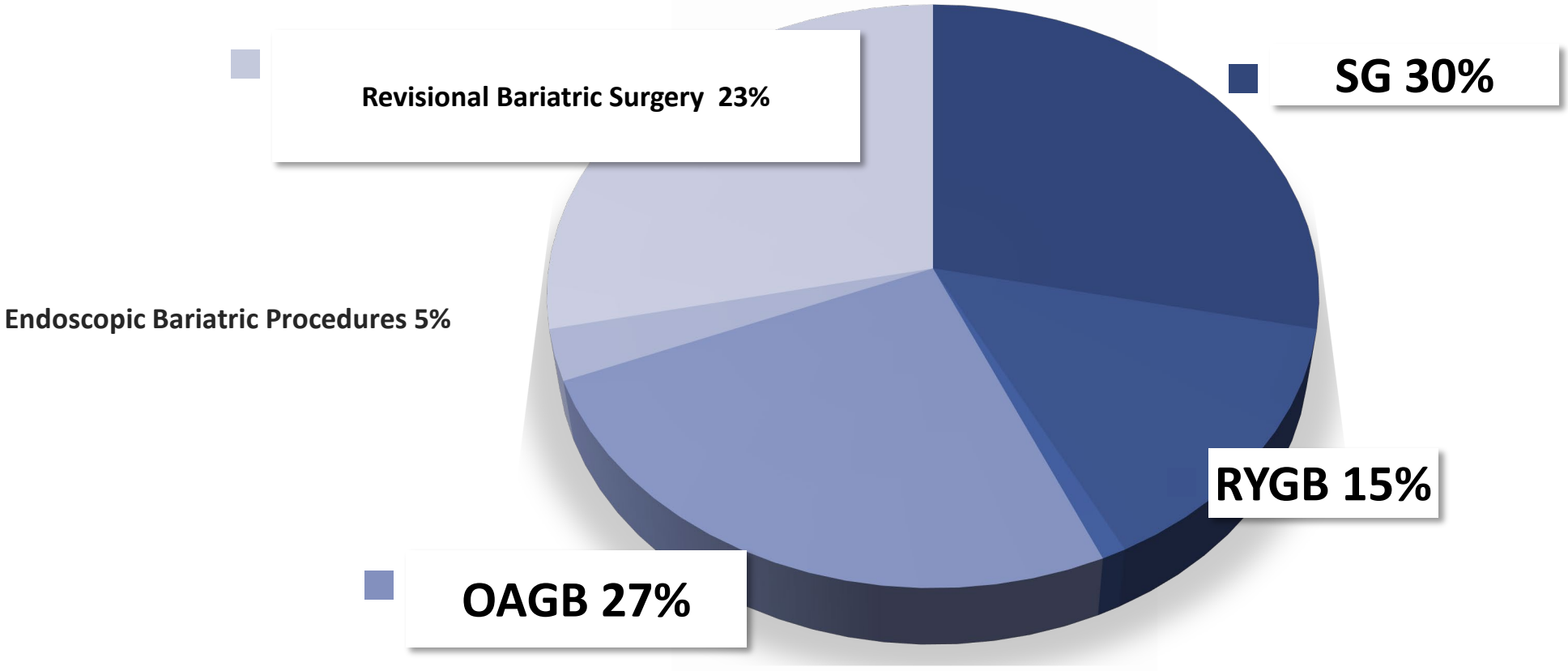
Center of Excellence Bariatric and Metabolic Surgery

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)

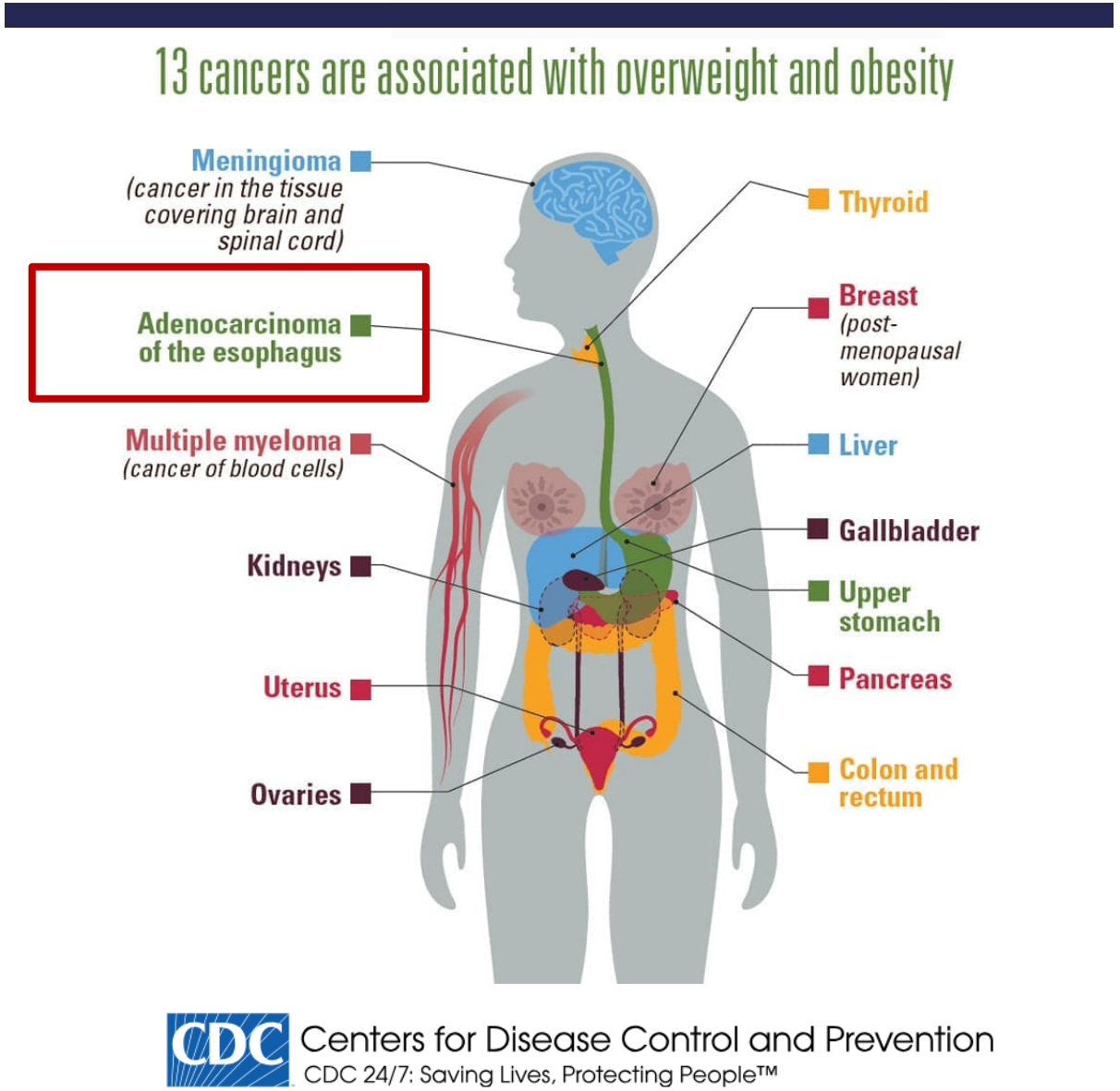
Case mix disclosure



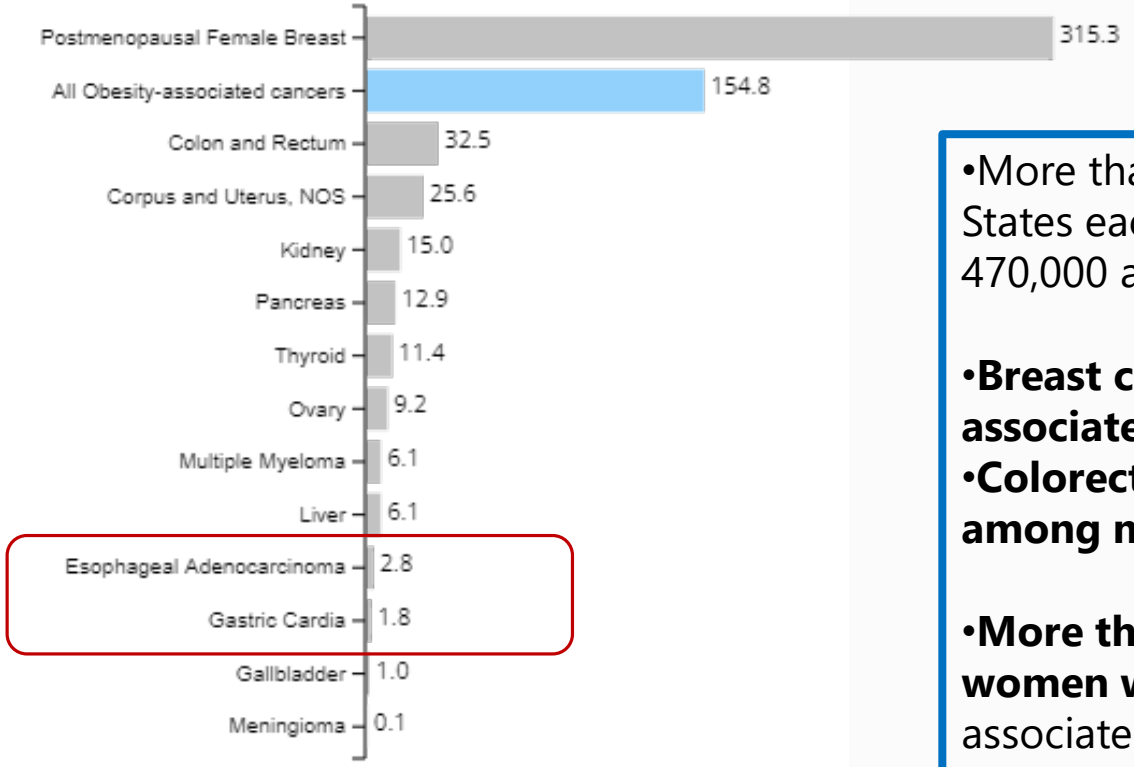
n > 2000

Correlation between Cancer and Obesity

- Obesity is a significant risk factor for developing various types of cancer.
- According to the CDC, obesity is associated with about 40 %of cancer cases in the United States.
- Cancer incidence has increased in parallel with the obesity epidemic, with a significant increase in oesophageal and stomach cancer cases.



Rate of New Obesity-associated Cancers by Cancer Type
All Obesity-associated Cancers, Male and Female, United States, 2020



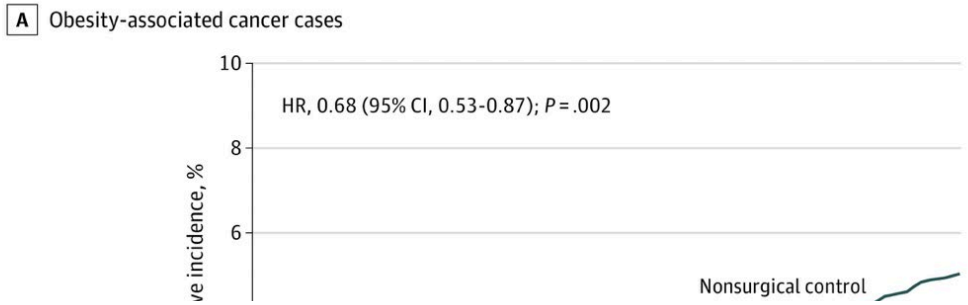
Rate per 100,000 people

- More than 684,000 obesity-associated cancers occur in the United States each year, including more than 210,000 among men and 470,000 among women.

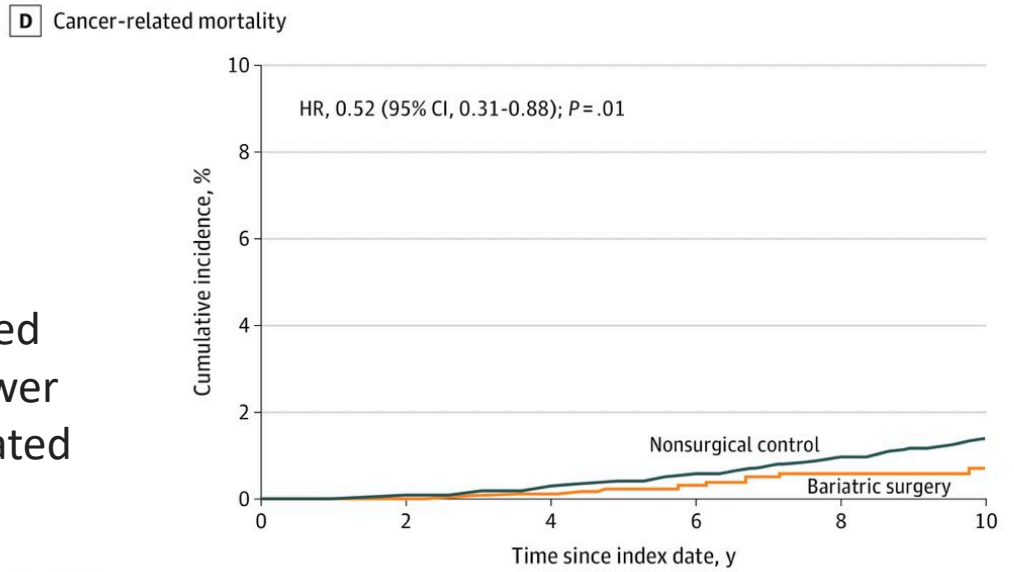
- **Breast cancer after menopause is the most common obesity-associated cancer among women.**
- **Colorectal cancer is the most common obesity-associated cancer among men.**

- **More than 90% of new obesity-related cancers occur in men and women who are 50 years old or older.** More than 684,000 obesity-associated cancers occur in the United States each year, including more than 210,000 among men and 470,000 among women.

Source - U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool, based on 2022 submission data (1999-2020): U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; https://www.cdc.gov/cancer/dataviz, released in November 2023.



Among adults with obesity, bariatric surgery compared with no surgery was associated with a significantly lower incidence of obesity-associated cancer and cancer-related mortality.



No. at risk						
Nonsurgical control	25265	23796	18588	13055	8334	4571
Bariatric surgery	5053	4487	3409	2453	1588	939

No. at risk						
Nonsurgical control	25265	23898	18826	13345	8590	4778
Bariatric surgery	5053	4508	3440	2497	1622	963

Aminian A et al. Association of Bariatric Surgery With Cancer Risk and Mortality in Adults With Obesity.
JAMA. 2022 Jun 28;327(24):2423-2433. doi: 10.1001/jama.2022.9009. PMID: 35657620; PMCID: PMC9166218.

Association of Bariatric Surgery With Cancer Risk and Mortality in Adults With Obesity

In the SPLENDID (Surgical Procedures and Long-term Effectiveness in Neoplastic Disease Incidence and Death) matched cohort study, adult patients with a BMI of 35 or greater who underwent bariatric surgery at a US health system between 2004 and 2017 were included.

Bariatric surgery (n = 5053), including Roux-en-Y gastric bypass and sleeve gastrectomy, vs nonsurgical care (n = 25 265).

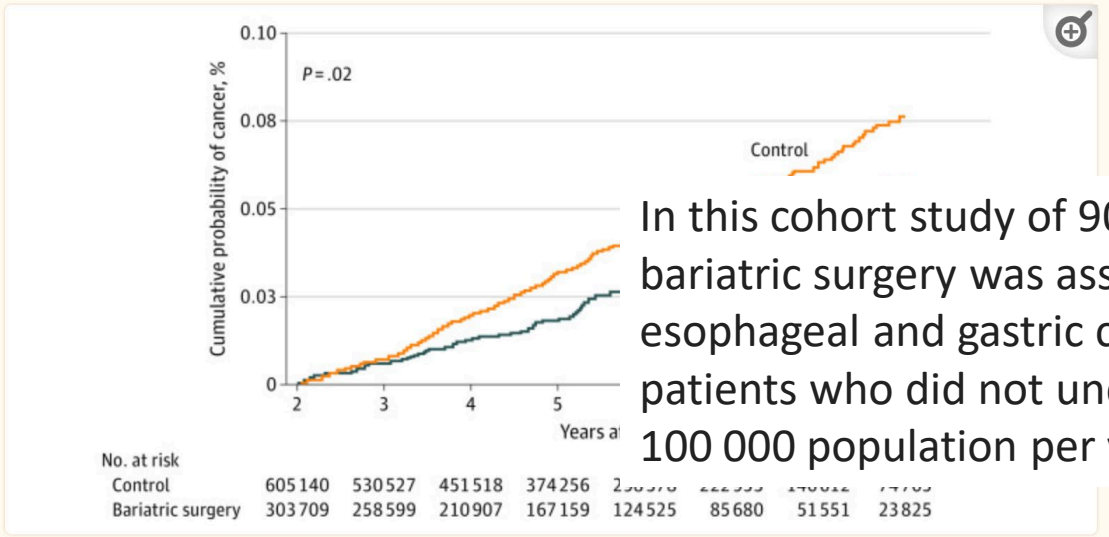


Figure 1.

Cumulative Incidence of Esophagogastric Cancer by Group

In this cohort study of 908 849 patients with severe obesity, bariatric surgery was associated with a significant reduction of esophageal and gastric cancer incidence compared with patients who did not undergo bariatric surgery (6.9 vs 4.9 per 100 000 population per year).

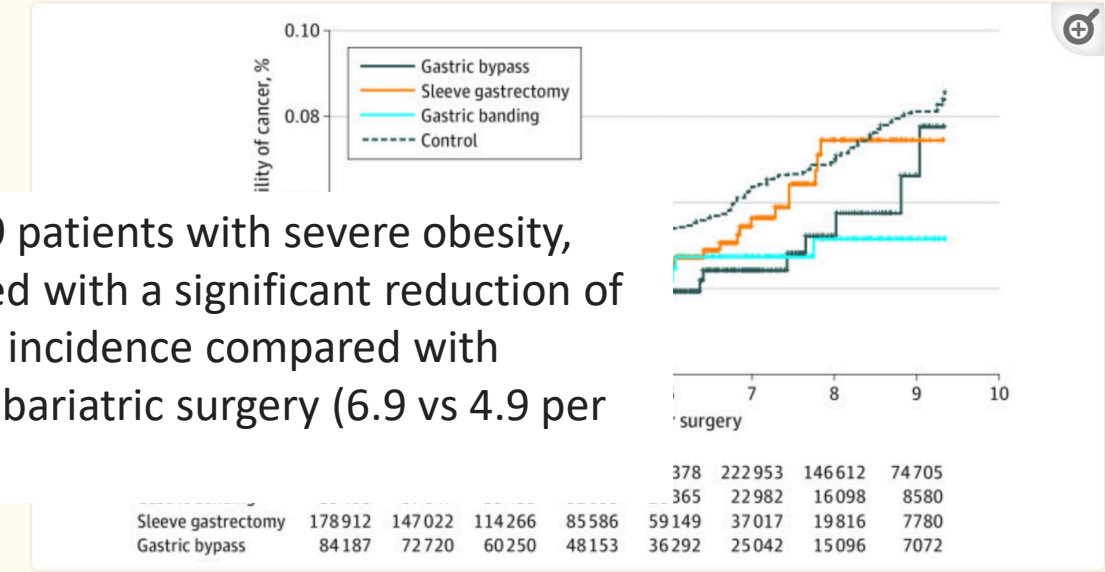


Figure 2.

Cumulative Incidence of Esophagogastric Cancer by Bariatric Procedure

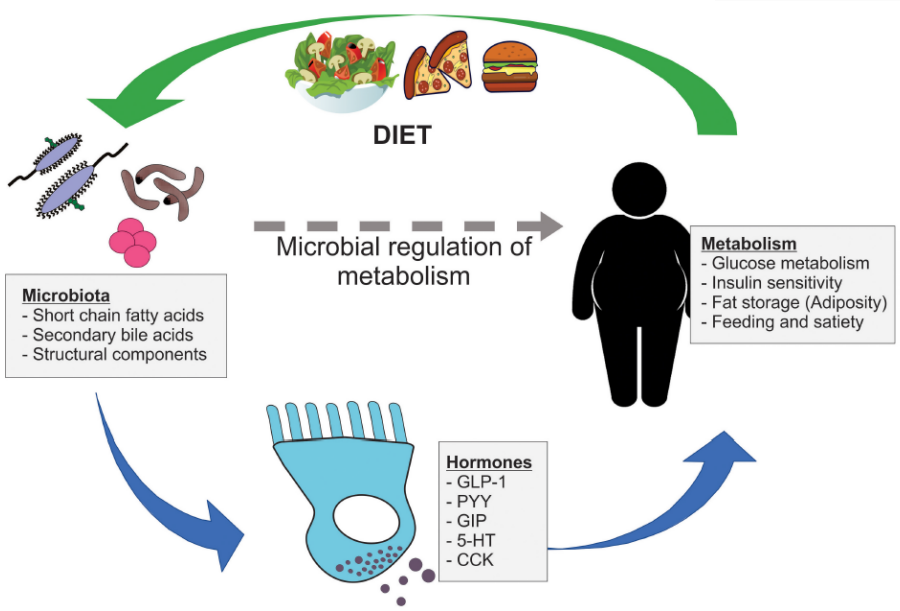
Lazzati A, Poghosyan T, Touati M, Collet D, Gronnier C. Risk of Esophageal and Gastric Cancer After Bariatric Surgery. **JAMA Surg. 2023** Mar 1;158(3):264-271. doi: 10.1001/jamasurg.2022.6998. PMID: 36630108; PMCID: PMC9857712..

Risk of Esophageal and Gastric Cancer After Bariatric Surgery

This cohort study obtained data from a national discharge database, including all surgical centers, in France from January 1, 2010, to December 31, 2017. Participants included adults (aged ≥18 years) with severe obesity who underwent bariatric surgery (surgical group) or who did not (control group). Baseline characteristics were balanced between groups using nearest neighbor propensity score matching with a 1:2 ratio. The study was conducted from March 1, 2020, to June 30, 2021.

HOW?

METABOLIC IMPROVEMENTS



WEIGHT LOSS

Biological Mechanisms and Cancer after OAGB

	Parameters	SG N	SG Pooled outcome (95% CI)	SG I^2 (%)	RYGB N	RYGB Pooled outcome (95% CI)	RYGB I^2 (%)
Manometry	LES resting pressure (mm Hg)	10	**−3.55 (−6.35 to −0.75)**	93	10	−0.15 (−0.86 to 0.55)	51
	LES length (cm)	5	0.14 (−0.11 to 0.39)	91	6	0.01 (−0.09 to 0.11)	68
	Esophageal body amplitude (mm Hg)	1	**−23.30 (−33.97 to −8.63)**	Inestimable	4	−0.31 (−14.36 to 13.74)	85
	Ineffective peristalsis (%)[a]	3	**2.82 (1.34 to 5.98)**	0	3	**2.41 (1.38 to 4.20)**	12
	Intragastric pressure (mm Hg)	6	0.78 (−3.87 to 5.42)	96	1	**−7.00 (−8.60 to −5.40)**	Inestimable
pH test	DeMeester score	9	5.46 (−1.26 to 12.18)	96	7	**−16.65 (−22.36 to −10.93)**	99
	AET, total (%)	10	**1.95 (0.23 to 3.67)**	96	5	**−3.88 (−5.47 to −2.28)**	97
	AET, recumbent (%)	5	**2.64 (0.82 to 4.45)**	90	**1**	**−1.64 (−2.65 to −0.64)**	**0**
	AET, upright (%)	5	1.79 (−0.68 to 4.25)	95	**1**	**−5.44 (−6.13 to −4.76)**	**34**
	Reflux episodes, total (n)	6	**15.98 (0.05 to 31.90)**	93	4	−18.06 (−52.64 to 16.52)	100
	Reflux episodes, total acid (n)	6	**5.07 (−2.26 to 12.41)**	87	2	**−34.79 (−69.30 to −0.28)**	100
	Reflux episodes, total nonacid (n)	6	**11.65 (5.59 to 17.71)**	82	2	**43.21 (39.33 to 47.10)**	94
	Reflux episodes, recumbent (n)	2	**5.79 (−1.22 to 12.80)**	52	—	—	—
	Reflux episodes, upright (n)	2	2.60 (−16.97 to 22.16)	91	—	—	—

Bold text indicates a statistically significant difference with a *P*-value less than 0.05.
AET, acid exposure time; CI, confidence interval; LES, lower esophageal sphincter; RYGB, Roux-en-Y gastric bypass; SG, sleeve gastrectomy.
[a]Relative risk.

- Concerns exist regarding **bile reflux (BR) gastritis** after OAGB, potentially increasing the risk of malignancy, particularly esophageal carcinoma.
- Early detection of **Barrett's esophagus or carcinoma** of the esophagus or stomach is crucial.
- **Acid, alkaline reflux and hiatal hernia** are risk factors

Jaruvongvanich, Veeravich et al. “Esophageal Pathophysiologic Changes and Adenocarcinoma After Bariatric Surgery: A Systematic Review and Meta-Analysis.” *Clinical and translational gastroenterology* vol. 11,8 (2020): e00225.

Aggarwal, Sandeep et al. “Adenocarcinoma of oesophagus involving gastro-oesophageal junction following mini-gastric bypass/one anastomosis gastric bypass.” *Journal of minimal access surgery* vol. 16,2 (2020): 175-178.

Complications of Gastroesophageal Reflux Disease

Role of the Lower Esophageal Sphincter, Esophageal Acid and Acid/Alkaline Exposure, and Duodenogastric Reflux

Ann. Surg. • July 1992

HUBERT J. STEIN, M.D.,* ANTONY P. BARLOW, M.D.,† TOM R. DeMEESTER, M.D.,* and RONALD A. HINDER, M.D., PH.D.†

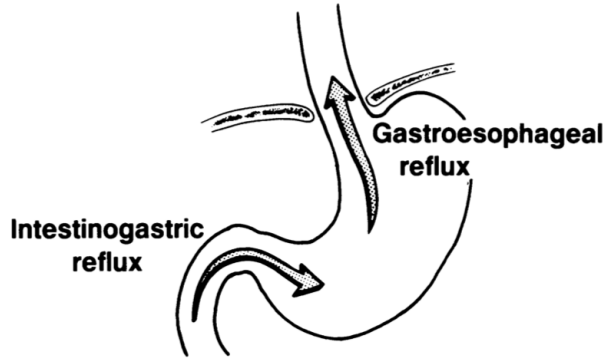


FIG. 10. Intestinogastroesophageal reflux in patients with GERD.

n = 205 with GERD, n = 50 healthy volunteers

The severity of complications progressively increased from patients with a normal lower esophageal sphincter and only acid reflux, to patients with a defective sphincter and acid/alkaline reflux (Fig. 7). Patients with a normal lower esophageal sphincter were more apt to have the complication of esophagitis ($p < 0.01$), whereas those with a mechanically defective sphincter were more likely to have a stricture or Barrett's esophagus ($p < 0.01$), particularly so in those with acid/alkaline reflux.

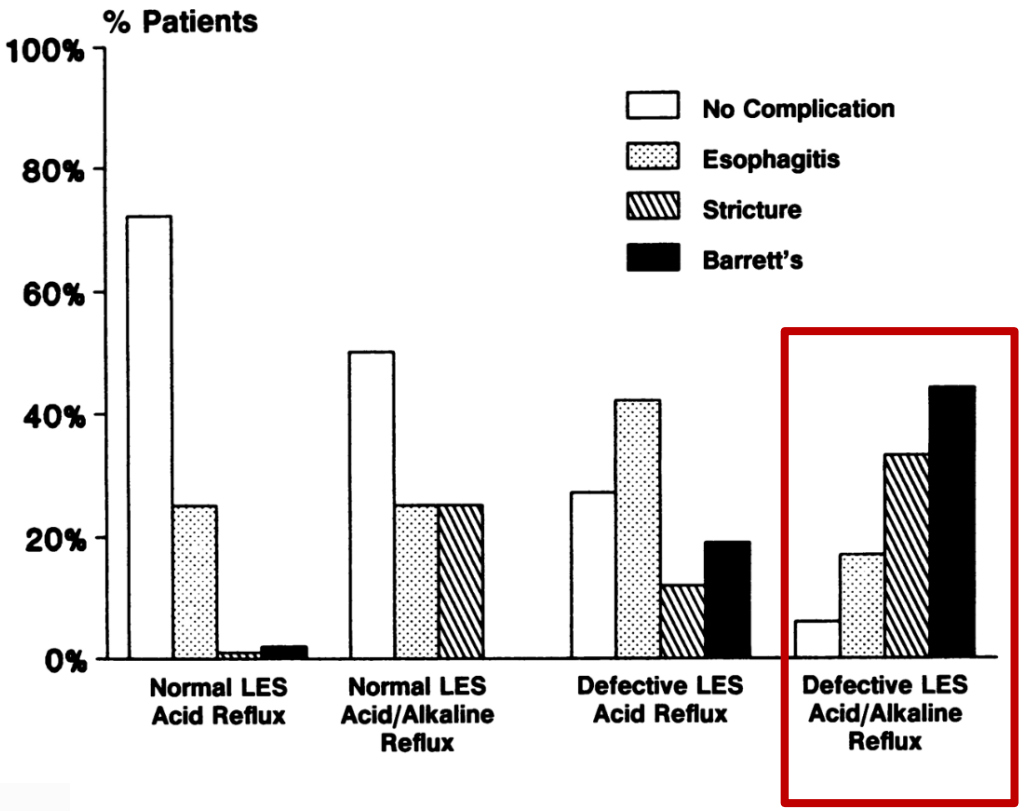


FIG. 7. The severity of complications in patients with GERD and acid reflux or acid/alkaline reflux with and without a mechanically defective LES.

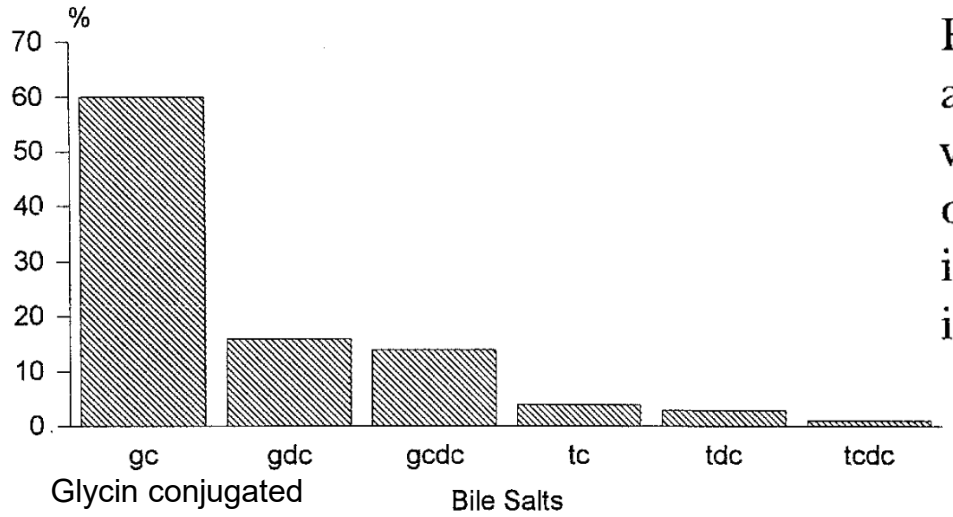
0039-6060/97/$5.00 + 0 11/56/81932

Ospedale Evangelico Betania
fondazione evangelica betania

Composition and concentration of bile acid reflux into the esophagus of patients with gastroesophageal reflux disease

Werner K. H. Kauer, MD, Jeffrey H. Peters, MD, Tom R. DeMeester, MD, Hubertus Feussner, MD, Adrian P. Ireland, FRCSI, Hubert J. Stein, MD, *and* **Rüdiger J. Siewert, MD,** *Munich, Germany, and Los Angeles, Calif.*

Bile acids could be detected in 58 % of normal subjects (n = 43) and 86% of patients (n = 37) (p < 0.003).



Patients with reflux disease have an increased amount of bile in their aspirate, with the highest volume and rate of bile aspiration in the postprandial and supine periods. Bile reflux may play an important role in the development of mucosal injury in GERD.

Fig. 5. Prevalence of conjugated bile acids in samples with an aspirated volume greater than 3 ml ($n = 24$). *gc*, Glycocholic acid; *tc*, taurocholic acid; *gdc*, glycodeoxycholic acid; *tdc*, taurodeoxycholic acid; *gcdc*, glycochenodeoxycholic acid; *tcdc*, taurochenodeoxycholic acid.

Taylor & Francis
Taylor & Francis Group

Expert Review of Gastroenterology & Hepatology

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/ierh20

A systematic review and meta-analysis on GERD after OAGB: rate, treatments, and success

Amir Hossein Davarpanah Jazi, Shahab Shahabi, Erfan Sheikhbahaei, Salvatore Tolone, Mehdi El Skalli, Ali Kabir, Rohollah Valizadeh & Mohammad Kermansaravi

To cite this article: Amir Hossein Davarpanah Jazi, Shahab Shahabi, Erfan Sheikhbahaei, Salvatore Tolone, Mehdi El Skalli, Ali Kabir, Rohollah Valizadeh & Mohammad Kermansaravi (26 Dec 2023): A systematic review and meta-analysis on GERD after OAGB: rate, treatments, and success, Expert Review of Gastroenterology & Hepatology, DOI: 10.1080/17474124.2023.2296992

To link to this article: https://doi.org/10.1080/17474124.2023.2296992

Published online: 26 Dec 2023.

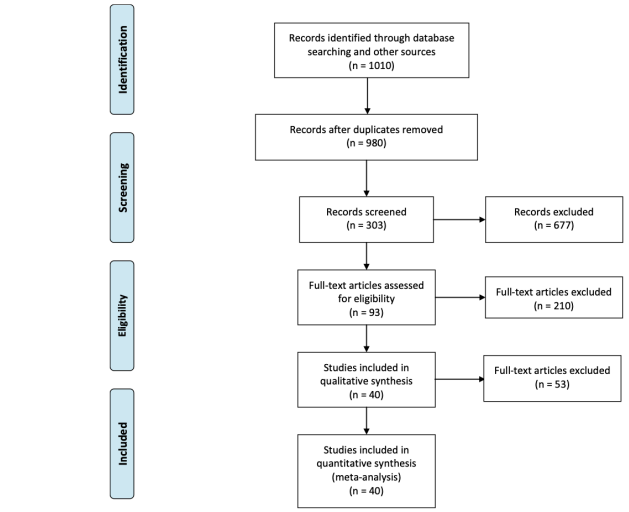


Figure 1. PRISMA flow chart indicating the number of included, excluded, and analyzed studies.

Ospedale Evangelico Betania
fondazione evangelica betania

3.2. GERD after OAGB; overall, primary, and secondary

Pooled estimation of a meta-analysis of prevalence studies reported a prevalence of 2% for GERD after OAGB (Figure 2). In the subgroup analysis, pooled estimation of a meta-analysis of prevalence studies reported that 2% and 12% experience GERD after primary and secondary OAGB, respectively. GERD following secondary OAGB as the revisional operation is six times higher than when OAGB is conducted for the first time on a patient with severe obesity (Figure 3).

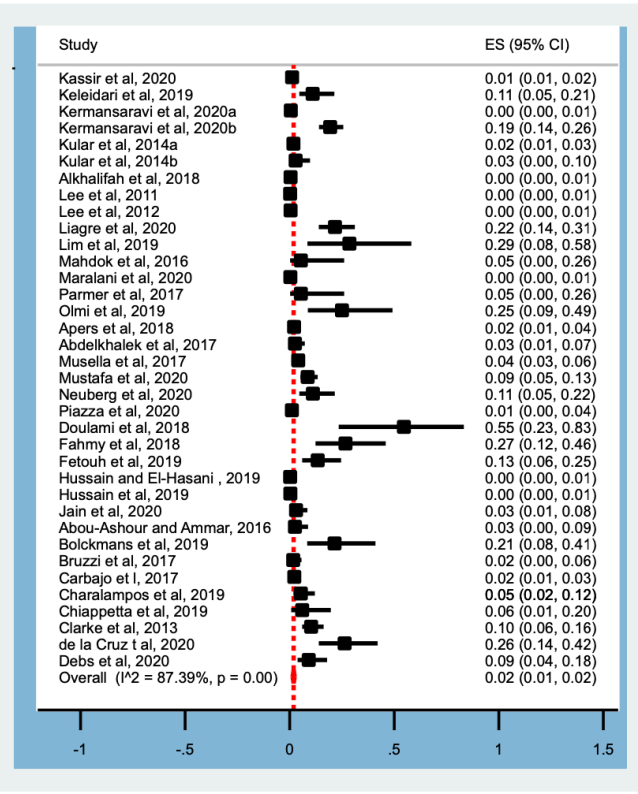


Figure 2. Prevalence of GERD following OAGB.

Nat Rev Cancer. 2010 February ; 10(2): 87–101. doi:10.1038/nrc2773.

Barrett's oesophagus and oesophageal adenocarcinoma: time for a new synthesis

Brian J. Reid[1,2,3,4], **Xiaohong Li**[1], **Patricia C. Galipeau**[1,2], and **Thomas Vaughan**[1,5]
[1]Division of Public Health Sciences, Fred Hutchinson Cancer Research Center, University of Washington, Seattle, WA, USA

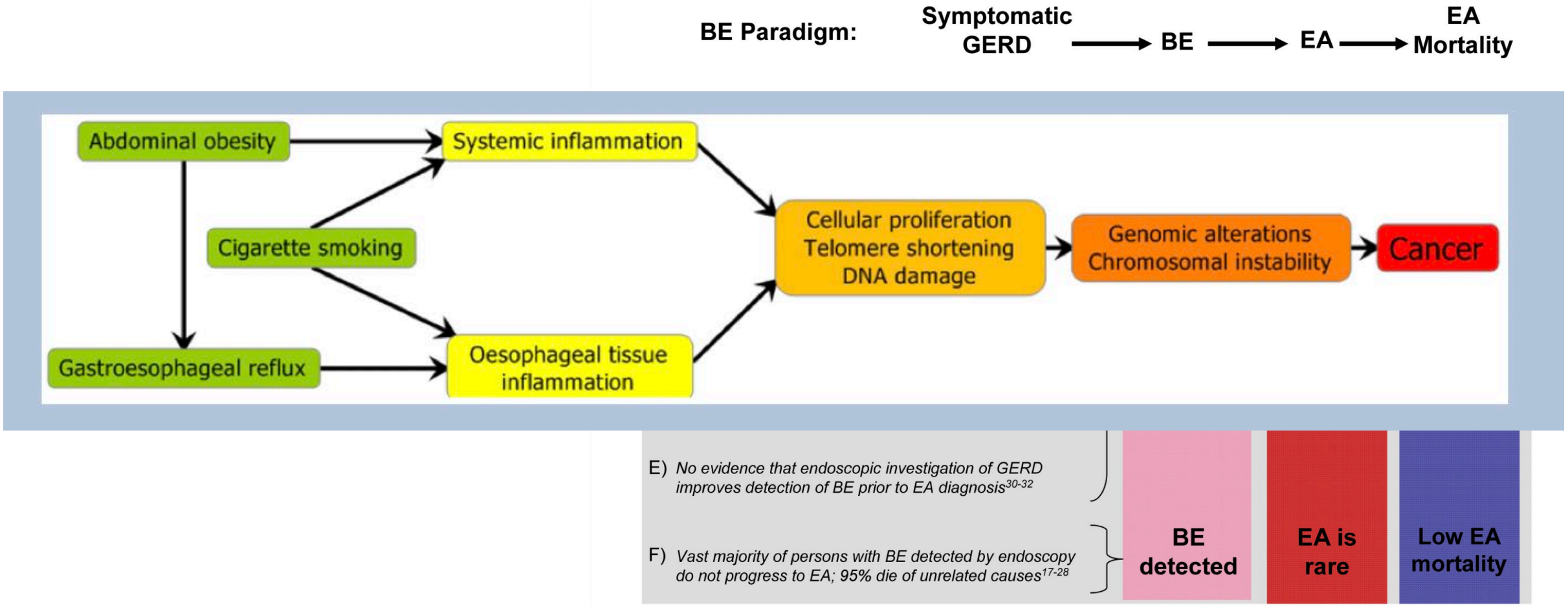


Figure 2. The paradox of Barrett's oesophagus

Obesity Surgery (2022) 32:3854–3862
https://doi.org/10.1007/s11695-022-06304-5

ORIGINAL CONTRIBUTIONS

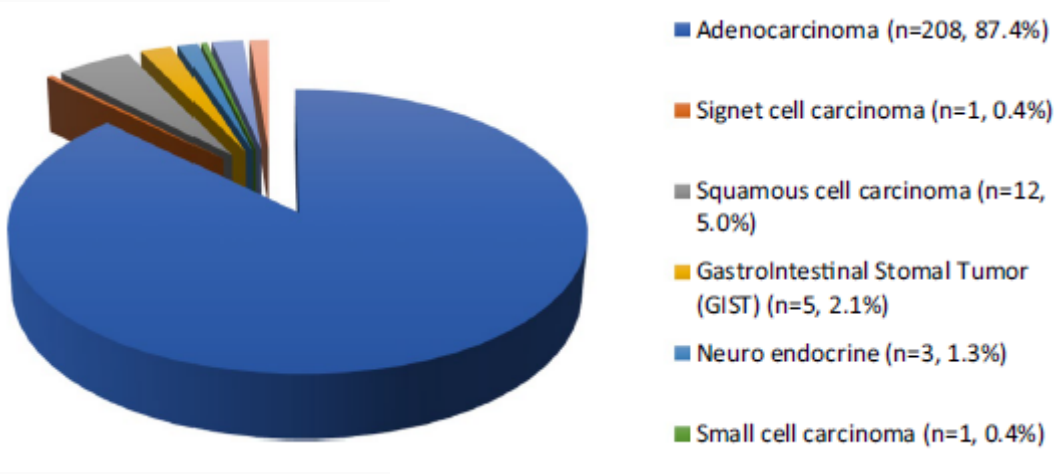
Oesophageal and Gastric Cancer After Bariatric Surgery: an Up-to-Date Systematic Scoping Review of Literature of 324 Cases

Chetan Parmar[1] · Sjaak Pouwels[2,3]

- The study analyzed 324 cases of esophageal and stomach cancer after bariatric surgery.
- A mean time of 5.25 years between surgery and cancer diagnosis
- Only 7 cases of cancer are reported after OAGB.

Table 2 Types of bariatric surgery and the location of cancer ($n=323$)

	RYGB ($N=133$)	SG ($N=58$)	GB ($N=97$)	VBG ($N=14$)	MGB/OAGB ($N=7$)	BPD ($N=3$)	Other* ($N=15$)
Oesophagus	37	17	46	5		1	8
Stomach	6	6	8	9		1	
Gastric pouch	30	16	7		2		2
Gastric remnant	24		3		3	1	2
GE junction	23	17	18		2		3
Excluded stomach	3						
Unknown	10	2	15				



Obesity Surgery (2020) 30:753–754
https://doi.org/10.1007/s11695-019-04193-9

LETTER TO THE EDITOR

The First Case Report of a Carcinoma of the Gastric Cardia (AEG II) After OAGB-MGB

Mira Runkel [1] · Michael Pauthner [1] · Norbert Runkel [1]

Published online: 31 October 2019

The scientific dispute over OAGB-MGB is gaining momentum as supporters fiercely advocate its simplicity, safety, and success and opponents obstinately recall the potential risk of the Billroth II reconstruction for chronic biliary reflux and gastroesophageal cancer. Rutledge himself has performed several thousands of these procedures since 1997 and has never observed such a malignancy [1] nor has gastric cardia or pouch cancer been published by anyone else [2]. We herein describe a case of true junctional cancer occurring 2 years after construction of an OAGB-MGB.

the left gastric artery and the remnant stomach served as the gastric conduit. The postoperative course was uneventful. Histology revealed a 2.5-cm fibrotic area with central ulceration and unspecific inflammation at the junction free of cancer (complete respons of Barrett-mucosa without intraepithelial n of reflux esophagitis. The gastric mucos Helicobacter pylori. No metastases were dominal and 13 mediastinal lymph nodes.

J Minim Access Surg. 2020 Apr-Jun;16(2):175-178. doi: 10.4103/jmas.JMAS_320_18.

Adenocarcinoma of oesophagus involving gastro-oesophageal junction following mini-gastric bypass/one anastomosis gastric bypass

Sandeep Aggarwal [1], Amit Bhambri [1], Vitish Singla [1], Nihar Ranjan Dash [2], Atul Sharma [3]

Affiliations + expand

PMID: 30777997 PMCID: PMC7176000 DOI: 10.4103/jmas.JMAS_320_18

Abstract

Mini-gastric bypass/one anastomosis gastric bypass (MGB/OAGB) is an emerging weight loss surgical procedure. There are serious concerns not only regarding the symptomatic biliary reflux into the stomach and the oesophagus but also the increased risk of malignancy after MGB/OAGB. A 54-year-old male, with a body mass index (BMI) of 46.1 kg/m^2, underwent Robotic MGB at another centre on 22nd June 2016. His pre-operative upper gastrointestinal endoscopy was not done. He lost 58 kg within 18 months after the surgery and attained a BMI of 25.1 kg/m^2. However, 2-year post-MGB, the patient had rapid weight loss of 19 kg with a decrease in BMI to 18.3 kg/m^2 within a span of 2 months. He also developed progressive dysphagia and had recurrent episodes of non-bilious vomiting. His endoscopy showed eccentric ulcerated growth in lower oesophagus extending up to the gastro-oesophageal junction and biopsy reported adenocarcinoma of oesophagus. MGB/OAGB has a potential for bile reflux with increased chances of malignancy. Surveillance by endoscopy at regular intervals for all patients who have undergone MGB/OAGB might help in early detection of Barrett's oesophagus or carcinoma of oesophagus or stomach.

Case Reports > J Gastrointest Cancer. 2024 Mar;55(1):190-192.
doi: 10.1007/s12029-023-00968-7. Epub 2023 Sep 10.

Adenocarcinoma of the Gastro-jejunal Anastomosis After One Anastomosis Gastric Bypass

Christian Mouawad [1], Houssam Dahboul [2], Daniel Kazan [2], Bilal Chamaa [2], Michael Osseis [2], Roger Noun [2], Ghassan Chakhtoura [2]

Affiliations + expand

PMID: 37690067 DOI: 10.1007/s12029-023-00968-7

Abstract

Introduction: One anastomosis gastric bypass (OAGB) is mainly criticized for the supposed carcinogenic effect of bile reflux on the gastric pouch mucosa.

Case presentation: A 56-year-old male patient presented 12 years after OAGB with a 10-month history of gradual dysphagia and vomiting. He was diagnosed with a tumor of the gastro-jejunal ent total gastrectomy with D2 lymphadenectomy. Specimen examination cell-type adenocarcinoma. To our knowledge, we report the first case in na of the gastro-jejunal anastomosis post-OAGB, and the second e the Mason loop gastric bypass, which was the earlier version of OAGB l and physiological aspect.

enic effect of bile reflux in OAGB will remain hypothetical until a detailed e the causality between bile reflux and gastric pouch malignancies in)AGB.

Obesity Surgery (2022) 32:2512–2524
https://doi.org/10.1007/s11695-022-06124-7

ORIGINAL CONTRIBUTIONS

Patient Selection in One Anastomosis/Mini Gastric Bypass—an Expert Modified Delphi Consensus

Mohammad Kermansaravi[1] · Chetan Parmar[2] · Sonja Chiappetta[3] · Shahab Shahabi[1] · Alaa Abbass[4] · Syed Imran Abbas[5] · Mohamed Abouzeid[4] · Luciano Antozzi[6] · Syed Tanseer Asghar[7] · Ahmad Bashir[8] · Mohit Bhandari[9] · Helmuth Billy[10] · Daniel Caina[11] · Francisco J. Campos[12] · Miguel-A. Carbajo[13] · Jean Marc Chevallier[14] · Amir Hossein Davarpanah Jazi[1] · Amador Garcia Ruiz de Gordejuela[15] · Ashraf Haddad[8] · Mohamad Hayssam ElFawal[16] · Jacques Himpens[17] · Aatif Inam[18] · Radwan Kassir[19] · Kazunori Kasama[20] · Amir Khan[21] · Lilian Kow[22] · Kuldeepak Singh Kular[23] · Muffazal Lakdawala[24] · Laurent abram Layani[25] · Wei-Jei Lee[26] · Enrique Luque-de-León[27] · Ken Loi[28] · Kamal Mahawar[29] · Tarek Mahdy[30] · Mario Musella[31] · Abdelrahman Nimeri[32] · Juan Carlos Olivares González[33] · Abdolreza Pazouki[1] · Tigran Poghosyan[34] · Gerhard Prager[35] · Arun Prasad[36] · Almino C. Ramos[37] · Karl Rheinwalt[38] · Rui Ribeiro[39] · Elena Ruiz-Úcar[40] · Robert Rutledge[41] · Asim Shabbir[42] · Scott Shikora[43] · Rishi Singhal[44] · Osama Taha[45] · Mohammad Talebpour[46] · Jose Sergio Verboonen[47] · Cunchuan Wang[48] · Rudolf Weiner[49] · Wah Yang[48] · Ramon Vilallonga[50] · Maurizio De Luca[51]

12	OAGB/MGB is not a suitable option in Smokers	80.70%(n=46)Agree	NA	*Consensus agreement*
13	OAGB/MGB is not a suitable option in chronic alcoholics	80.70%(n=46)Agree	NA	*Consensus agreement*
18	OAGB/MGB is a suitable option in case of intestinal metaplasia of stomach corpus	74.55%(n=41) Disagree	NA	*Consensus disagreement*
20	OAGB/MGB is a suitable option in patients with severe GERD (C,D)	75.44%(n=43) Disagree	NA	*Consensus disagreement*

Obesity Surgery (2021) 31:3251–3278
https://doi.org/10.1007/s11695-021-05413-x

REVIEW

IFSO Update Position Statement on One Anastomosis Gastric Bypass (OAGB)

Maurizio De Luca[1] · Giacomo Piatto[2] · Giovanni Merola[3] · Jacques Himpens[4] · Jean-Marc Chevallier[5] · Miguel-A Carbajo[6] · Kamal Mahawar[7,8] · Alberto Sartori[2] · Nicola Clemente[2] · Miguel Herrera[9] · Kelvin Higa[10,11] · Wendy A. Brown[12] · Scott Shikora[13,14]

Received: 13 March 2021 / Revised: 3 April 2021 / Accepted: 7 April 2021 / Published online: 3 May 2021

4. At this stage, bile reflux does not seem to be a major issue for patients who have undergone OAGB and there have not been increased reports of esophageal or gastric cancer. Due to the risk of under reporting and the time lag for carcinogenesis following OAGB, we recommend that patients should remain under the care of their multidisciplinary bariatric team and have regular endoscopic examinations as per the IFSO position statement on endoscopy [119].

Obesity Surgery (2020) 30:3135–3153
https://doi.org/10.1007/s11695-020-04720-z

REVIEW

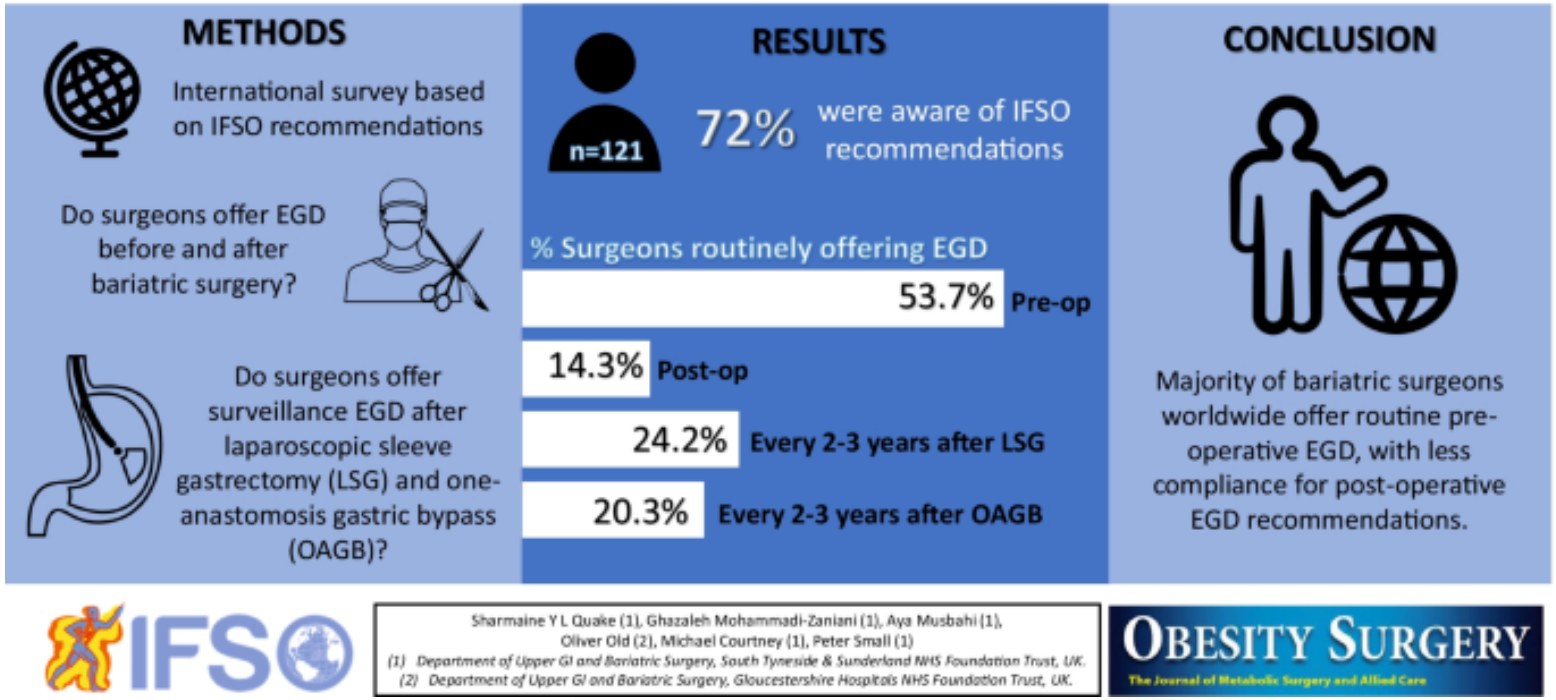
IFSO Position Statement on the Role of Esophago-Gastro-Duodenal Endoscopy Prior to and after Bariatric and Metabolic Surgery Procedures

Wendy A. Brown[1] · Yazmin Johari Halim Shah[1] · George Balalis[1] · Ahmad Bashir[1] · Almino Ramos[1] · Lilian Kow[1] · Miguel Herrera[1] · Scott Shikora[1] · Guilherme M. Campos[1] · Jacques Himpens[1] · Kelvin Higa[1]

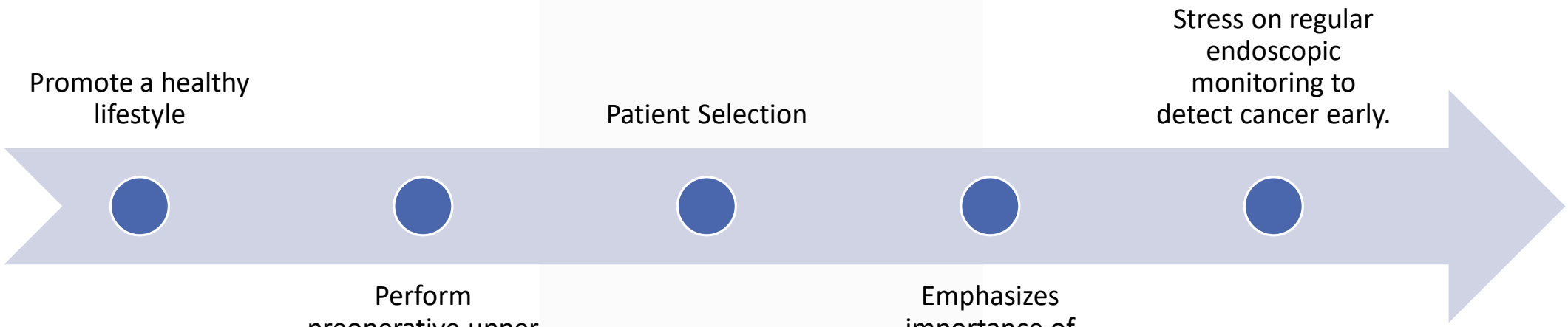
4. EGD should be undertaken routinely for all patients after bariatric surgery at 1 year and then every 2–3 years for patients who have undergone LSG or OAGB to enable early detection of Barrett's esophagus or upper GI malignancy until more data is available to confirm the incidence of these cancers in practice.

IFSO Risk Management and Prevention

- frequent upper gastrointestinal endoscopies post-bariatric surgery, starting after 1 year.
- followed by subsequent ones every 2–3 years
- Regular monitoring and early treatment of alarming symptoms are crucial.



Recommendations:



Conclusions

- Metabolic and Bariatric Surgery offers significant benefits beyond weight loss, including a reduction in obesity-associated cancer risk and cancer-mortality.
- Metabolic and Bariatric Surgery (GB, RYGB, SG) offers significant reduction of esophageal and gastric cancer incidence compared with patients who did not undergo bariatric surgery.
- Up to date only 7 cases of cancer after OAGB a reported in the literature (Gastric pouch 2, Gastric remnant 3, GE junction 2).

- **Preoperative endoscopy + esophageal and gastric biopsy**
- **Patient selection and**
- **Postoperative endoscopic surveillance are necessary to reduce the risk of gastroesophageal cancer.**

Grazie

drschiappetta@gmail.com

chiappetta.obesity.intouch

Sonja Chiappetta

PD Sonja Chiappetta