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## Complications following the mini/one anastomosis gastric by-pass (MGB/OAGB): a multi-institutional survey on 2,678 patients with a mid-term (5 years) follow-up

Musella, et al. Obesity Surgery 2017 [1]

*Background*: In recent years, several articles have reported considerable results with the Mini/One Anastomosis Gastric Bypass (MGB/OAGB) in terms of both weight loss and resolution of comorbidities. Despite those positive reports, some controversies still limit the widespread acceptance of this procedure. Therefore, a multicenter retrospective study, with the aim to investigate complications following this procedure, has been designed.

*Patients and methods:* To report the complications rate following the MGB/OAGB and their management, and to assess the role of this approach in determining eventual complications related especially to the loop reconstruction, in the early and late postoperative periods, the clinical records of 2678 patients who underwent MGB/OAGB between 2006 and 2015 have been studied.

*Results:* Intraoperative and early complications rates were 0.5 and 3.1%, respectively. Follow-up at 5 years was 62.6%. Late complications rate was 10.1%. A statistical correlation was found for perioperative bleeding both with operative time ($p < 0.001$) or a learning curve of less than 50 cases ($p < 0.001$). A statistical correlation was found for postoperative duodenal-gastro-esophageal reflux (DGER) with a preexisting gastro-esophageal-reflux disease (GERD) or with a gastric pouch shorter than 9 cm, ($p < 0.001$ and $p = 0.001$), respectively. An excessive weight loss correlated with a biliopancreatic limb longer than 250 cm ($p < 0.001$).

*Conclusions:* Our results confirm MGB/OAGB to be a reliable bariatric procedure. According to other large and long-term published series, MGB/OAGB seems to compare very favorably, in terms of complication rate, with two mainstream procedures as standard Roux-en-Y gastric bypass (RYGBP) and laparoscopic sleeve gastrectomy (LSG).

Commentaire **:** *Il s'agit d'une étude multicentrique, rétrospective, évaluant des données cliniques collectées prospectivement chez 2 678 individus obèses dont 1 885 femmes opérées par la technique de by-pass gastrique en oméga. Le but de l'étude était de faire le point sur les complications postopératoires à court (un mois) et à long (cinq ans) terme, avec un focus particulier sur le reflux et l'ulcère à distance. Le diagnostic de reflux clinique était fondé sur les critères de Montréal. En cas de symptômes, une fibroscopie et une impédancemétrie étaient réalisées. Le taux de complications à un mois était de 3,1 %, dont principalement l'hémorragie (1,6 %) et l'infection du site (0,62 %). Trois patients sont décédés. Soixante-deux pour cent des patients ont eu une évaluation à cinq ans. Le taux de complications parmi ces patients était de 10 %, incluant 4 % de reflux alcalin (probablement sous-estimé, compte tenu de formes possiblement asymptomatiques ou pauci symptomatiques [2]), 1,1 % d'ulcère anastomotique et 1,7 % d'anémie (ne prenant pas en compte les carences martiales supplémentées par voie orale voire par voie intraveineuse en cas d'insuffisance de la voie orale). Malgré le nombre important d'inclusions, l'estimation fiable des complications à cinq ans de cette étude est limitée, compte tenu d'un recueil multicentrique non standardisé et du pourcentage relativement élevé de patients non évalués à cinq ans.*

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*Cette étude a cependant l'avantage d'éclairer les centres pratiquant cette intervention sur les risque de reflux et de carence martiale à long terme. Les difficultés liées à l'incidence des reflux alcalins après un by-pass gastrique en oméga et les modalités de son diagnostic restent à déterminer [3]. L'endoscopie, technique la plus accessible, est-elle la plus appropriée ?*

## Alcohol and substance abuse, depression and suicide attempts after Roux-en-Y gastric bypass surgery

Backman, et al. British Journal of Surgery [4]

*Background:* Small studies suggest that subjects who have undergone bariatric surgery are at increased risk of suicide, alcohol and substance use disorders. This population-based cohort study aimed to assess the incidence of treatment for alcohol and substance use disorders, depression and attempted suicide after primary Roux-en-Y gastric bypass (RYGB).

*Methods:* All patients who underwent primary RYGB in Sweden between 2001 and 2010 were included. Incidence of hospital admission for alcohol and substance use disorders, depression and suicide attempt was measured, along with the number of drugs prescribed. This cohort was compared with a large age-matched, non-obese reference cohort based on the Swedish population. Inpatient care and prescribed drugs registers were used.

*Results:* Before RYGB surgery, women, but not men, were at higher risk of being diagnosed with alcohol and substance use disorder compared with the reference cohort. After surgery, this was the case for both sexes. The risk of being diagnosed and treated for depression remained raised after surgery. Suicide attempts were significantly increased after RYGB. The adjusted hazard ratio for attempted suicide in the RYGB cohort after surgery compared with the general non-obese population was 2·85 (95 per cent c.i. 2·40 to 3·39).

*Conclusion:* Patients who have undergone RYGB are at an increased risk of being diagnosed with alcohol and substance use, with an increased rate of attempted suicide compared with a non-obese general population cohort.

*Commentaire :* Cette étude a utilisé le registre national suédois qui compile les données cliniques des patients hospitalisés ou pris en charge en ambulatoire avec une couverture de 100 %, quel que soit le secteur public ou privé depuis 2001. Couplé au registre de prescription médicamenteuse national, une vision exhaustive des troubles psychiatriques est possible. Les auteurs ont comparé les troubles comportementaux et/ou psychiatriques dans une population de patients obèses avant et après chirurgie bariatrique à une population de référence appareillée pour le sexe, l'âge et la durée de suivi. Les résultats suggèrent un risque accru de comportements addictifs (alcool, toxicomanie) dans la population obèse, en particulier après l'intervention, Bien qu'un environnement socioéconomique, avec une surreprésentation des classes sociales à faible revenu dans la population obèse, était susceptible d'induire un biais, l'augmentation du risque, passant de deux fois supérieur avant chirurgie à trois fois supérieur après chirurgie bariatrique comparativement à la population contrôle, invite à une surveillance ciblée de ces paramètres lors du suivi à long terme des patients après chirurgie bariatrique.

## Weight and metabolic outcomes 12 years after gastric bypass

Adams, et al. New England Journal of Medicine, 2017 [5]

*Background***:** Few long-term or controlled studies of bariatric surgery have been conducted to date. We report the 12-year follow-up results of an observational, prospective study of Roux-en-Y gastric bypass that was conducted in the United States.

*Methods:* A total of 1,156 patients with severe obesity comprised three groups: 418 patients who sought and underwent Roux-en-Y gastric bypass (surgery group), 417 patients who sought but did not undergo surgery (primarily for insurance reasons) (nonsurgery group 1), and 321 patients who did not seek surgery (nonsurgery group 2). We performed clinical examinations at baseline and at 2 years, 6 years, and 12 years to ascertain the presence of type 2 diabetes, hypertension, and dyslipidemia.

*Results:* The follow-up rate exceeded 90% at 12 years. The adjusted mean change from baseline in body weight in the surgery group was -45.0 kg (95% confidence interval [CI]: -47.2 to -42.9; mean percent change, -35.0) at 2 years, -36.3 kg (95% CI: -39.0 to -33.5; mean percent change, -28.0) at 6 years, and -35.0 kg (95% CI, -38.4 to -31.7; mean percent change, -26.9) at 12 years; the mean change at 12 years in nonsurgery group 1 was -2.9 kg (95% CI: -6.9 to 1.0; mean percent change, -2.0), and the mean change at 12 years in nonsurgery group 2 was 0 kg (95% CI, -3.5 to 3.5; mean percent change, -0.9). Among the patients in the surgery group who had type 2 diabetes at baseline, type 2 diabetes remitted in 66 of 88 patients (75%) at 2 years, in 54 of 87 patients (62%) at 6 years, and in 43 of 84 patients (51%) at 12 years. The odds ratio for the incidence of type 2 diabetes at 12 years was 0.08 (95% CI: 0.03 to 0.24) for the surgery group versus nonsurgery group 1 and 0.09 (95% CI: 0.03 to 0.29) for the surgery group versus nonsurgery group 2

($p < 0.001$ for both comparisons). The surgery group had higher remission rates and lower incidence rates of hypertension and dyslipidemia than did nonsurgery group 1 ($p < 0.05$ for all comparisons).

*Conclusions:* This study showed long-term durability of weight loss and effective remission and prevention of type 2 diabetes, hypertension, and dyslipidemia after Roux-en-Y gastric bypass.

Commentaire : *Il s'agit d'une des études les plus importantes rapportant l'efficacité du bypass gastrique en Y à très long terme (au-delà de dix ans). La récente revue systématique de Golzarand et al. a fait la synthèse des donnée récentes [6] sur les données à long et à très long terme. Les bénéfices pondéraux et métaboliques semblent maintenus après bypass (-35 kg à 12 ans). On regrettera l'absence d'homogénéité par rapport aux autres études [7,8] concernant la définition de la rémission du diabète de type 2, ce qui limite la comparabilité des résultats. Néanmoins, cette étude confirme une nouvelle fois les données de la cohorte SOS concernant la récidive des comorbidités après chirurgie ainsi que l'effet préventif de la chirurgie dans la survenue des comorbidités [9].*

## Association of bariatric surgery using laparoscopic banding, Roux-en-Y gastric bypass, or laparoscopic sleeve gastrectomy versus usual care obesity management with all-cause mortality

Reges, et al. Journal of the American Medical Association 2018 [10]

*Importance*: Bariatric surgery is an effective and safe approach for weight loss and short-term improvement in metabolic disorders such as diabetes. However, studies have been limited in most settings by lack of a nonsurgical group, losses to follow-up, missing data, and small sample sizes in clinical trials and observational studies.

*Objective:* To assess the association of 3 common types of bariatric surgery compared with nonsurgical treatment with mortality and other clinical outcomes among obese patients.

*Design, setting, and participants:* Retrospective cohort study in a large Israeli integrated health fund covering 54% of Israeli citizens with less than 1% turnover of members annually. Obese adult patients who underwent bariatric surgery between January 1, 2005, and December 31, 2014, were selected and compared with obese nonsurgical patients matched on age, sex, body mass index (BMI), and diabetes, with a final follow-up date of December 31, 2015. A total of 33,540 patients were included in this study.

*Exposures:* Bariatric surgery (laparoscopic banding, Roux-en-Y gastric bypass, or laparoscopic sleeve gastrectomy) or usual care obesity management only (provided by a primary care physician and which may include dietary counseling and behavior modification).

*Main outcomes and measures:* The primary outcome, all-cause mortality, matched and adjusted for BMI prior to surgery, age, sex, socioeconomic status, diabetes, hyperlipidemia, hypertension, cardiovascular disease, and smoking.

*Results:* The study population included 8,385 patients who underwent bariatric surgery (median age, 46 [IQR: 37–54] years; 5490 [65.5%] women; baseline median BMI, 40.6 [IQR: 38.5–43.7]; laparoscopic banding [$n = 3,635$], gastric bypass [$n = 1,388$], laparoscopic sleeve gastrectomy [$n = 3,362$], and 25,155 nonsurgical matched patients (median age, 46 [IQR: 37–54] years; 16,470 [65.5%] women; baseline median BMI, 40.5 [IQR: 37.0–43.5]). The availability of follow–up data was 100% for all–cause mortality. There were 105 deaths (1.3%) among surgical patients during a median follow–up of 4.3 (IQR: 2.8–6.6) years (including 61 [1.7%] who underwent laparoscopic banding, 18 [1.3%] gastric bypass, and 26 [0.8%] sleeve gastrectomy), and 583 deaths (2.3%) among nonsurgical patients during a median follow–up of 4.0 (IQR: 2.6–6.2) years. The absolute difference was 2.51 (95% CI: 1.86–3.15) fewer deaths/1000 person–years in the surgical vs nonsurgical group. Adjusted hazard ratios (HRs) for mortality among nonsurgical vs surgical patients were 2.02 (95% CI: 1.63–2.52) for the entire study population; by surgical type, HRs were 2.01 (95% CI: 1.50–2.69) for laparoscopic banding, 2.65 (95% CI: 1.55–4.52) for gastric bypass, and 1.60 (95% CI: 1.02–2.51) for laparoscopic sleeve gastrectomy.

*Conclusions and relevance:* Among obese patients in a large integrated health fund in Israel, bariatric surgery using laparoscopic banding, gastric bypass, or laparoscopic sleeve gastrectomy, compared with usual care nonsurgical obesity management, was associated with lower all-cause mortality over a median follow-up of approximately 4.5 years. The evidence of this association adds to the limited literature describing beneficial outcomes of these 3 types of bariatric surgery compared with usual care obesity management alone.

Commentaire **:** *Cette large étude confirme les données de la cohorte SOS [9] et apportent comme nouvelle donnée celle de l'impact des différentes techniques. L'anneau gastrique ajustable, la sleeve et le bypass en Y permettent de diminuer la mortalité de manière significative par rapport à la prise en charge médicale multimodale d'un facteur 2 à 3 selon la technique. On regrettera cependant l'absence d'analyse de sous-groupe comparant l'effet des différents types d'intervention. Si vous souhaitez allez plus loin, nous vous invitons à lire le numéro de janvier du JAMA consacré à l'épidémie d'obésité [11].*

## Réferences


1. Musella M, Susa A, Manno E, et al (2017) Complications following the Mini/One Anastomosis Gastric Bypass (MGB/OAGB): a multi-institutional survey on 2,678 patients with a mid-term (5 years) follow-up. Obes Surg 27:2956–67
2. Csendes A, Burgos AM, Altuve J, Bonacic S (2009) Incidence of marginal ulcer 1 month and 1 to 2 years after gastric bypass: a prospective consecutive endoscopic evaluation of 442 patients with morbid obesity. Obes Surg 19:135–8
3. Doulami G, Triantafyllou S, Albanopoulos K, et al (2017) Acid and nonacid gastroesophageal reflux after single anastomosis gastric bypass. An objective assessment using 24-hour multichannel intraluminal impedance-pH metry. Surg Obes Relat Dis Oct 26. pii: S1550-7289(17)31003-1. doi: 10.1016/j.soard.2017.10.012. [Epub ahead of print]
4. Backman O, Stockeld D, Rasmussen F, et al (2016) Alcohol and substance abuse, depression and suicide attempts after Roux-en-Y gastric bypass surgery. Br J Surg 103:1336–42
5. Adams TD, Davidson LE, Litwin SE, et al (2017) Weight and metabolic outcomes 12 years after gastric bypass. N Engl J Med 377:1143–55
6. Golzarand M, Toolabi K, Farid R (2017) The bariatric surgery and weight losing: a meta-analysis in the long- and very long-term effects of laparoscopic adjustable gastric banding, laparoscopic Roux-en-Y gastric bypass and laparoscopic sleeve gastrectomy on weight loss in adults. Surg Endosc Endosc Nov;31(11):4331-4345. doi: 10.1007/s00464-017-5505-1. Epub 2017 Apr 4
7. Rubino F (2016) Medical research: time to think differently about diabetes. Nature 533:459–61
8. Schauer PR, Bhatt DL, Kirwan JP, et al (2017) Bariatric surgery versus intensive medical therapy for diabetes - 5-year outcomes. N Engl J Med 376:641–51
9. Sjöström L (2013) Review of the key results from the Swedish Obese Subjects (SOS) trial - a prospective controlled intervention study of bariatric surgery. J Intern Med 273:219–34
10. Reges O, Greenland P, Dicker D, et al (2018) Association of bariatric surgery using laparoscopic banding, roux-en-y gastric bypass, or laparoscopic sleeve gastrectomy vs usual care obesity management with all-cause mortality. JAMA 319:279–90
11. Livingston EH (2018) Reimagining obesity in 2018: a JAMA theme issue on obesity. JAMA 319:238–40