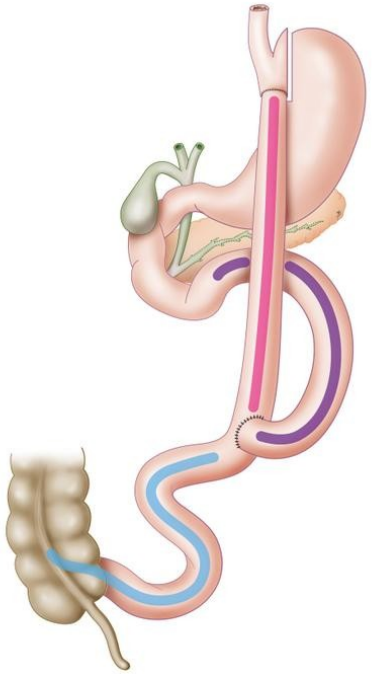
Bariatrische heelkunde
Wat bij problemen?

Dr. Ellen Deleus, bariatrisch chirurg UZ Leuven – AZ Diest

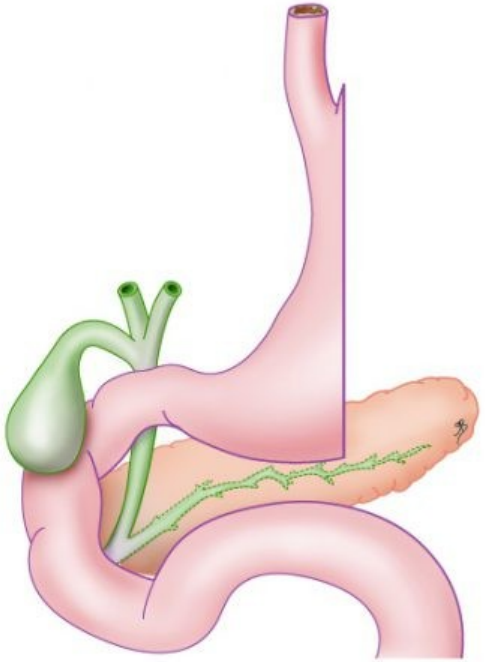
Pentalfa 19-01-2023

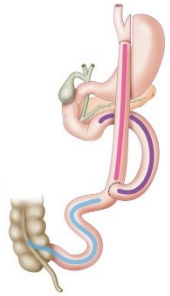
Bariatrische heelkunde

Gastric bypass

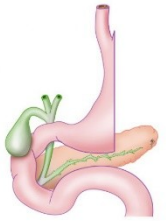


Sleeve gastrectomie





Resultaten in het voordeel van de vergelijking / controle interventie **Roux-en-Y gastric bypass**		Resultaten in het voordeel van de interventie **Sleeve gastrectomy**	
	Verwachte resultaten van de interventie		
Major morbidity 30 days		35 minder per 1000	37 per 1000 REDELIJK
Minor morbidity 30 days	122 per 1000	Veel onzekerheid	86 per 1000 ZEER LAAG
Mortality 30 days	14 per 1000	Veel onzekerheid	5 per 1000 ZEER LAAG
Improvement of diabetes 5 years	777 per 1000	120 minder per 1000	657 per 1000 LAAG
Improvement of sleep apnea 5 years	956 per 1000	Veel onzekerheid	961 per 1000 ZEER LAAG
Improvement of cholesterol 5 years	763 per 1000	108 minder per 1000	655 per 1000 LAAG
Improvement of hypertension 5 years	796 per 1000	92 minder per 1000	704 per 1000 LAAG
Improvement of non-alcoholic fatty liver disease/non-alcoholic steatohepatitis 5 years	143 per 1000	125 minder per 1000	18 per 1000 ZEER LAAG
Improvement of osteoarthritis 5 years	845 per 1000	Veel onzekerheid	953 per 1000 ZEER LAAG
Reoperation 5 years	112 per 1000	43 minder per 1000	69 per 1000 LAAG
% excess weight loss 5 years	65.62 (Gemiddelde)	Geen belangrijk verschil	56.84 (Gemiddelde) LAAG
Quality of life 5 years	0.79 (Gemiddelde)	Geen belangrijk verschil	0.73 (Gemiddelde) ZEER LAAG



UZ LEUVEN AZDIEST

Carrano et al., EAES rapid guideline: systematic review, network meta-analysis, CINeMA and GRADE assessment, and European consensus on bariatric surgery-extension 2022. *Surgical endoscopy*

Long-term follow-up

Focus op:

- stabiel gewichtsverlies
- resolutie van comorbiditeiten



Maar wat met complicaties op lange termijn?

- risk-benefit overweging
- bariatrie-gerelateerde complicaties/klachten
- hoe opsporen?
- hoe behandelen?

Cohort studie

Long-term adverse events after sleeve gastrectomy or gastric bypass: a 7-year nationwide, observational, population-based, cohort study

THE LANCET
Diabetes & Endocrinology

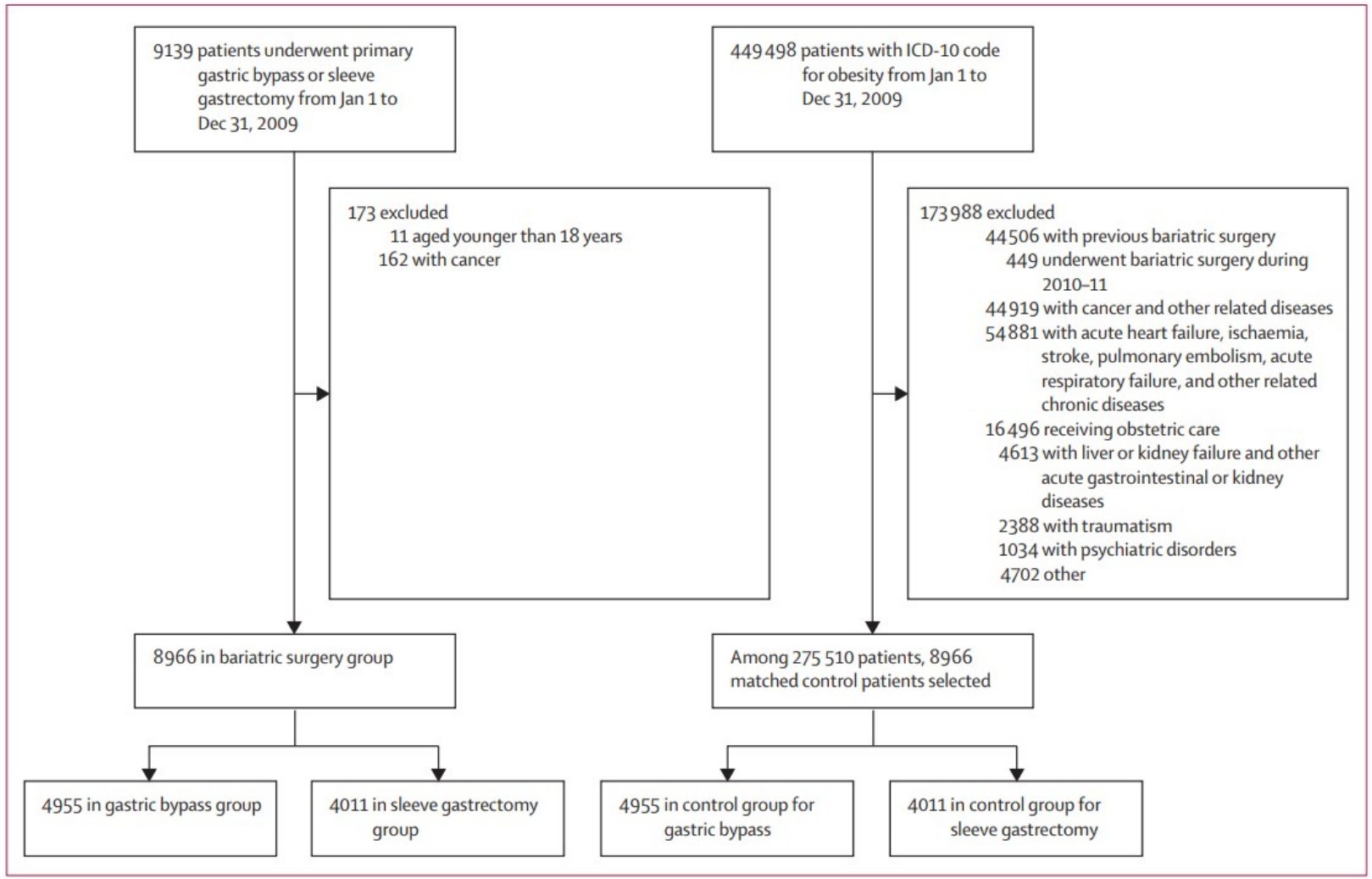


Figure 1: **Flow chart**
ICD-10=International Classification of Diseases, 10th revision.

UZ LEUVEN AZDIEST

Thereaux, J. et al.(2019). Long-term adverse events after sleeve gastrectomy or gastric bypass: a 7-year nationwide, observational, population-based, cohort study. *The lancet. Diabetes & endocrinology*,



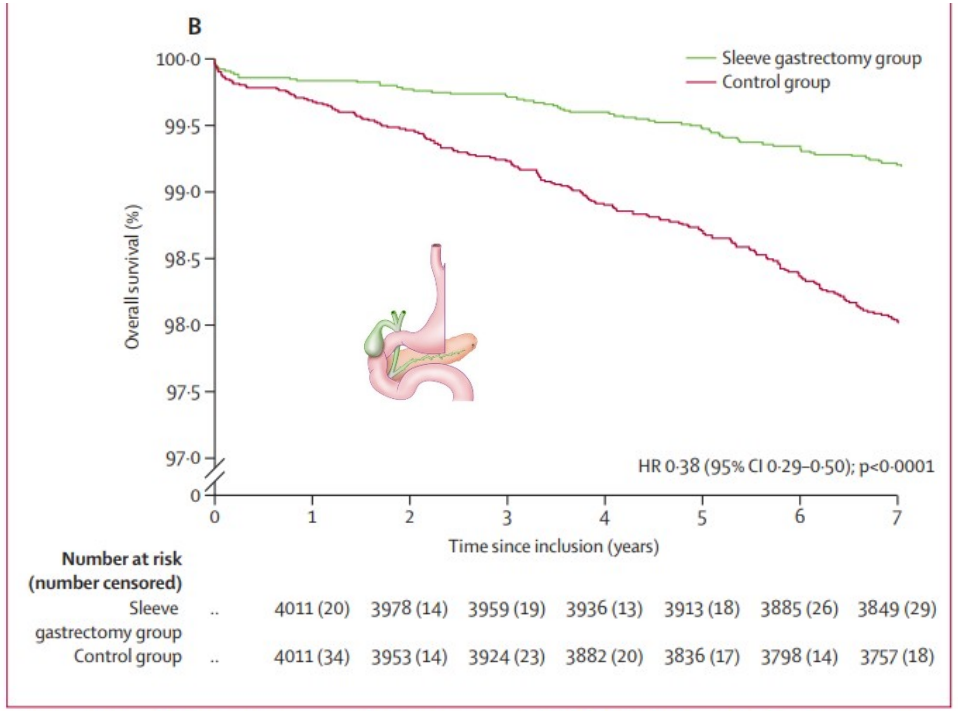
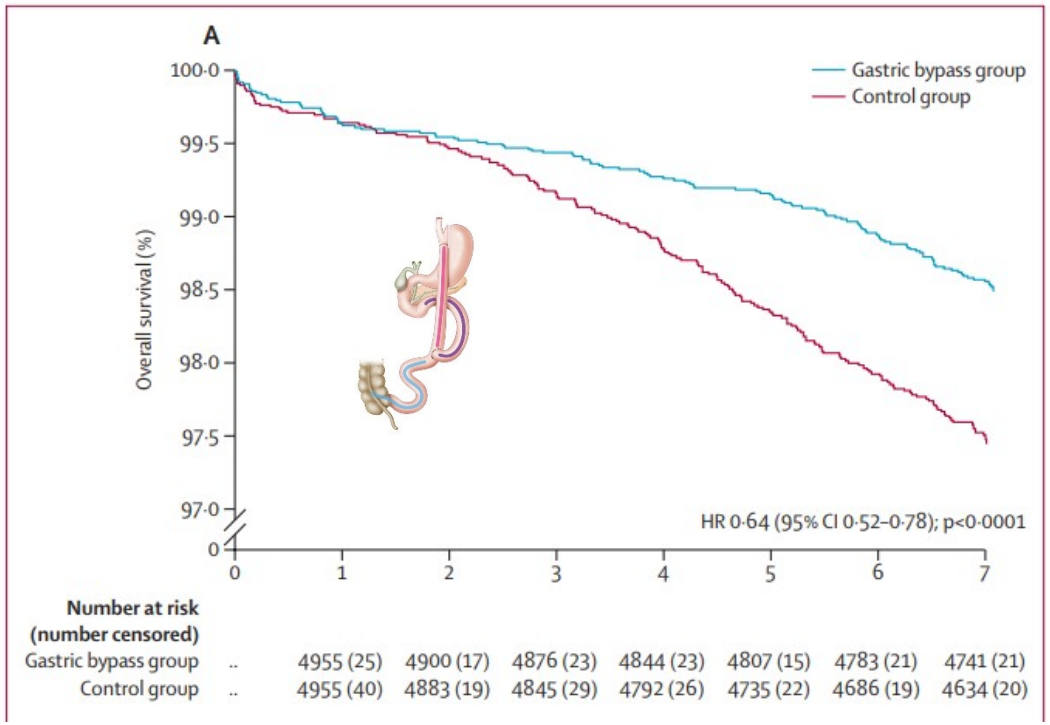


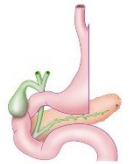
Figure 2: **Kaplan-Meier survival curves adjusted for age, sex, and BMI in patients who had undergone gastric bypass (A) or sleeve gastrectomy (B) and their matched control patients over a 7-year period**



Thereaux, J. et al.(2019). Long-term adverse events after sleeve gastrectomy or gastric bypass: a 7-year nationwide, observational, population-based, cohort study. *The lancet. Diabetes & endocrinology*,



vs
controle



vs
controle

	Gastric bypass group (n=4955)		Control group (n=4955)		Incidence rate ratio (95% CI)	Unadjusted p value	Sleeve gastrectomy group (n=4011)		Control group (n=4011)		Incidence rate ratio (95% CI)	Unadjusted p value
	Number of events	Incidence rate per 1000 person-years (95% CI)	Number of events	Incidence rate per 1000 person-years (95% CI)			Number of events	Incidence rate per 1000 person-years (95% CI)	Number of events	Incidence rate per 1000 person-years (95% CI)		
Gastrointestinal surgery												
Overall	805	26·3 (24·5–28·1)	354	10·1 (9·8–12·0)	2·4 (2·1–2·7)	<0·0001	470	18·2 (16·6–19·9)	323	12·3 (11·0–13·6)	1·5 (1·3–1·7)	<0·0001
Gallstone disorders	308	10·1 (8·9–11·2)	214	6·6 (5·7–7·5)	1·5 (1·3–1·8)	<0·0001	267	10·3 (9·1–11·6)	172	6·5 (5·6–7·5)	1·6 (1·3–1·9)	<0·0001
Small bowel obstruction*	203	6·6 (5·7–7·5)	29	0·9 (0·6–1·2)	7·4 (5·0–10·9)	<0·0001	39	1·5 (1·0–2·0)	28	1·1 (0·7–1·5)	1·4 (0·9–2·3)	0·16
Incisional hernia	70	2·3 (1·7–2·8)	57	1·8 (1·3–2·2)	1·3 (0·9–1·8)	0·14	41	1·6 (1·1–2·1)	44	1·7 (1·2–2·2)	0·9 (0·6–1·5)	0·80
Gastrojejunal anastomosis or gastric stenosis	103	3·4 (2·7–4·0)	7	0·2 (0·1–0·4)	15·6 (7·3–33·5)	<0·0001	37	1·4 (1·0–1·9)	7	0·3 (0·07–0·5)	5·4 (2·4–12·1)	<0·0001
Perforated gastric or gastrojejunal ulcer	59	1·9 (1·4–2·4)	13	0·4 (0·0–0·6)	4·8 (2·6–8·8)	<0·0001	66	2·6 (1·9–3·2)	11	0·4 (0·2–0·7)	6·1 (3·2–11·6)	<0·0001
Upper gastrointestinal bleeding†	88	2·9 (2·3–3·5)	14	0·4 (0·2–0·7)	6·7 (3·8–11·7)	<0·0001	28	1·1 (0·7–1·5)	19	0·7 (0·4–1·0)	1·5 (0·8–2·7)	0·17
Explorative laparoscopy or laparotomy‡	132	4·3 (3·6–5·0)	63	1·9 (1·5–2·4)	2·2 (1·6–3·0)	<0·0001	60	2·3 (1·7–2·9)	72	2·7 (2·1–3·4)	0·8 (0·6–1·2)	0·35
Others gastrointestinal disorders§												
Overall	983	32·9 (30·9–35·0)	554	17·4 (16·0–18·9)	1·9 (1·7–2·1)	<0·0001	577	22·6 (20·8–24·4)	474	18·4 (16·8–20·1)	1·2 (1·1–1·4)	<0·0001
Pain and transit disorders	211	7·1 (6·1–8·0)	25	0·8 (0·5–1·1)	9·0 (5·9–13·6)	<0·0001	35	1·4 (0·9–1·8)	25	1·0 (0·6–1·4)	1·4 (0·8–2·4)	0·19
Gastro-oesophageal reflux disease, gastritis, and other upper gastrointestinal symptoms	506	16·9 (15·5–18·4)	261	8·2 (7·2–9·2)	2·1 (1·8–2·4)	<0·0001	249	9·8 (8·6–11·0)	233	9·0 (7·9–10·2)	1·1 (0·9–1·3)	0·42
Small bowel obstruction	452	15·1 (13·7–16·5)	318	10·0 (8·9–11·1)	1·5 (1·3–1·7)	<0·0001	366	14·3 (12·9–15·8)	252	9·8 (8·6–11·0)	1·5 (1·3–1·7)	<0·0001

*Excluding strangulated incisional hernia. †Excluding perforation. ‡With no other associated procedures. §No surgery or endoscopy required.

Table 2: **Relative and absolute risks for hospital admission for inpatient care for gastrointestinal surgery or other gastrointestinal symptoms over a 7-year period**

UZ LEUVEN AZDIEST

Thereaux, J. et al.(2019). Long-term adverse events after sleeve gastrectomy or gastric bypass: a 7-year nationwide, observational, population-based, cohort study. *The lancet. Diabetes & endocrinology*,

	GBP vs. Controls					SG vs. Controls				
	GBP (N=4,955)		Controls (N=4,955)		Incidence Rate Ratio*	SG (N=4,011)		Controls (N=4,011)		Incidence Rate Ratio†
	Number of Events	IR for 1000 person-years	Number of Events	IR for 1000 person-years		Number of Events	IR for 1000 person-years	Number of Events	IR for 1000 person-years	
Nutritional disorders										
Overall	1193	36.1 (34.0-38.1)	745	22.2 (20.6-23.8)	1.6 (1.5-1.8)	523	19.1 (17.5-20.7)	620	22.9 (21.1-24.7)	0.8 (0.7-0.9)
Iron deficiency	633	19.1 (17.7-20.6)	258	7.7 (6.8-8.6)	2.5 (2.2-2.9)	224	8.2 (7.1-9.1)	216	8.0 (6.9-9.0)	1.0 (0.9-1.2)
Vitamin A deficiency	9	0.3 (0.1-0.5)	5	0.1 (0.0-0.3)	1.8 (0.6-5.4)	6	0.2 (0.0-0.4)	4	0.1 (0.0-0.3)	1.5 (0.4-5.3)
Thiamine/Pyridoxine deficiency	21	0.6 (0.4-0.9)	7	0.2 (0.1-0.4)	3.0 (1.3-7.2)	13	0.5 (0.2-0.7)	10	0.4 (0.1-0.6)	1.3 (0.6-2.9)
Vitamin B12 deficiency	23	0.7 (0.4-1.0)	4	0.1 (0.0-0.2)	5.8 (2.0-16.9)	1	0.0 (0.0-0.1)	4	0.1 (0.0-0.3)	0.2 (0.0-2.2)
Other vitamin deficiencies	386	11.7 (10.5-12.8)	163	4.9 (4.1-5.6)	2.4 (2.0-2.9)	133	4.9 (4.0-5.7)	139	5.1 (4.3-6.0)	0.9 (0.7-1.2)
Vitamin D / Calcium deficiency	507	15.3 (14.0-16.7)	446	13.3 (12.1-14.5)	1.2 (1.0-1.3)	213	7.8 (6.7-8.8)	348	12.8 (11.5-14.2)	0.6 (0.5-0.7)
Malnutrition	524	15.8 (14.5-17.2)	200	6.0 (5.1-6.8)	2.7 (2.3-3.1)	205	7.5 (6.5-8.5)	148	5.5 (4.6-6.3)	1.4 (1.1-1.7)
Psychiatric disorders										
Overall	862	25.6 (23.9-27.3)	1003	30.2 (28.3-32.0)	0.8 (0.7-0.9)	607	22.1 (20.4-23.9)	830	30.8 (28.7-32.9)	0.7 (0.6-0.8)
Alcohol dependence	142	4.2 (3.5-4.9)	99	3.0 (2.4-3.6)	1.4 (1.1-1.8)	66	2.4 (1.8-3.0)	96	3.6 (2.9-4.3)	0.7 (0.5-0.9)
Other substance dependence	284	8.4 (7.5-9.4)	410	12.3 (11.1-13.5)	0.7 (0.6-0.8)	223	8.1 (7.1-9.2)	348	12.9 (11.6-14.3)	0.6 (0.5-0.7)
Eating disorders	75	2.2 (1.7-2.7	100	3.0 (2.4-3.6)	0.7 (0.5-1.0)	30	1.1 (0.7-1.5)	86	3.2 (2.5-3.9)	0.3 (0.2-0.5)
Major depressive / anxiety disorder	546	16.2 (14.9-17.6)	608	18.3 (16.8-19.7)	0.9 (0.8-1.0)	356	13.0 (11.6-14.3)	491	18.2 (16.6-19.8)	0.7 (0.6-0.8)
Suicide attempt	164	4.9 (4.1-5.6)	147	4.4 (3.7-5.1)	1.1 (0.9-1.4)	98	3.6 (2.9-4.3)	77	2.9 (2.2-3.5)	1.2 (0.9-1.7)

* Unadjusted - All p-Values <0.0001, except for: Vitamin A deficiency (p=0.3), Thiamine/Pyridoxine deficiency (p=0.007), Vitamin D/calcium deficiency (p=0.03), alcohol dependence (p=0.007), eating disorders (p=0.05), major depressive /anxiety disorders (p=0.04), suicide attempt (p=0.4)

† Unadjusted - All p-Values <0.0001, except for:nutritional disorders (overall) (p=0.002), iron deficiency (p=0.8), vitamin A deficiency (p=0.5), thiamin/pyridoxine deficiency (p=0.5), vitamin B12 deficiency (p=0.2), other vitamin deficiency (p=0.7), malnutrition (p=0.003), alcohol dependence (p=0.01), suicide attempt (p=0.14)

ICD: International classification of disease; CI: Confident interval; NA: Not applicable; IR: Incidence rate; GBP: Gastric by-pass; SG: Sleeve gastrectomy

UZ LEUVEN AZDIEST

Thereaux, J. et al.(2019). Long-term adverse events after sleeve gastrectomy or gastric bypass: a 7-year nationwide, observational, population-based, cohort study. *The lancet. Diabetes & endocrinology*,

Effect op QOL: SG vs RYGB

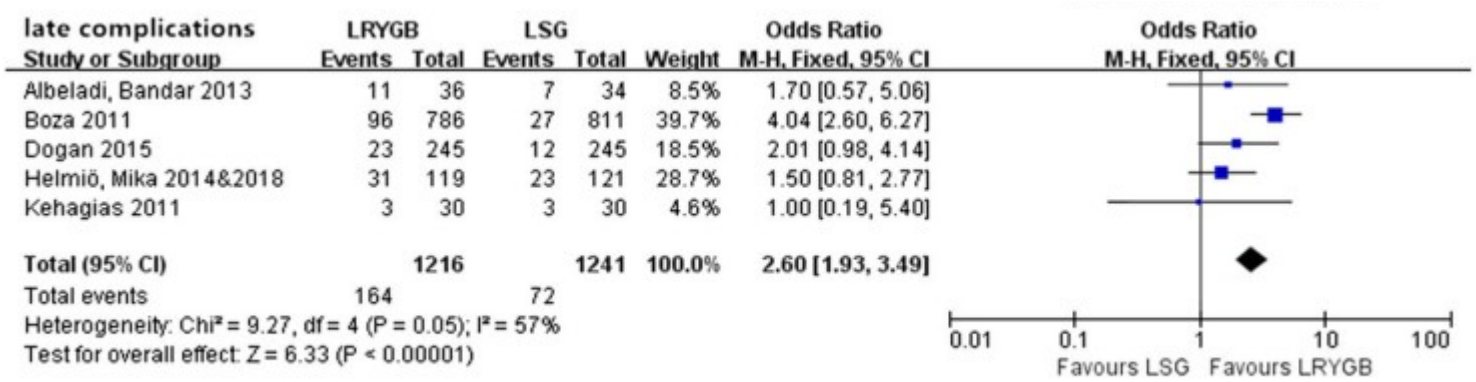
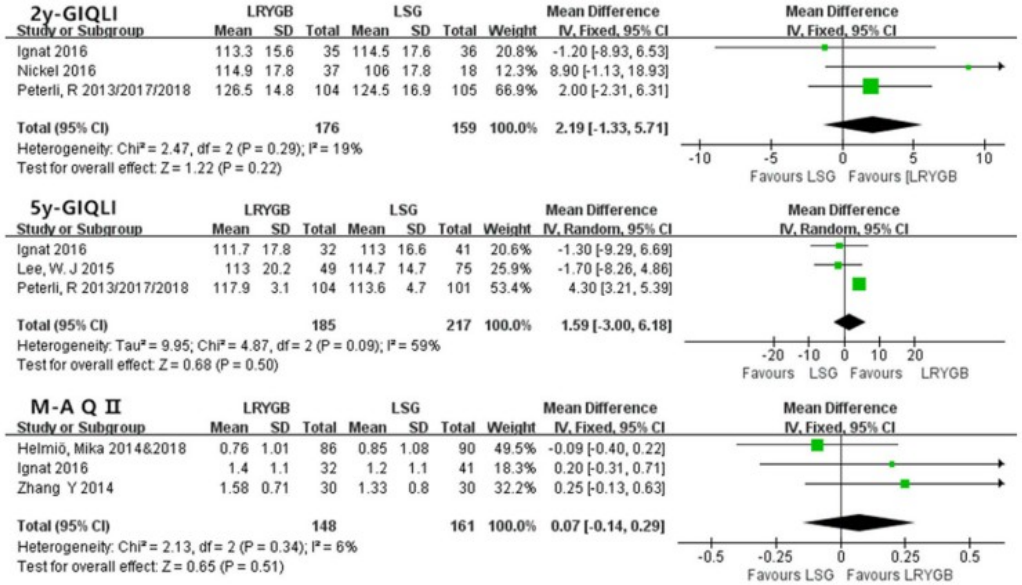


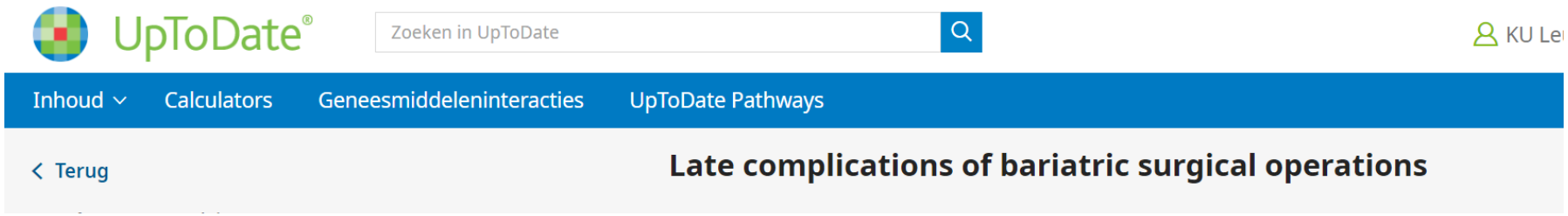
Fig. 7 Quality of life

Maar:



Hu, Z., et al. (2020). A Comprehensive Comparison of LRYGB and LSG in Obese Patients Including the Effects on QoL, Comorbidities, Weight Loss, and Complications: a Systematic Review and Meta-Analysis. *Obesity*

Long-term follow-up



Late complications of bariatric surgical operations

SLEEVE GASTRECTOMY

- Bleeding
- Stenosis
- Gastric leaks
- Reflux

ROUX-EN-Y GASTRIC BYPASS

- Gastric remnant distension
- Stomal stenosis
- Marginal ulcers
- Candy cane Roux syndrome
- Cholelithiasis
- Ventral incisional hernia
- Internal hernias
- Small bowel obstruction
- Intussusception
- Short bowel syndrome
- Dumping syndrome
- Postprandial hyperinsulinemic hypoglycemia
- Metabolic and nutritional derangements
- Hyperammonemic encephalopathy
- Nephrolithiasis and renal failure
- Change in bowel habits
- Gastrogastric (GG) fistula
- Failure to lose weight and weight regain

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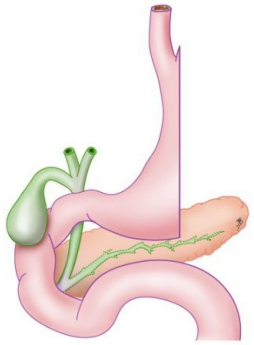
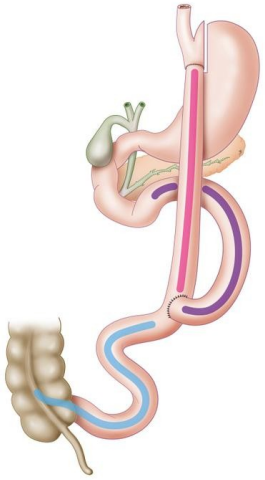
Late complications of bariatric surgical operations





Gastro-oesofageale reflux

Abdominale pijn

Dumping - PPH

Dysfagie

Uptodate

UZ LEUVEN AZDIEST

Gastro-oesofageale reflux na sleeve

Table 1
Preoperative versus postoperative GERD symptoms, PPI intake, and endoscopic findings

110 patients	Preoperative	Follow-up	*P*
GERD symptoms	33.6% (37 pts)	68.1% (75 pts)	<.0001
VAS score	1.8	3	.018
Daily PPI intake	19.1% (21 pts)	57.2% (63 pts)	<.0001
Class A esophagitis	12.7% (14 pts)	46.3% (51 pts)	<.0001
Class B esophagitis	8.1% (9 pts)	32.7% (36 pts)	<.0001
Class C esophagitis	3.6% (4 pts)	11.8% (13 pts)	.04
Class D esophagitis	0	9.1% (10 pts)	.0016
Barrett's esophagus	0	17.2% (19 pts)	<.0001

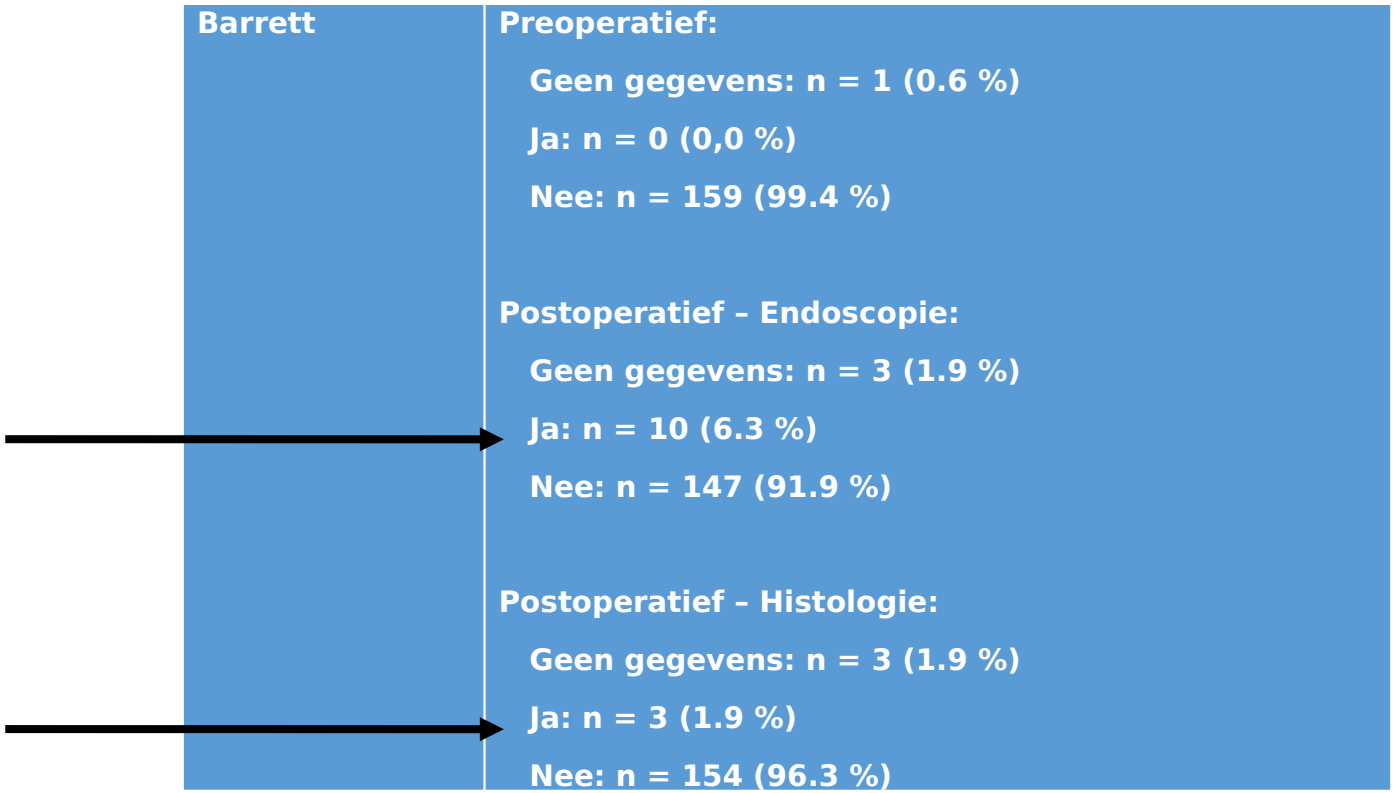
GERD = gastroesophageal reflux disease; PPI = proton pump inhibitors; VAS = visual analogue scale.

Hence, the hysteria of GERD/esophageal adenocarcinoma after sleeve gastrectomy has to be tempered, as the benefits of sleeve gastrectomy definitely outweigh its potential and actual risks

Genco, A., et al. (2017). Gastroesophageal reflux disease and Barrett's esophagus after laparoscopic sleeve gastrectomy: a possible, underestimated long-term complication. *Surgery for obesity and related diseases*

Gagner M. (2016). Is Sleeve Gastrectomy Always an Absolute Contraindication in Patients with Barrett's? *Obesity surgery*

Gastro-oesofageale reflux na sleeve: UZL – AZD



N = 160

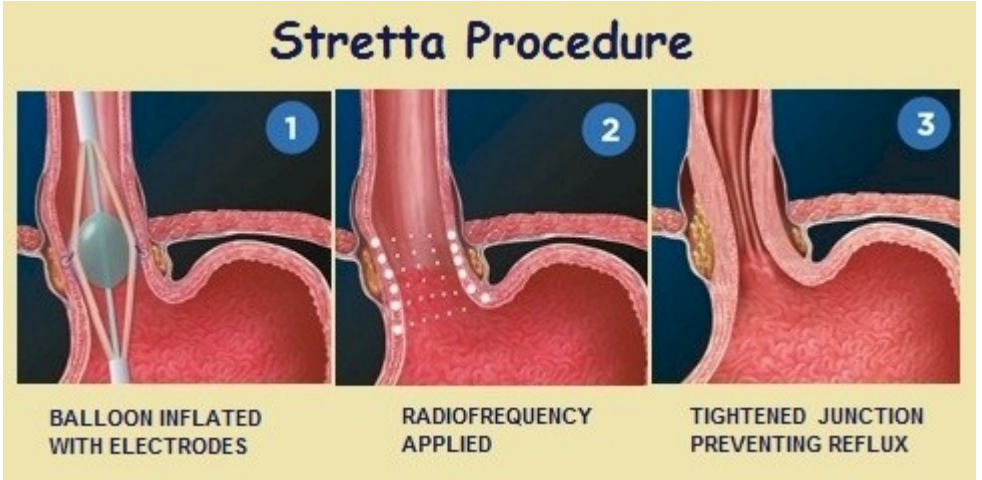
Behandeling van GERD na sleeve

Lifestyle

PPI

Endoscopische technieken:

(Stretta)

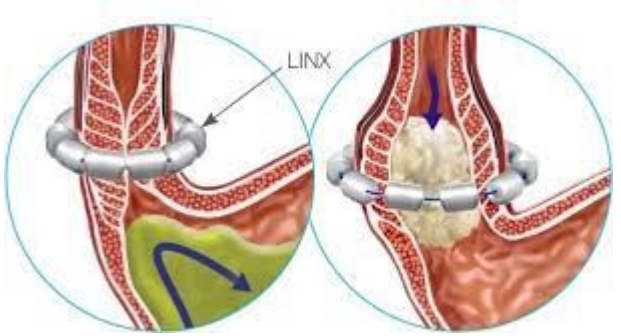


Heelkunde

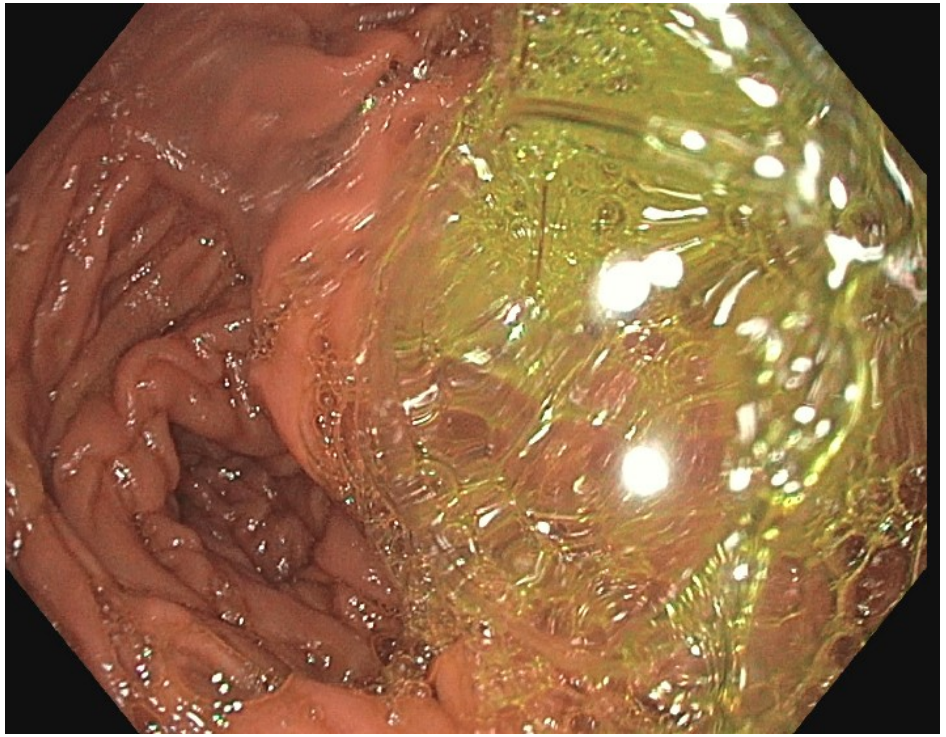
Hiatale hernia repair

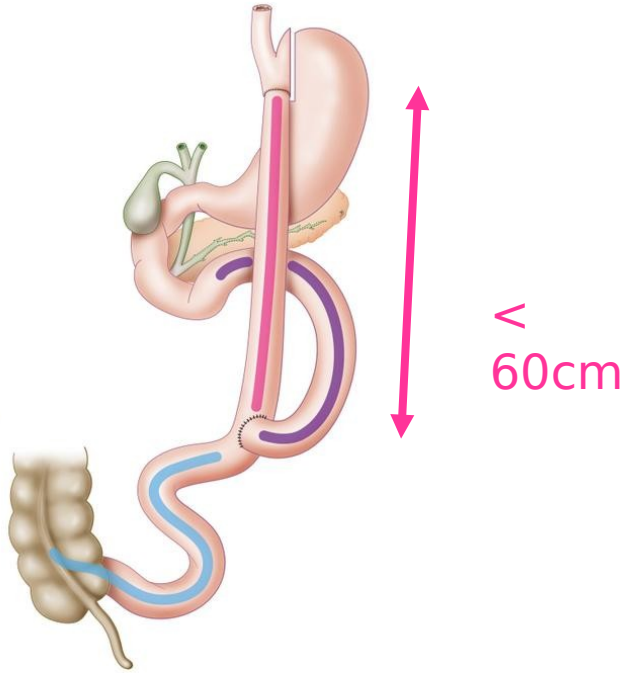
Conversie naar gastric bypass

(Lynx, magnetic sphincter augmentation)



GERD na bypass?





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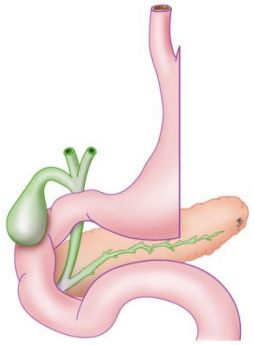
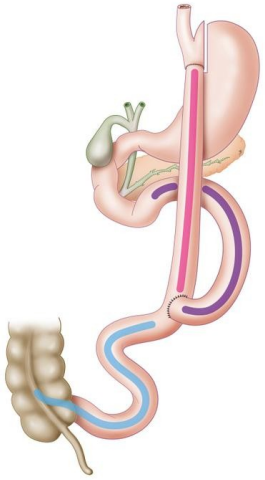
Late complications of bariatric surgical operations





Gastro-oesofageale reflux

Abdominale pijn

Dumping - PPH

Dysfagie

UZ LEUVEN AZDIEST

Uptodate

Abdominale pijn

Table 1.

Demographics and Patient Characteristics

Variable	Patients
Mean age, years (SD)	47 (12.0)
Sex, n	
Male	56 (25.2)
Female	166 (74.8)
Mean time from index surgery, months (SD)	42 (4.6)
Mean weight at presentation to ED, kg (SD)	98 (1.84)
Mean weight loss, kg (SD)	34.5 (1.74)
Type of bariatric procedure, n (%)	
LRYBG, n (%)	169 (76.1)
Open RYGB, n (%)	14 (6.3)
Laparoscopic band to RYBG, n (%)	13 (5.9)
Sleeve gastrectomy, n (%)	9 (4)
Laparoscopic ban, n (%) d	9 (4)
Vertical banded gastroplasty, n (%)	3 (1.4)
Other, n (%)	5 (2.3)
Present symptom	
Abdominal pain, n (%)	178 (80.2)
Nausea/vomiting, n (%)	28 (12.6)
Dysphagia, n (%)	13 (5.9)
Hematemesis, n (%)	11 (5)
Wound-related complications, n (%)	6 (2.7)

204/282 (72,3%): invasive management

Table 2.

Endoscopic/Procedural Findings

Characteristics of Patients Undergoing Procedures	Patients Affected (n = 204; 94%)
Inflammatory findings	31 (15.2)
Ulcer without perforation	22 (71)
Ulcer with perforation	6 (19)
Mucosal inflammation	3 (10)
Stricture	31 (15.2)
With ulcer history	16 (52)
Without history	14 (45)
Other—radiation ischemia	1 (3)
Obstruction	75 (36.8)
Adhesions alone	26 (35)
Internal hernia	35 (47)
Intussusception	2 (3)
Intraluminal obstruction	8 (11)
Other—hernia*	4 (5)
Organ resection	19 (9.3)
Cholecystectomy	17 (89)
Appendectomy	2 (11)
Fistula	3 (1.5)
Anastomotic leak	4 (2.0)
Gastric band removal	4 (2.0)
Fascial dehiscence	1 (0.5)
Other	21 (10.3)
Normal finding	15 (7.4)

n = 204. Data are number of patients affected (percentage of entire population or subgroup).

*Abdominal wall, diaphragmatic and hiatal hernias.

Lyn-Sue, J. R. et al. Optimizing Hospital Resource Utilization in Bariatric Readmission. JSLS : Journal of the Society of Laparoendoscopic Surgeons, 2018

Abdominale pijn: DD

Marginaal ulcus

Wandpijn/ACNES

(Omentale torsie/infarct)

(Slokdarmspasme)

Obstructie (interne hernia – invaginatie/intussusception – bride - …)

Dumping – adaptatieprobleem – voedselintolerantie

Blind loop:

- Candy cane syndroom
- Blind loop EE

SIBO (small intestinal bacterial overgrowth)

Constipatie - IBS

GERD

Symptomatische cholecystolithiase

Urolithiase

SOD (sfincter of Oddi dysfunctie, acalculeuze obstructie)

Galreflux in restmaag

Trocarhernia

…

van Olst N et al. Long-term Emergency Department Visits and Readmissions After Laparoscopic Roux-en-Y Gastric Bypass: a Systematic Review. Obes Surg. 2021

Marginaal ulcus

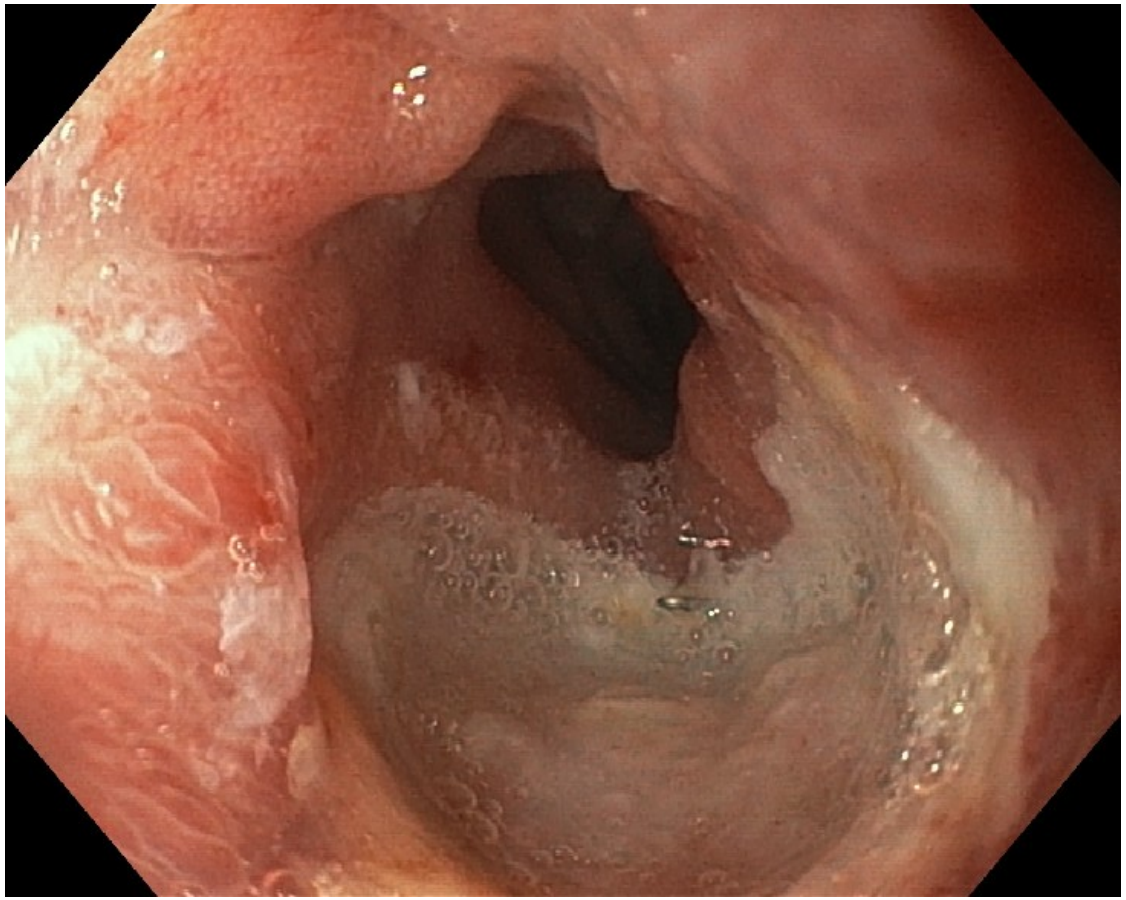
Incidentie: 4,6% (0,6-25%)

Wanneer:

- 50% in eerste 3 maanden
- slechts 15% na 2 jaar

Symptomen?

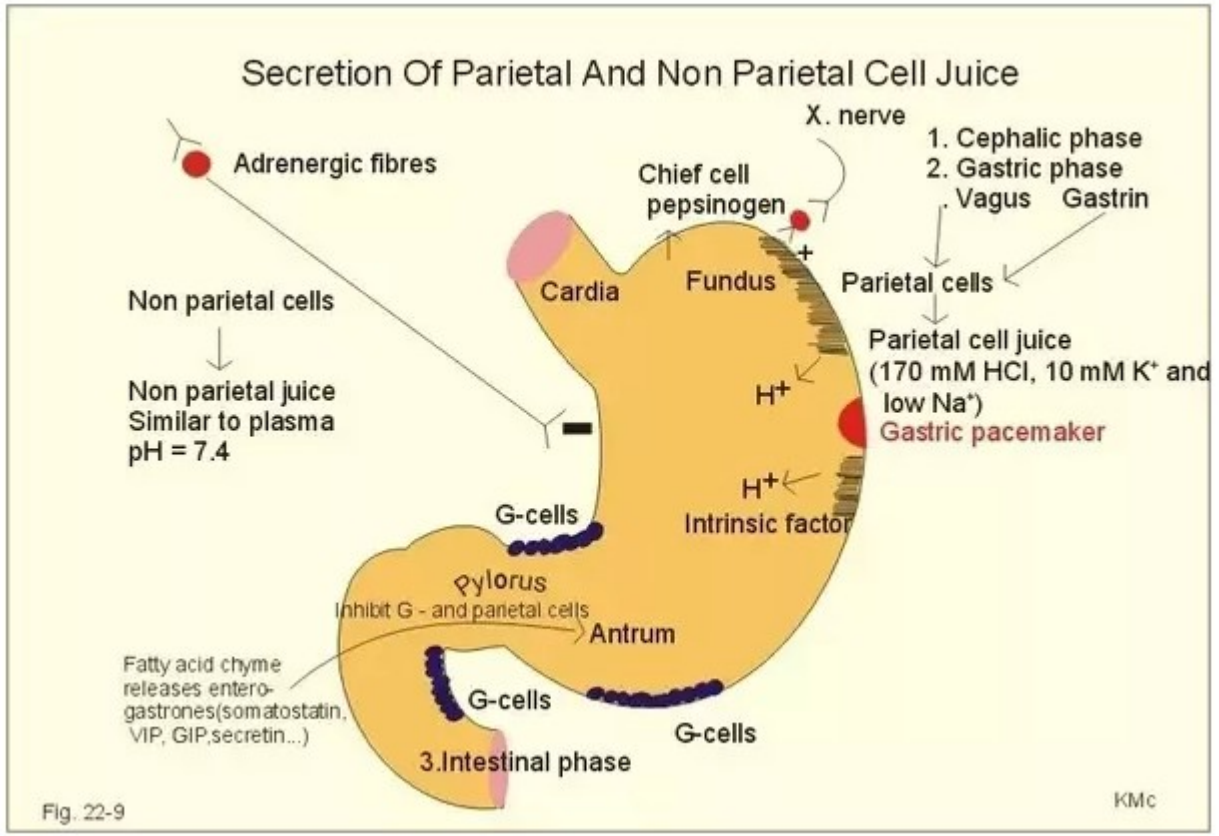
- epigastric burn (56,8%)
- perforatie (20%)
- bloeding (15,1%)
- melena
- braken
- !geen! (28-100%)



Contival, N. et al. (2018). Guiding the non-bariatric surgeon through complications of bariatric surgery. Journal of visceral surgery
Coblijn et al. Development of ulcer disease after Roux-en-Y gastric bypass, incidence, risk factors, and patient presentation: a systematic

Risicofactoren marginaal ulcus

Risicofactor?	
Anastomose techniek	Nee
Hechtmateriaal	Ja
Constructie van de pouch	Ja
H Pylori	Ja
NSAID	Ja
Roken	Ja
Gastrogastrische fistel	Ja

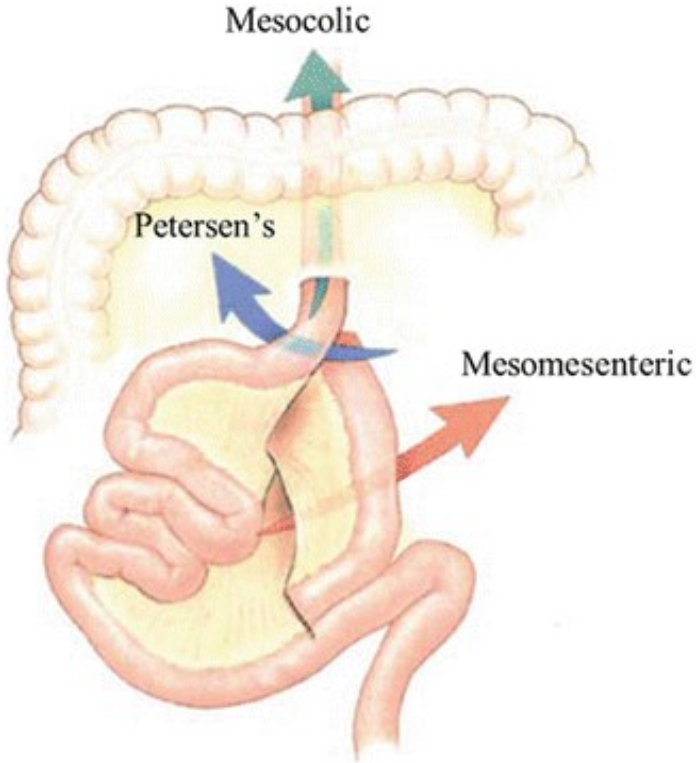


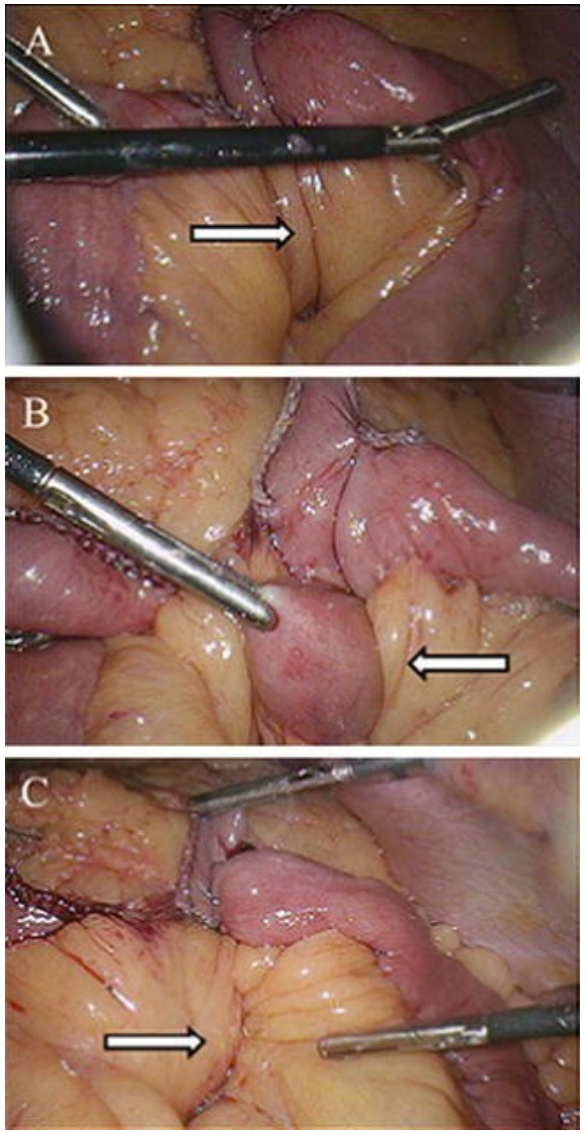
Coblijn et al. Development of ulcer disease after Roux-en-Y gastric bypass, incidence, risk factors, and patient presentation: a systematic review. Obes Surg. 2014
McGraw-Hill companies

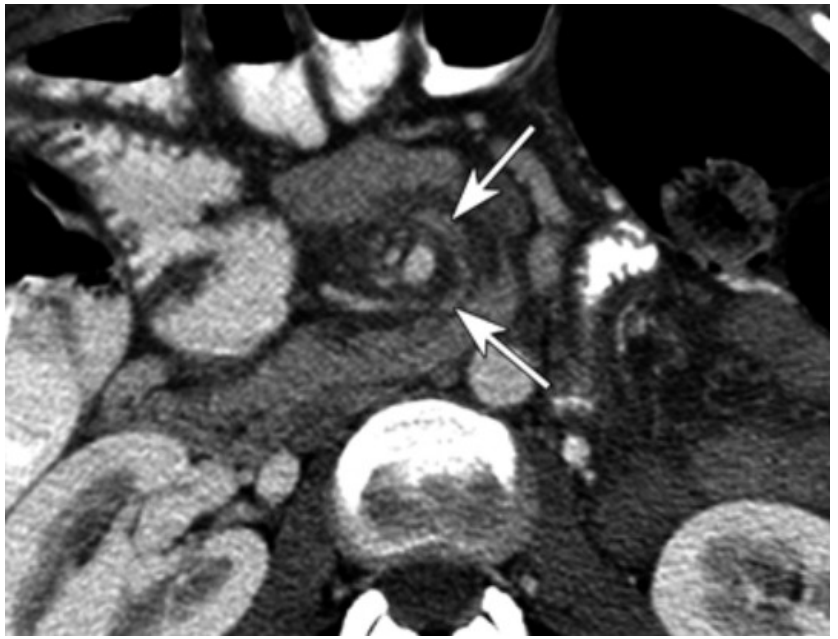
Darmobstructie

Incidentie: 1-6%

In 60%: interne herniatie





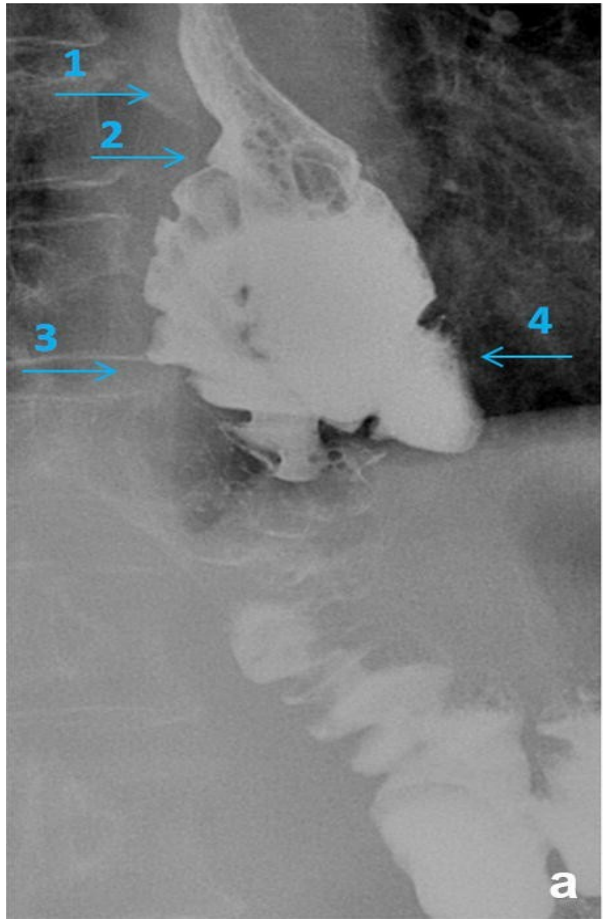


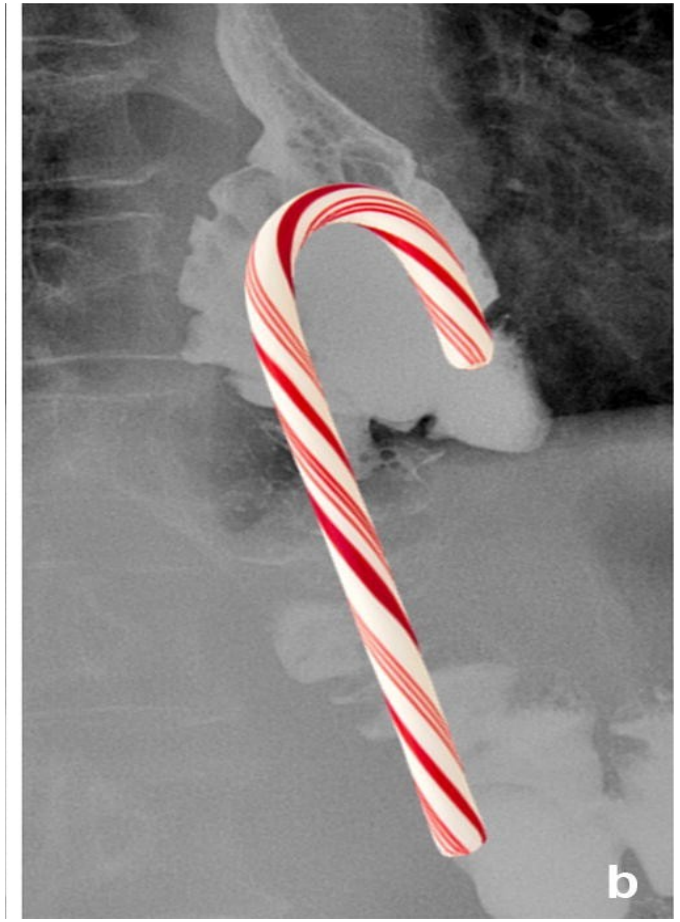
maagsonde

Lockhart ME, et al. Internal hernia after gastric bypass: Sensitivity and specificity of seven CT signs with surgical correlation and controls. Am J Roentgenol 2007;
Contival, N. et al. (2018). Guiding the non-bariatric surgeon through complications of bariatric surgery. Journal of visceral surgery
Bariatric surgery Complications and emergencies, Textbook

Blind loop – candy cane syndroom

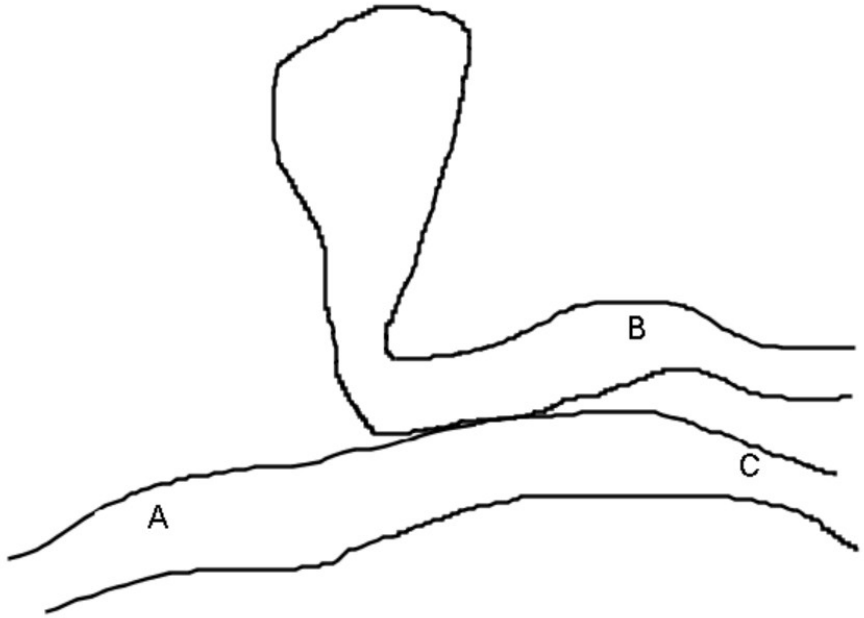


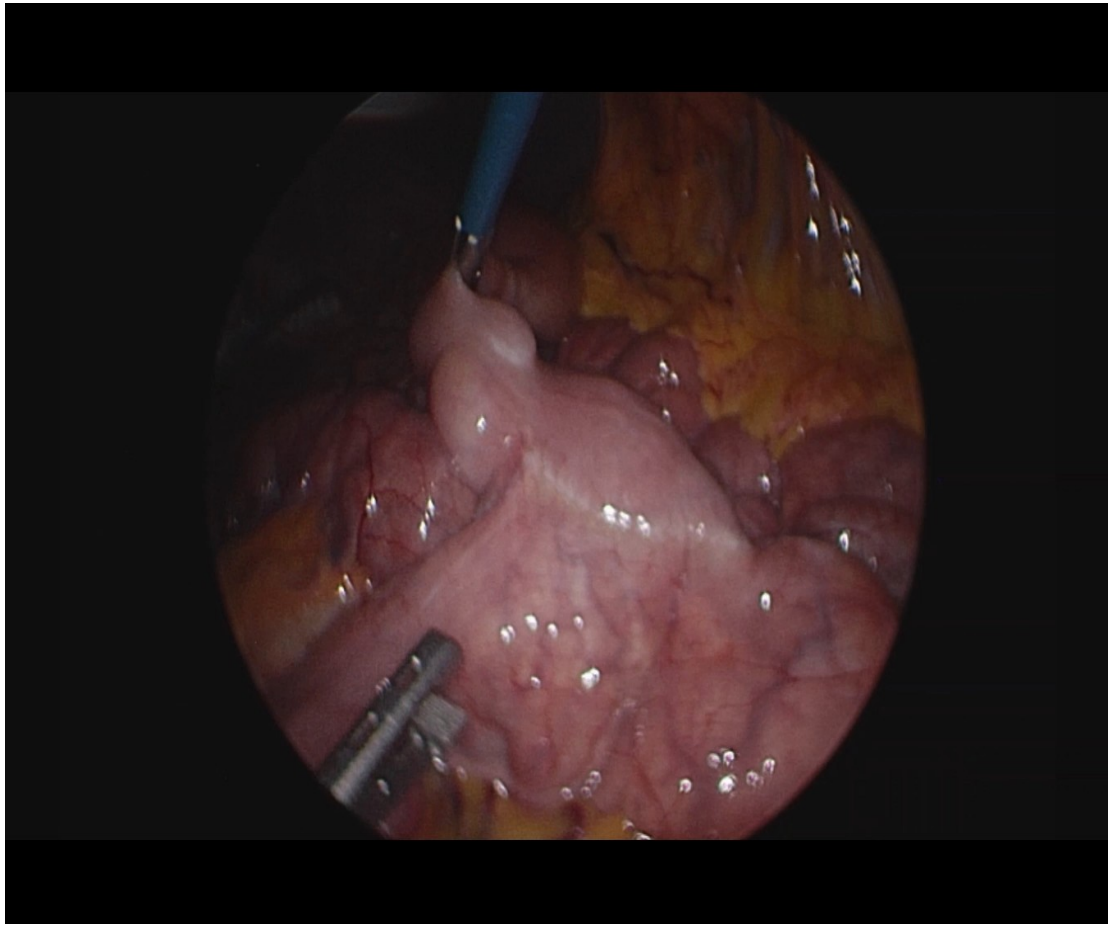




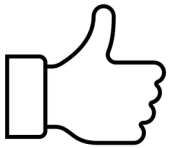
Coursier, K., & Verswijvel, G. (2020). Candy cane sign. *Abdominal radiology (New York), 45*(3), 885–886. https://doi.org/10.1007/s00261-019-02361-0

Blind loop EE





Diagnostische laparoscopie bij chronische pijn?

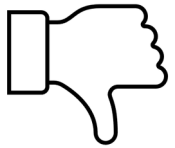


Safe procedure

Pathological findings in >50% of post BS patients with chronic pain of unknown etiology.

40 % experience significant symptom improvement

70% of patients with positive findings experience symptom improvement



50%: negative laparoscopy

long-term pain management

cave: chronic opioid use may induce
- constipation
- nausea
- narcotic bowel syndrome

Alsulaimy, M. et al. (2017). The Utility of Diagnostic Laparoscopy in Post-Bariatric Surgery Patients with Chronic Abdominal Pain of Unknown Etiology. *Obesity surgery*,

Zeldzame vondsten



CASE REPORT – OPEN ACCESS

International Journal of Surgery Case Reports 23 (2016) 101–104

Contents lists available at ScienceDirect

International Journal of Surgery Case Reports

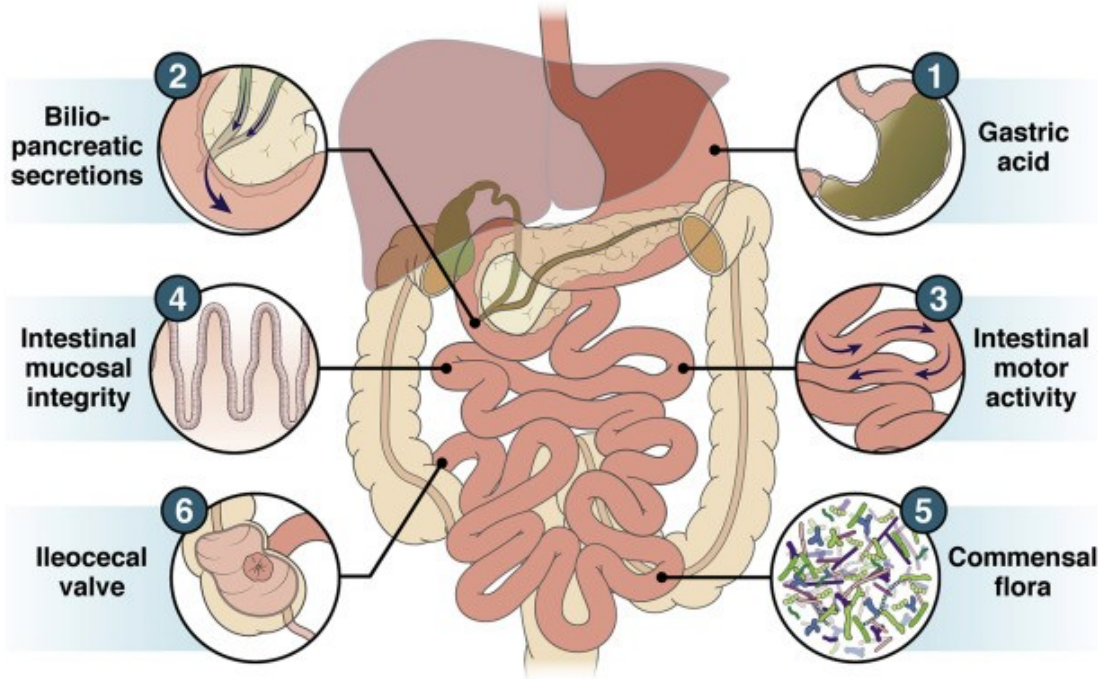
journal homepage: www.casereports.com

An unusual cause of chronic abdominal pain after laparoscopic Roux en Y gastric bypass: Case report of a penetrating fish bone causing adhesions at the biliary-digestive junction resulting in partial obstruction and chronic symptoms

Vincent Ochieng*, Leo Hendrickx, Jody Valk

Academic Department of General and Bariatric Surgery, ZNA-Stuivenberg Hospital, Lange Beeldekensstraat 267, 2060 Antwerpen, Belgium

SIBO – small intestinal bacterial overgrowth



SIBO = over-aanwezigheid van bacteriën in de dunne darm
Bepaalde bacteriestammen veroorzaken symptomen

Intestinale symptomen
In ernstige gevallen: malabsorptie

Etiologie:
- Anatomische wijzigingen
  - Stricturen
  - Blind loops met stase
- Abnormale darmmotiliteit (vb: diabetes)
- Hypochlorhydria (PPI gebruik)
- Narcotische analgetica
- …

Diagnose: glucose/lactulose ademtest

Bushyhead, D., & Quigley, E. M. M. (2022). Small Intestinal Bacterial Overgrowth-Pathophysiology and Its Implications for Definition and Management. Gastroenterology,

SIBO

Symptomen

- bloating
- abdominale pijn
- flatulentie
- diarree / constipatie
- nausea

		Positive breath test	Negative breath test	*p*
Age, years; mean, SD		49.9 ± 12.0	41.4 ± 3.8	$p < 0.01$
Sex *n* (%)	Women	74 (73)	11 (11)	$p < 0.01$
	Men	10 (10)	6 (6)	
BMI (kg m^{-2}) mean, SD		28.1 ± 4.5	27.0 ± 0.7	ns
Type of bariatric surgery *n* (%)	Roux-en-Y bypass	50 (50)	13 (13)	ns
	Omega bypass	29 (29)	2 (2)	
	Sleeve gastrectomy	5 (5)	2 (2)	
Symptoms *n* (%)	Abdominal pain	42 (42)	10 (10)	ns
	Chronic diarrhoea	64 (63)	12 (12)	
	Bloating	18 (17)	2 (2)	
PPI treatment *n* (%)		55 (54)	6 (6)	$p < 0.01$

Table 2 Characteristics of the patients with small intestinal bacterial overgrowth (diagnosed by a positive glucose breath test) and the patients without bacterial colonisation (negative breath test)

UZ LEUVEN AZDIEST

Mouillot T, et al. Study of Small Intestinal Bacterial Overgrowth in a Cohort of Patients with Abdominal Symptoms Who Underwent Bariatric Surgery. Obes Surg. 2020.

SIBO

Behandeling

eradicatie met antibiotica:

Flagyl 500mg 2x/d ged 20d

voedingsadvies (low carb – FODMAP - …)

Antibiotic	Adult dose[1]
Rifaximin¶	550 mg three times daily
Alternative antibiotics	
Trimethoprim-sulfamethoxazole (TMP-SMX)	160/800 mg twice daily
Ciprofloxacin	500 mg twice daily
Amoxicillin-clavulanate	875 mg twice per day
Metronidazole	250 mg three times per day
Doxycycline	100 mg once daily to twice per day
Tetracycline	250 mg four times per day

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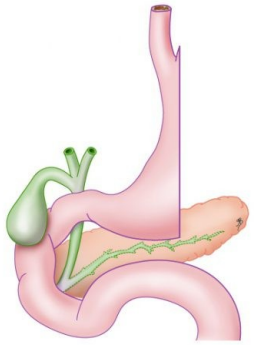
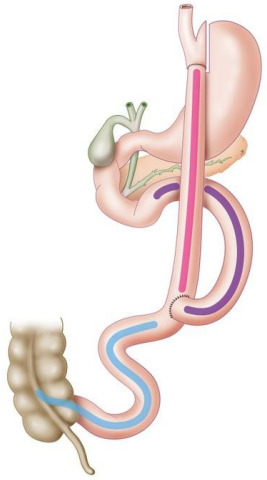
Late complications of bariatric surgical operations





Gastro-oesofageale reflux

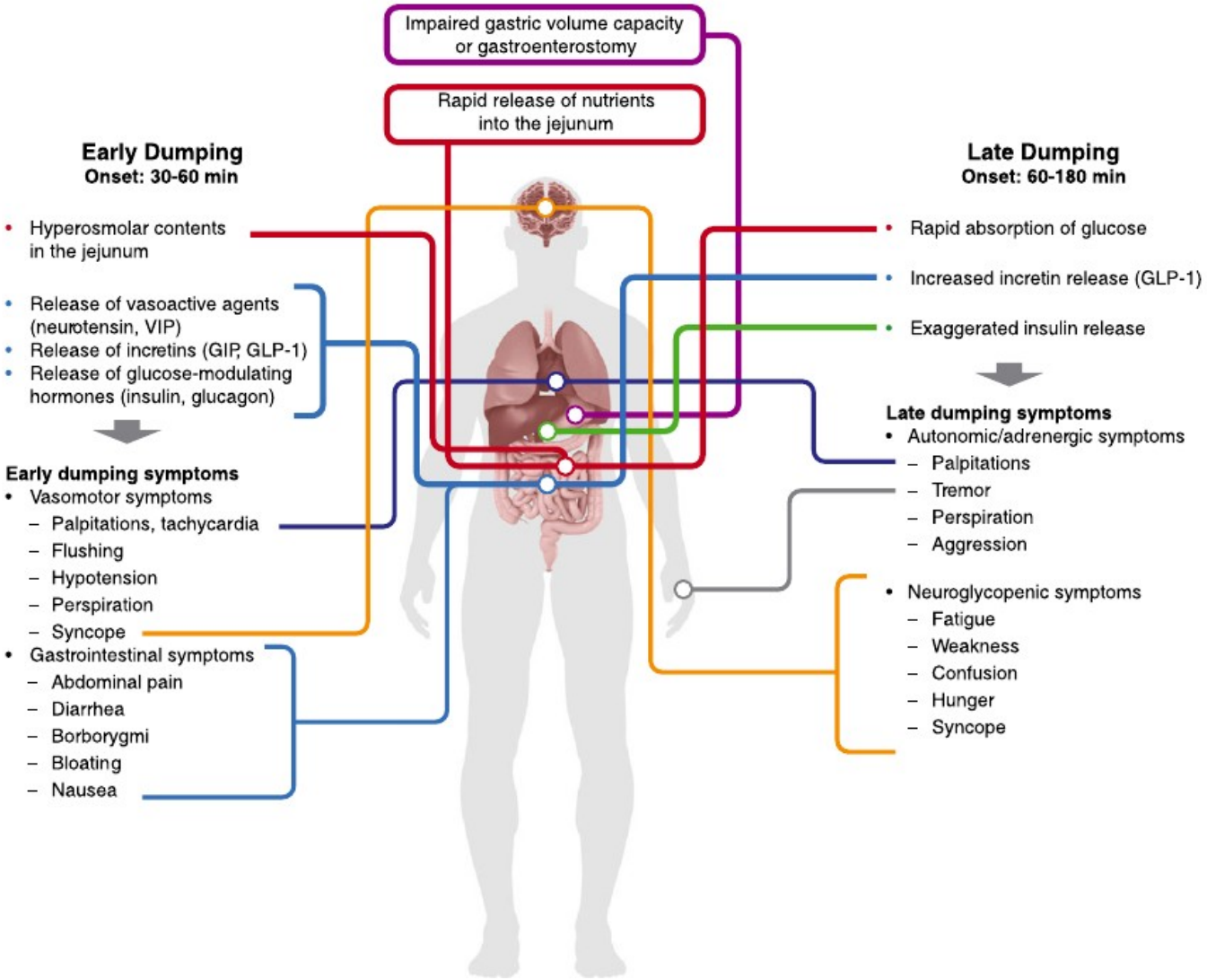
Abdominale pijn

Dumping - PPH

Dysfagie

Uptodate

Dumping syndroom



Van Beek AP, Emous M, Laville M, Tack J. Dumping syndrome after esophageal, gastric or bariatric surgery: pathophysiology, diagnosis, and management. Obes Rev. 2017

Arts severity score

Early dumping syndrome (<1h)	Late dumping syndrome (>1h)
Sweating	Sweating
Palpitations	Palpitations
Dizziness	Drowsiness/unconsciousness
Flushing	Hunger
Abdominal pain	Tremor
Diarrhoea	Irritability
Bloating	
Nausea	

Severity score
For each symptom: 0= absent, 1= mild, 2 = relevant and 3= severe

Dumping syndroom

- Diagnosis of exclusion, not a diagnosis of convenie



- OGTT is geen goede test
  - groot percentage zal positief testen
  - reflecteert het **gedrag** van de patiënt niet

- Scoring systeem (Sigstad/Arts score) om effect van therapie te volgen

- Gouden standaard = patiënt educatie en coaching



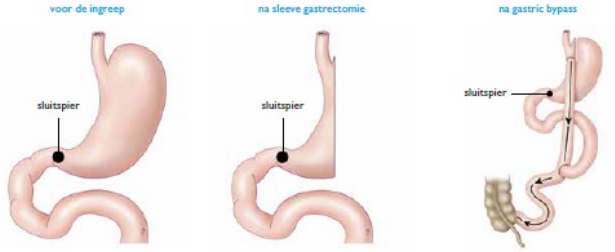
Dumping fiche

Dumpingklachten na maagchirurgie

UZ LEUVEN

Na maagchirurgie in het kader van obesitas waarbij de maag gebypasst of gedeeltelijk verwijderd wordt (gastric bypass of sleeve gastrectomie), is er vaak sprake van een te snelle maaglediging. Doordat de sluitspier van de maag gebypasst wordt of minder krachtig werkt, wordt het voedsel niet meer in kleine hoeveelheden aan de dunne darm gegeven, maar 'valt' het te snel en in grote brokken in de dunne darm. Dat veroorzaakt allerlei reacties in het maagdarmkanaal met dumpingklachten tot gevolg. Vooral voeding rijk aan suikers en vetten onder eender welke vorm geeft hier aanleiding toe.

Vergelijk de sluitspier met een deur tussen de maag en de dunne darm waar alles wat u eet en drinkt langskomt. Normaal gezien gaat de deur goed open en dicht. Na een sleeve gastrectomie schuift het eten sneller naar beneden in de maag en werkt de deur minder gecontroleerd. Na een gastric bypass is de deur niet meer aanwezig.



Gevolgen bariatrische ingreep

- Voeding komt in een te kleine maag of meteen in de dunne darm terecht.
- Voeding wordt niet verdund met maagsap.
- De maag kan niet meer malen, mixen of kneden: grote voedselbrokken komen in de dunne darm terecht.
- Het maagportier-mechanisme werkt minder goed of ontbreekt: voeding wordt niet meer mooi gedoseerd en gelijkmatig aan de darmen afgegeven.
- Drank spoelt meteen naar de dunne darm.

- Snelle suikers worden zeer snel opgenomen in de bloedbaan, waardoor de alvleesklier zeer veel insuline afscheidt. De suikers verdwijnen uit de bloedbaan, maar het teveel aan insuline blijft en de bloedsuikerspiegel daalt.

Mogelijke dumpingklachten

- ✔ Opgezet gevoel
- ✔ Misselijkheid
- ✔ Braken
- ✔ Krampen, eventueel diarree

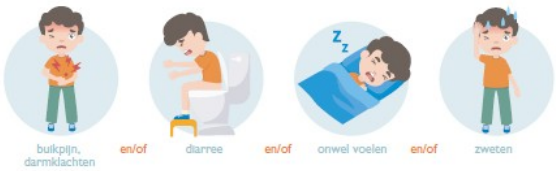
- ✔ Groot hongergevoel
- ✔ Fel zweten
- ✔ Beven

VROEGE EN LATE DUMPINGKLACHTEN



Vooral na het eten en/of drinken van veel suikers en vetten kunnen dumpingklachten optreden. Ook de manier waarop je eet, bijvoorbeeld te snel eten en drinken tegelijkertijd, kan een mogelijke oorzaak zijn. Zowel het type klacht(en), de intensiteit als de precieze oorzaak kunnen sterk verschillen van persoon tot persoon. Vaak starten deze klachten ook pas na enkele weken of maanden na de ingreep.

Vroege dumping



Grote hoeveelheden geconcentreerde vaste of vloeibare voeding die in de darm worden 'gedumpt', trekken wel 3 tot 4 liter vocht uit het bloedvatstelsel. Dat vocht mengt zich met de voedselbrij, wat een voller gevoel, darmkrampen en diarree kan veroorzaken. Minder vocht in het bloedvatstelsel doet de bloeddruk dan weer dalen, waardoor er hartkloppingen, duizeligheid, een zwak gevoel of sufheid kan optreden. Bij sommige patiënten breekt het 'koud zweet' uit of is er kans op flauwvallen.

Late dumping (reactieve hypoglycemie)



Als eten en drinken te snel de dunne darm passeert, worden bepaalde suikers sneller opgenomen in het bloed. Dat hoger bloedsuikergehalte vraagt om een hogere productie van insuline, maar de insulineproductie loopt achter in tijd. Gevolg: een teveel aan insuline wanneer de suikers al uit de bloedbaan verdwenen zijn. Dat suikertekort in de bloedbaan kan klachten veroorzaken als zweten, onrustig zijn, duizelen, trillen, hartkloppingen en geeuwhonger.

Herkent of ervaart u deze klachten? Bespreek dat dan met uw behandelende arts of diëtist. U kunt de diëtist steeds contacteren via het telefoonnummer 016 34 10 86.

Ontwerp en realisatie dienst communicatie UZ Leuven | 701401_vf 22021

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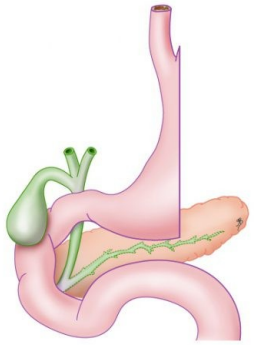
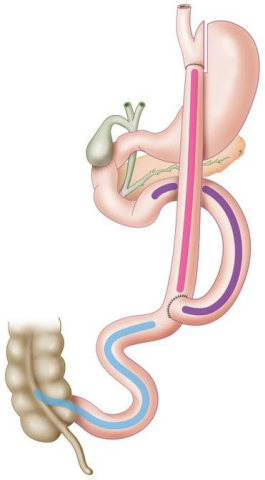
Late complications of bariatric surgical operations





Gastro-oesofageale reflux

Abdominale pijn

Dumping - PPH

Dysfagie

Uptodate

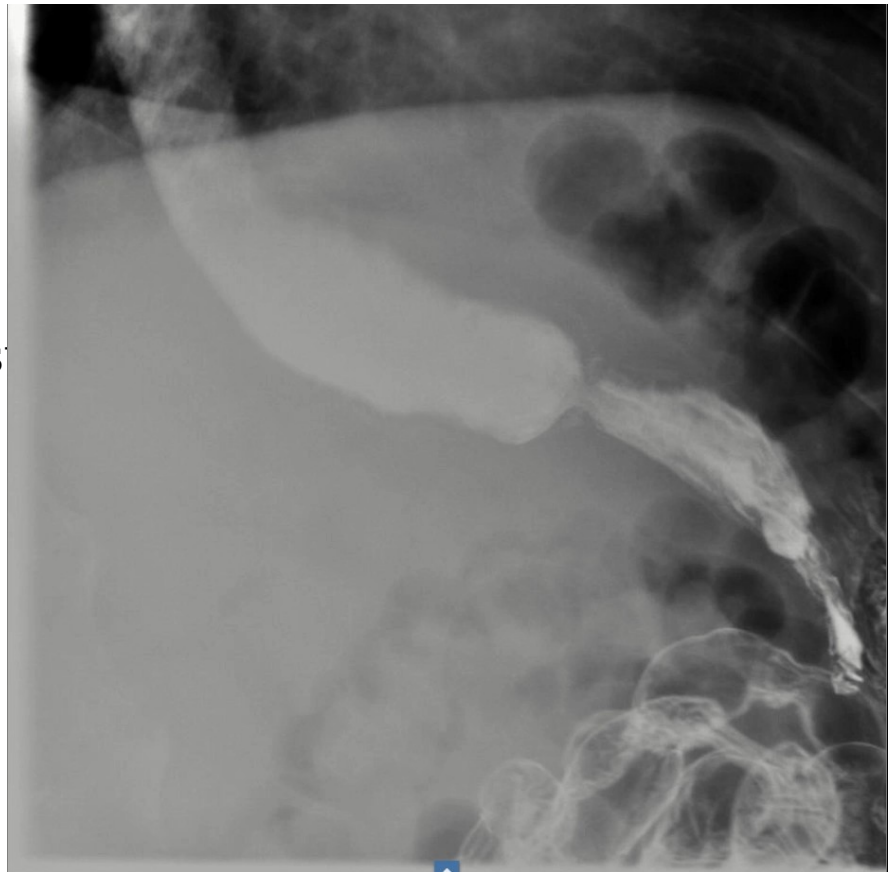
Dysfagie

Alarmsymptoom!

Oppuntstelling:

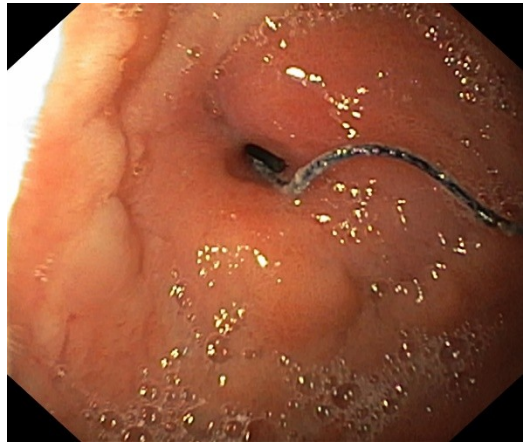
RX SMD (vloeibaar en vas

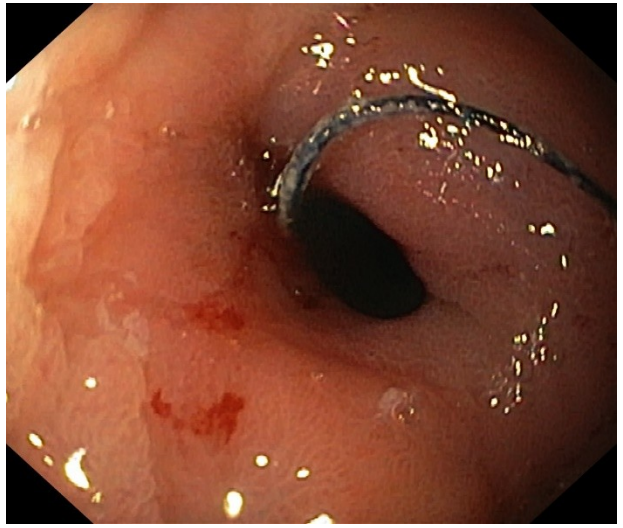
+/- gastroscopie



https://asmbs.org/resources/bariatric-surgery-postoperative-concerns

RYGB: Stenose





Behandeling:

- Endoscopische ballondilatatie (cave perforatie!
- Laparoscopisch heraanleg anastomose)

Sleeve – acute herniatie met inklemming

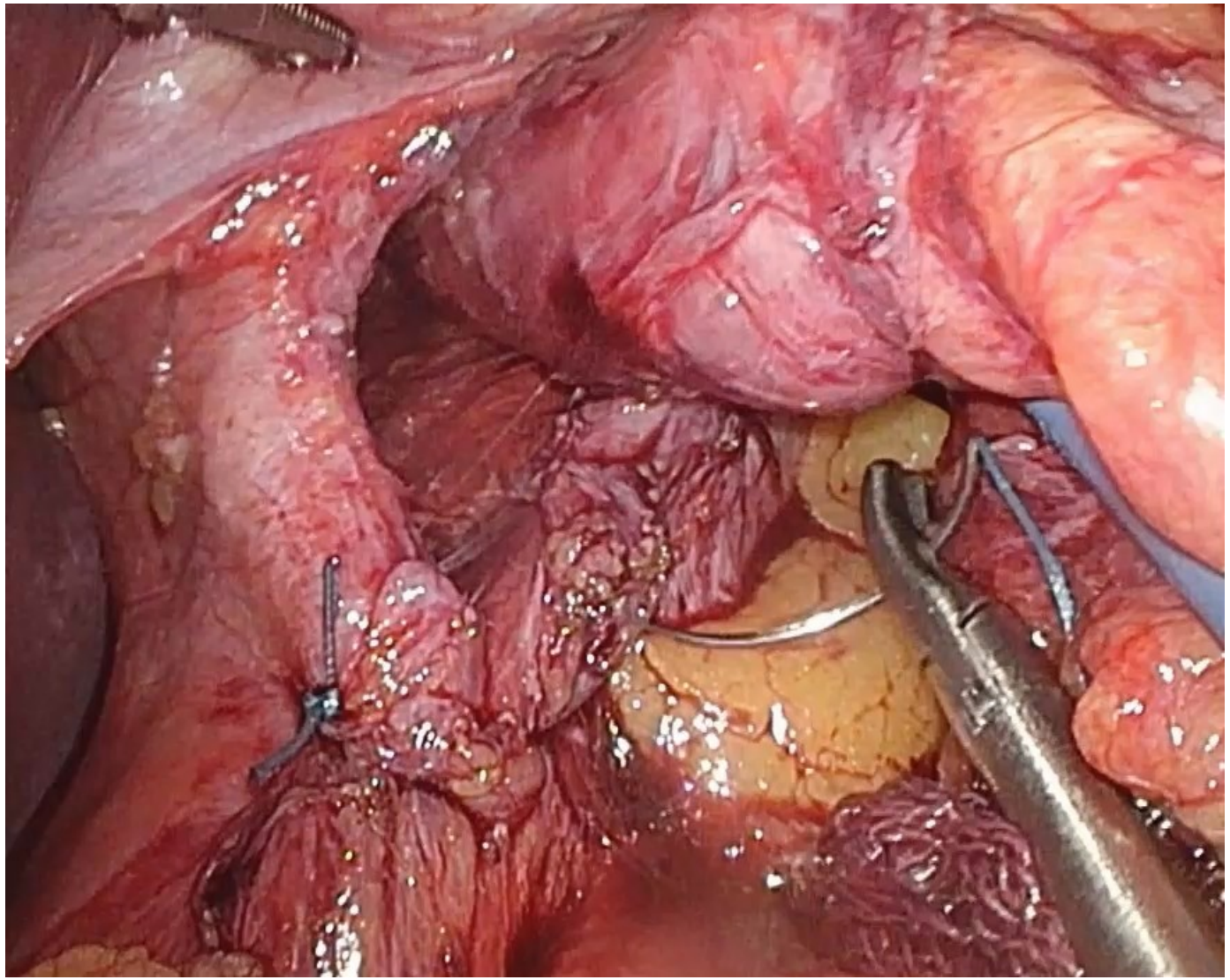
Lap sleeve gastrectomie 3 maanden geleden

Nausea en braken sinds 4 dagen

Geen intake meer mogelijk sinds 1 dag



Reductie en hiataal repair



Bij aanhoudend braken/slechte intake

Vitamine B1

Wernicke encefalopathie



Besluit – long-term complicaties na bariatrische heelkunde

Niet te verwaarlozen, deel van informed consent

Behandelbaar



Besluit – long-term complicaties na bariatrische heelkunde

Sleeve gastrectomie

- minder long-term complicaties dan Roux-en-Y gastric bypass
- **reflux**: belangrijk probleem, meest voorkomende indicatie voor conversie naar bypass

(Chronische) **buikpijnklachten**: meest frequente lange termijn complicatie

- doorgedreven anamnese en klinisch onderzoek
- advies obesitaskliniek – bariatrisch chirurg
  - gedrag: dieet, psychologie
  - empirische therapie met laag risico (AB-kuur, PPI, …)
  - technische onderzoeken
  - lap exploratie te overwegen
- alarmsymptomen (melena, dysfagie, vermagering, acute hevige postprandiale abdominale pijn, …)

Dumping-klachten zijn frequent

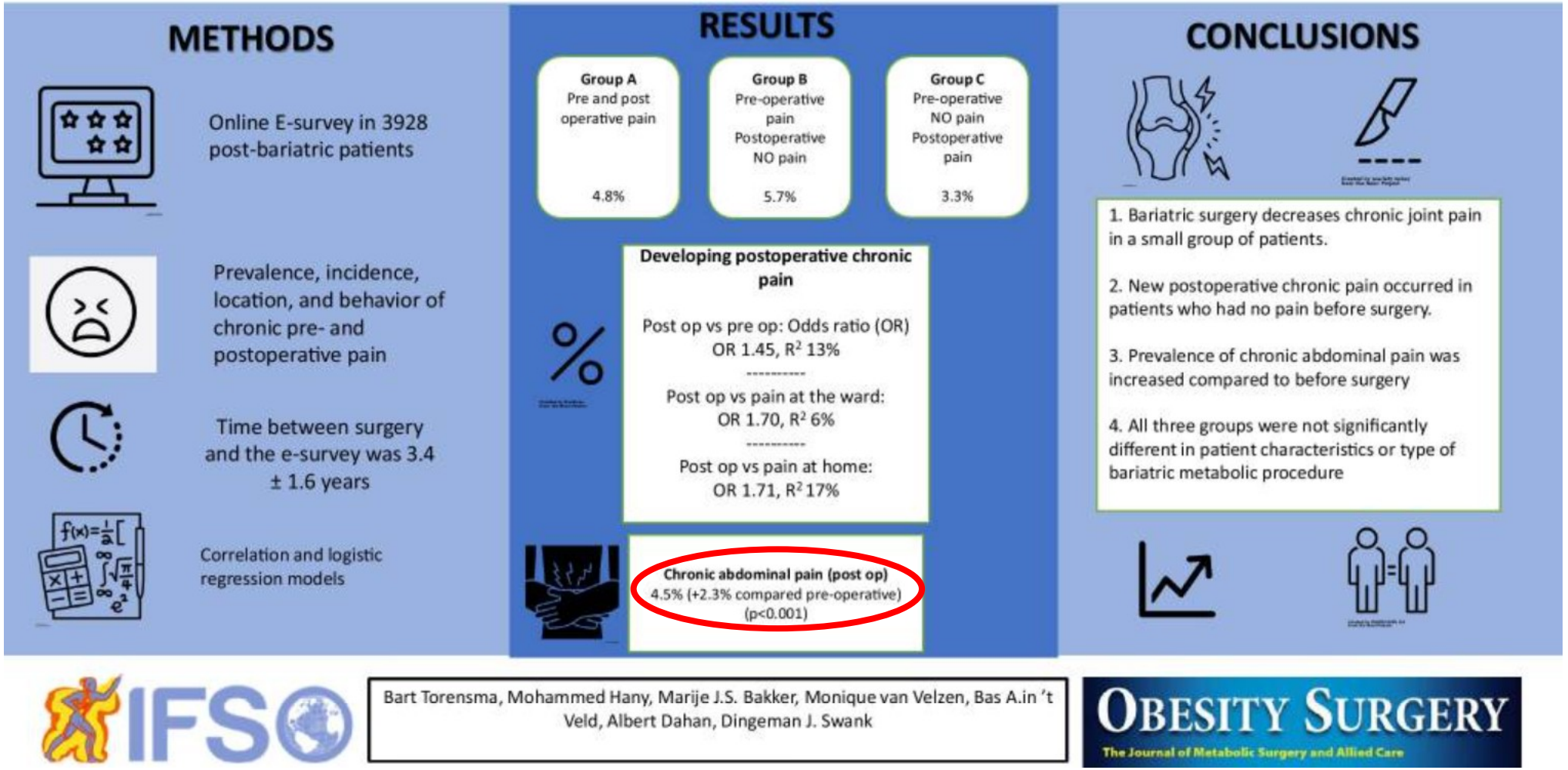
- eerstelijnsbehandeling: levensstijlaanpassingen

Dysfagie = alarmsymptoom

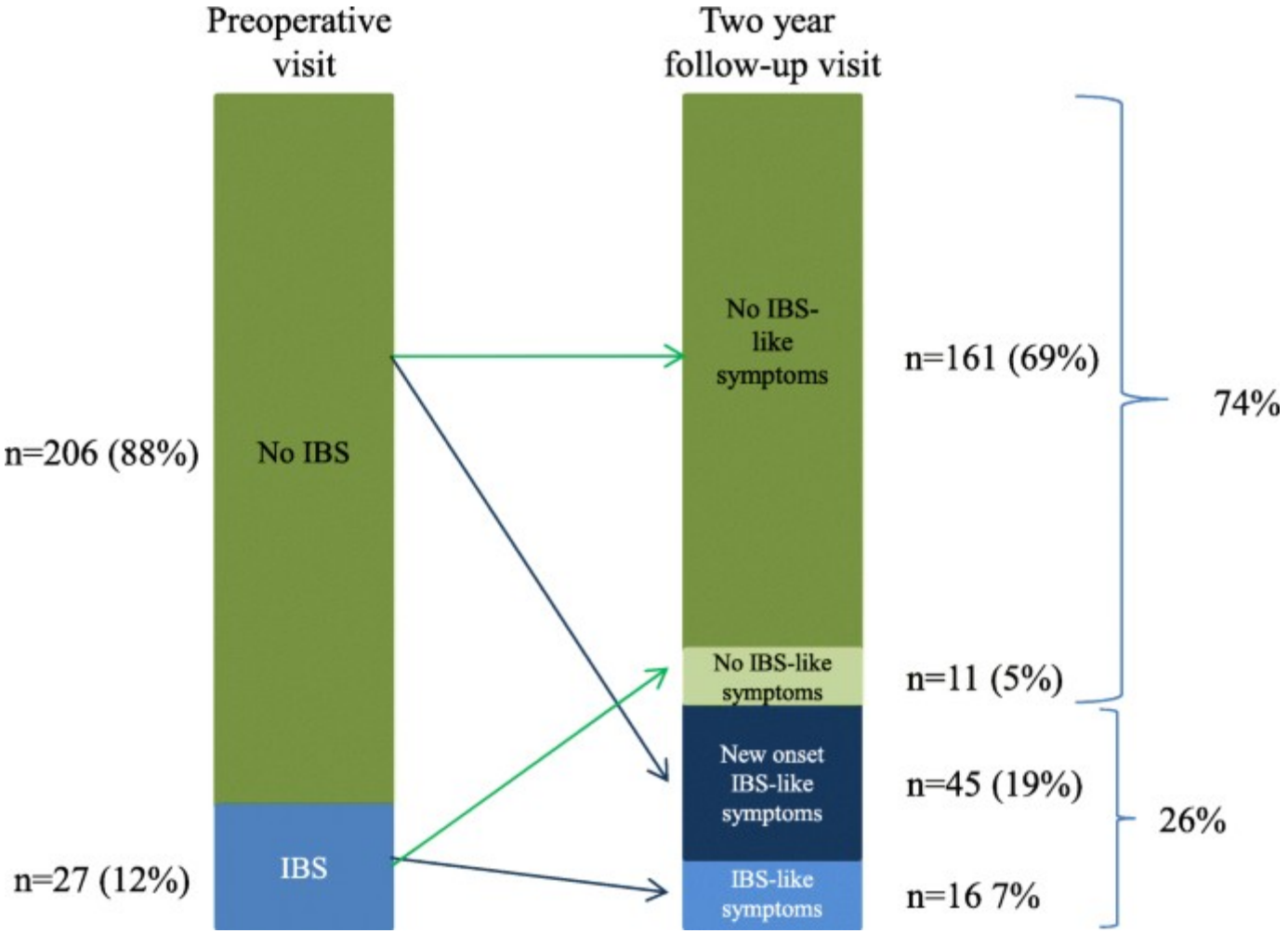
- RX SMD +/- gastroscopie meestal noodzakelijk



Chronische abdominale pijn



Torensma, B. et al (2023). Cross-sectional E-survey on the Incidence of Pre- and Postoperative Chronic Pain in Bariatric Surgery. *Obesity surgery,*.

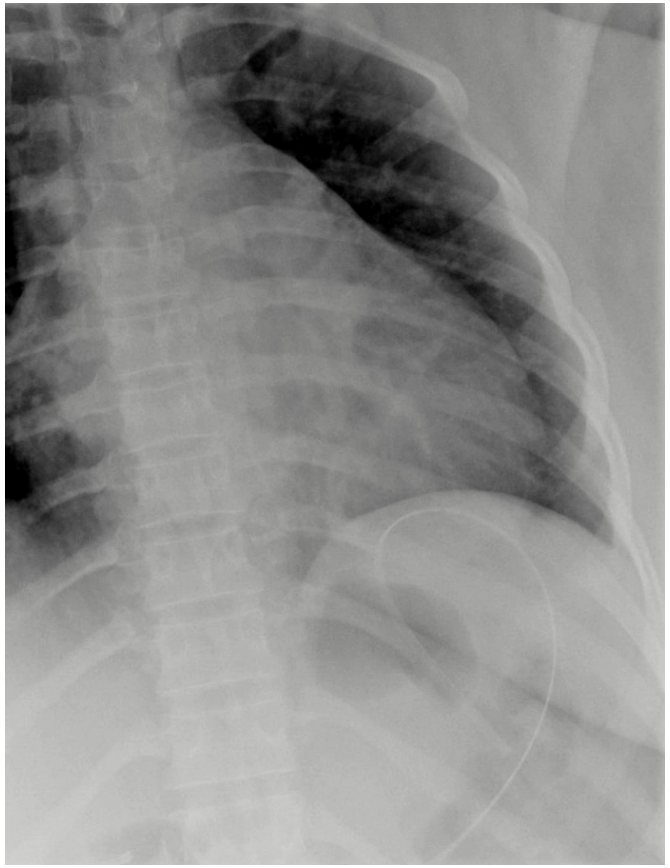


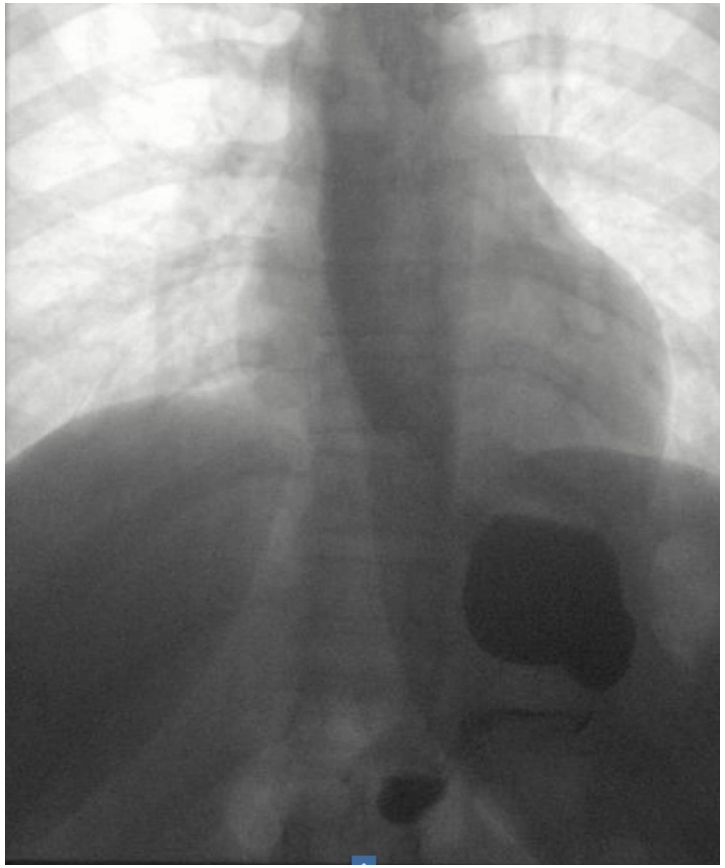
The prevalence of IBS-like symptoms doubled 2 years after RYGB, and these symptoms were associated with reduced HRQoL.

Preoperative IBS and fibromyalgia were strong predictors of postoperative IBS-like symptoms.

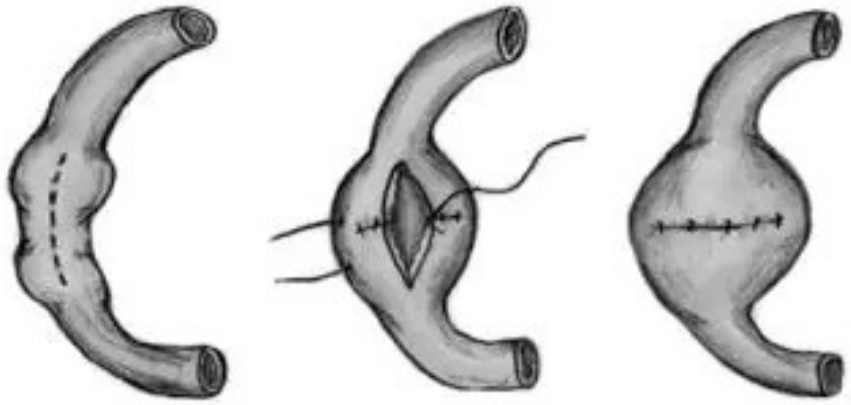
Blom-Høgestøl et al. (2019). Irritable bowel syndrome-like symptoms and health related quality of life two years after Roux-en-Y gastric bypass - a prospective cohort study. *BMC gastroenterology*,

Sleeve: stenose – torsie





Heineke Mikulicz
stricturoplastie



Bariatric Surgery Conversions in MBSAQIP centers: Current Indications and Outcomes

METHODS

MBSAQIP PUF 2020

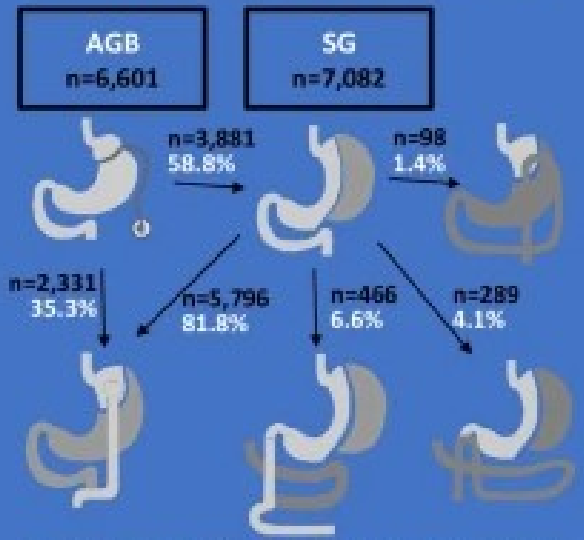
885 accredited centers in the United States



Index procedures, rates, indications, and outcomes of bariatric conversions were analyzed

RESULTS

168,568 Bariatric surgeries
20,387 (12.1%) Revisions
15,031 (73.7%) Bariatric Conversions



Overall morbidity was 5.3-20.8%, serious morbidity 2.3-19.2%, and mortality 0-0.8%

CONCLUSIONS

- Bariatric conversions are the most frequent revisional procedures
- GERD is the main indication for SG (48.5%) and biliopancreatic diversion with duodenal switch (37.5%) conversions



- Weight loss failure is the main indication for conversion in all the other primary bariatric procedures



IFSO

Carolina Vanetta, Nicolás H. Dreifuss, Francisco Schlottmann, Carolina Baz, Mario A. Masrur

OBESITY SURGERY
The Journal of Metabolic Surgery and Allied Care

Vanetta, C.et al. (2022). Bariatric Surgery Conversions in MBSAQIP Centers: Current Indications and Outcomes. *Obesity surgery*

Nationale registers

KCE Report 329As

KCE
Federaal Kenniscentrum voor de Gezondheidszorg
Centre Fédéral d'Expertise des Soins de Santé
Belgian Health Care Knowledge Centre

SYNTHESE

OBESITASCHIRURGIE: ORGANISATIE EN FINANCIERING VAN ZORG VOOR EN NA DE OPERATIE





2020 www.kce.fgov.be .be

3.7 Register voor bariatrische chirurgie

3.7.1 *De huidige verplichting is grotendeels onvoldoende*

Vandaag zijn ziekenhuizen die bariatrische chirurgie uitvoeren, verplicht om de gegevens die ze invullen op het formulier voor de ziekenfondsen, ook in een register te bewaren. In zijn huidige vorm is dit register echter ongeschikt voor onderzoek of beleidsdoeleinden, want er is geen verplichting om de gegevens in een centraal register te delen. Bovendien toonde een audit aan dat 32% van de gecontroleerde ziekenhuizen dit register niet heeft.

De administratieve gegevens (bv. factuurgegevens van het IMA en de ontslaggegevens van de Belgische ziekenhuizen- MZG) leveren weliswaar bruikbare informatie op (bv. over de geografische variatie) maar laten niet toe om de zorgkwaliteit op lange termijn op te volgen (bv. gewichtsverlies, comorbiditeiten, complicaties, bijwerkingen). Deze gegevensbronnen kunnen dus enkel worden gebruikt ter aanvulling en controle (bv. worden alle interventies geregistreerd) van een register.

3.7.2 *Nood aan een verplicht, nationaal register*

Alle bevraagde bariatrische chirurgen beschouwden een centraal en verplicht register voor bariatrische chirurgie als een belangrijk onderdeel van de hervorming van de bariatrische zorg in België. Het register kan worden gebruikt voor feedback en benchmarking, en moet worden gefinancierd door de overheid. De bariatrische centra moeten instaan in voor de gegevensinvoer, maar ook gegevens over de eerstelijnszorg kunnen (eventueel in een tweede fase) worden geregistreerd.

SOD (sfincter of Oddi dysfunction, acalculous obstruction)

Manometrie

Provocation test (Nardi test: Morfine-Neostigmine provocatietest: 4x increase amylase/lipase en pijn

R/ Nifedipine (of Tildiem trial)

Bile reflux in gastric remnant:

Lap ass gastroscopy

R/ Ursodeoxycholzuur (ursofalk/ursochol)

Diarree

R/ colestyramine (Questran): Diarree door ziekte en/of verlies van het ileum, door vagotomie, radiatie-enteritis en partiële gastrectomie, IBD/diarree

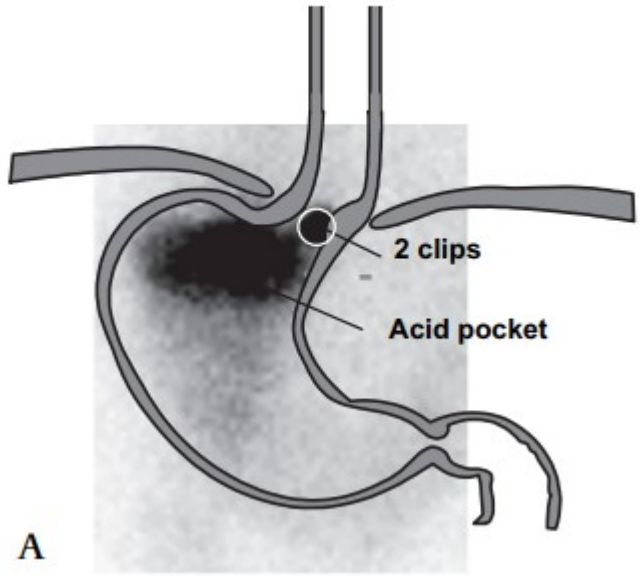
Surg Endosc (2017) 31:5399–5402
DOI 10.1007/s00464-017-5621-y

Remnant gastropathy due to bile reflux after Roux-en-Y gastric bypass: a unique cause of abdominal pain and successful treatment with ursodiol

Nitin Kumar[1,2] · Christopher C. Thompson[1,2]

UZ LEUVEN AZDIEST

Acid pocket



Beaumont H, et al The position of the acid pocket as a major risk factor for acidic reflux in healthy subjects and patients with GORD Gut 2010

SD spasme

Calcium-antagonist (nifedipine of tildiem)

UpToDate®

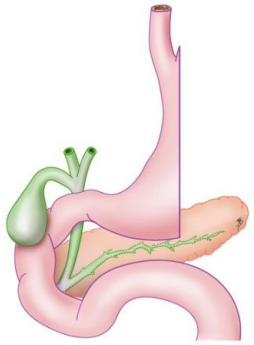
Zoeken in UpToDate

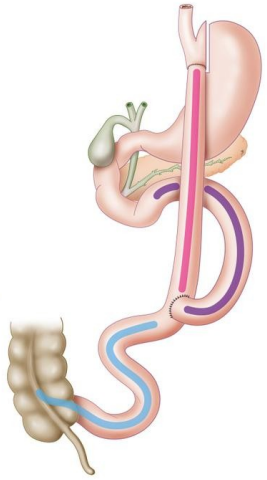
KU Le

Inhoud | Calculators | Geneesmiddeleninteracties | UpToDate Pathways

< Terug

Late complications of bariatric surgical operations





Gastro-oesofageale reflux

Abdominale pijn

Dumping - PPH

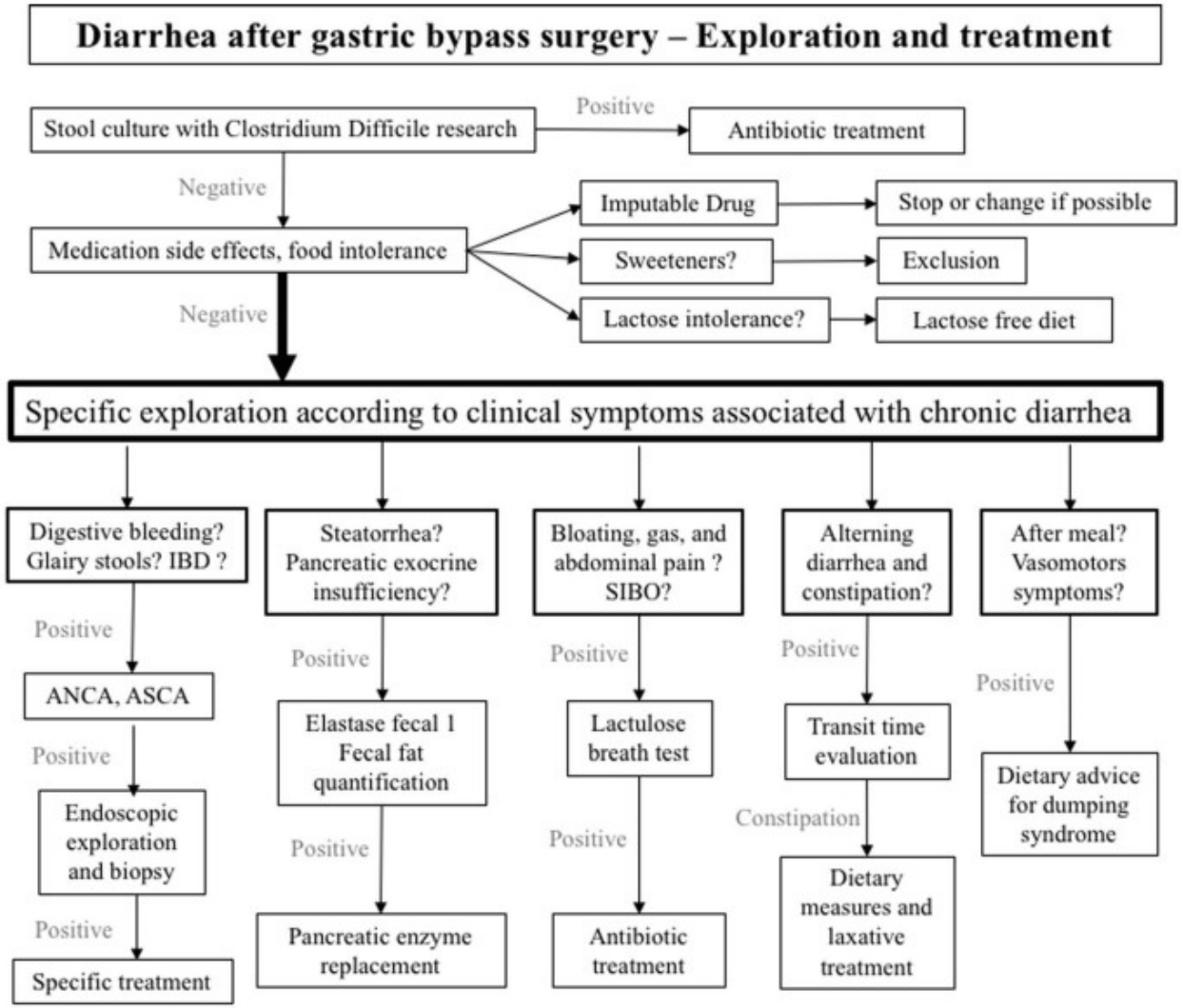
Diarree

Dysfagie

UZ LEUVEN AZDIEST

Uptodate

Diarree



Sollier C et al. Diagnostic and Therapeutic Management of Post-Gastric Bypass Chronic Diarrhea: a Systematic Review. Obes Surg. 2020.