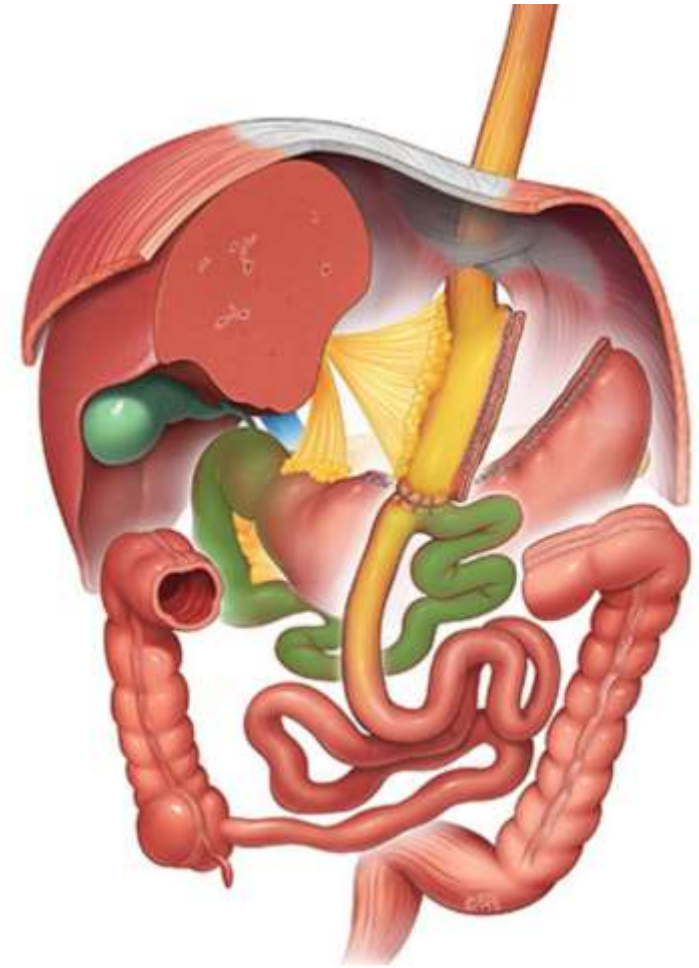
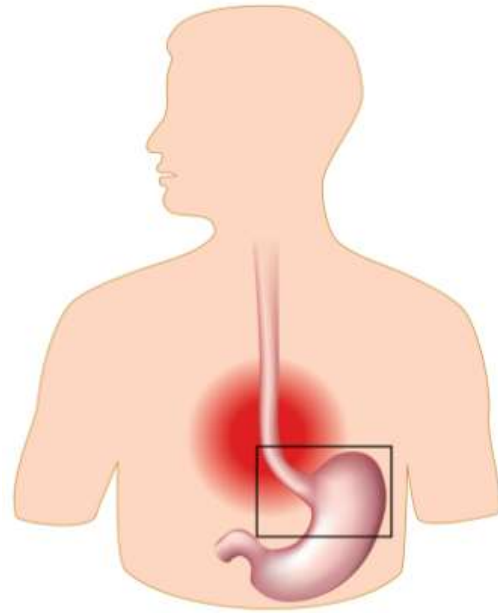
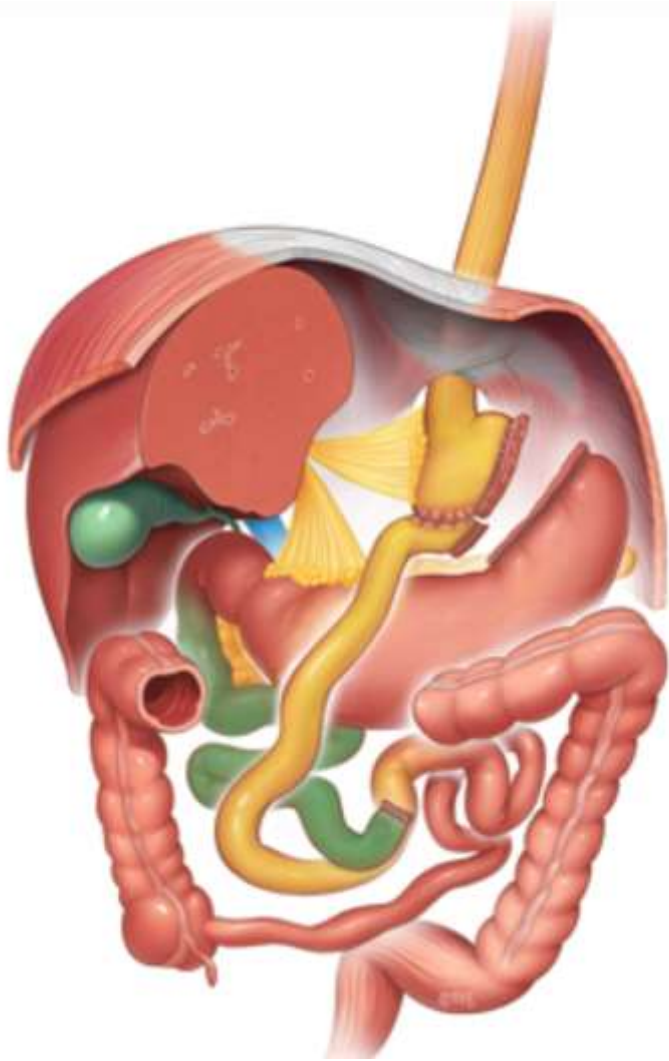


# Analysis of factors related to gastroesophageal reflux after gastric bypass at 10 years follow-up: retrospective single institutional study

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# Endoscopic Kehr's T-Tube placement to treat persistent large gastro-cutaneous fistula after One Anastomosis Gastric Bypass: Video Demonstration

Niccolo Petrucciani, Francesco Martini, Arnaud Liagre



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## Background

### GERD after bariatric surgery

#### **RYGB**

- diversion of the bile from the Roux limb
- weight loss
- lowering the acid production in the gastric pouch
- decreasing the abdominal pressure over the lower esophageal sphincter (LES).

But... 20-30% of patients complain of GERD after RYGB



## Background : hypothesis to explain GERD after RYGB

1. Persistence of acid-secreting parietal cells in the gastric pouch.
2. Endoscopic evidence of bile reflux in the pouch in some patients complaining of upper gastrointestinal (GI) symptoms.
3. Impaired motility of the Roux limb as hypothesized by Rebecchi et al., who demonstrated high percentage of esophagitis after RYGB, a high number of weakly acidic reflux at pH-impedencometry, with no abnormalities in LES pressure and body motility.
4. Hiatal hernia with pouch migration in the mediastinum.
5. Duodenogastric bile reflux in the excluded stomach



## Background : GERD after OAGB

- Historical experiences following Billroth II.
- Possibility of both acid and bile reflux (diagnostic dilemma).
- Variable incidence of reflux after OAGB between 7.8 and 55.5%



## AIM

1. evaluate the rate of long-term **CLINICAL** GERD after primary bypasses
2. Analyze factors influencing GERD and in particular the role of the type of bypass.

UNPUBLISHED DATA

## METHODS

- Consecutive patients undergoing RYGB or OAGB with a biliopancreatic limb of 150 cm between January 2010 and December 2011 at the Clinique des Cedres, Toulouse, France
- Primary Procedures
- Excluded if concomitant hiatal procedures
- 10 years Follow-up



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## METHODS

- Diagnosis of reflux: CLINICAL based on anamnesis, examination, questionnaires
- No systematic endoscopy
- Clinical GERD = TREATED GERD
- Private practice, reimbursement, compliance...



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	Overall population	RYGB	OAGB 150	p<0,05
N.	756	422	334	
Female sex	81.6% (n=612)	82.9% (n=350)	79.9% (n=267)	0.291
Age (years)	38.9 (18-66) ± 11.3	40 (18-65) ± 11.4	37.4 (18-65) ± 11	<b>0.002</b>
Weight (kg)	117.5 (75-198) ± 19	117.2 (77-187) ± 20.1	117.7 (75-198) ± 20.1	0.719
BMI (kg/m <sup>2</sup> )	42.8 (33.8-65) ± 5	42.8 (33.8-59) ± 4,7	42.8 (35-65) ± 5	0.827
Preoperative GERD	40.8% (n=260/637)	31.7% (n=96/303)	49.1% (n=164/334)	<b>&lt;0.000</b>
Arterial hypertension	19% (n=144)	19.4% (n=82)	18.5% (n=62)	0.763
Diabetes	12% (n=91)	12.7% (n=54)	11% (n=37)	0.386
Obstructive sleep apnea syndrome (OSAS)	11.9% (n=90)	12.5% (n=53)	11% (n=37)	0.441

## RESULTS

**OAGB = younger, higher rate of clinical GERD**

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## RESULTS

**Internal hernia and bowel obstruction > after RYGB**

**Surgery for weight regain > after RYGB**

	Overall population	RYGB	OAGB 150	p
N.	756	422	334	
%EWL at 120 months	-	72.7 (-24-152)± 27	82.2 (-8-153)±25,5	<0.0001
%TWL at 120 months	-	29.5 (-8-56)± 11	33.3 (-3-58)± 10	<0.0001
Episodes of hypoglycemia	11 %	13.1% (n=38/290)	8.2% (n=22/252)	0.106
Diarrhea	7.1 %	7.2% (n=20/282)	7.1% (18/252)	0.982
Remission of diabetes	61% (n=37/60)	60% (n=21/35)	64% (n=16/25)	0.755
Remission of obstructive sleep apnea syndrome	82.6% (n=43/52)	86.6% (n=26/30)	77,2% (n=17/22)	0.381
Remission of arterial hypertension	48.3% (n= /89)	41.6% (n=20/48)	56% (n=23/41)	0.177

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GERD at 10 years follow-up	21.1%	21.8% (n=60/275)	20.8% (n=51/245)	0.781
Remission of preoperative GERD	68%	68.3% (n=56/82)	67.7% (n=80/118)	0.941
“de novo” GERD	14.7%	17.7% (n=34/192)	10.2% (n=13/127)	0.066
Surgical treatment for GERD resistant to medical therapy	2.5%	0.5% (n=2)	3.2% (n=11)	0.003

## RESULTS

**10 y %EWL and %TWL > OAGB**

**Similar GERD rate at 10 y follow-up**

**> Rate of Surgery for GERD resistant to medical treatment after OAGB**

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		Univariate logistic regression	Multivariate logistic regression			
	GERD at 10 years follow-up	p	Standard error	Odds ratio	95% CI	p
Preoperative GERD No Yes	14,7% (n=47/319) 32% (n=64/200)	<b>&lt;0.0001</b>	0.234	2.648	1.675-4.187	<b>&lt;0.0001</b>
%TWL at 120 months < 25 > 25	30% (n=40/131) 18.3% (n=71/387)	<b>0.004</b>	0.280	0.524	0.302-0.907	<b>0.021</b>
Glycemic imbalance No Yes	19.2% (n=88/457) 37.5% (n=21/56)	<b>0.003</b>	0.321	2.419	1.290-4.536	<b>0.006</b>
Anastomotic Ulcer Yes No	51.1% (n=23/45) 18.7% (n=90/479)	<b>&lt;0.0001</b>	0.346	5.262	2.673-10.357	<b>&lt;0.0001</b>

## RESULTS : UNIVARIATE AND MULTIVARIATE ANALYSIS

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## LIMITS

- monocentric and non-randomized
- lack of endoscopic examinations
- GERD = GERD treated (PPI USE)



## CONCLUSIONS

1. Treated GERD represents a frequent occurrence after gastric bypass surgery.
2. Several factors including preoperative GERD, 10-years %TWL <25, glycemic imbalances and anastomotic ulcers seem to be correlated to long-term GERD.
3. MORE RESEARCH IS NEEDED IN THIS FIELD → Identification and correction of modifiable factors may reduce the incidence of long-term GERD.

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**Thank you for your kind attention**

