Revision RYGBP:
Type 1 Distalization is the Way to Go

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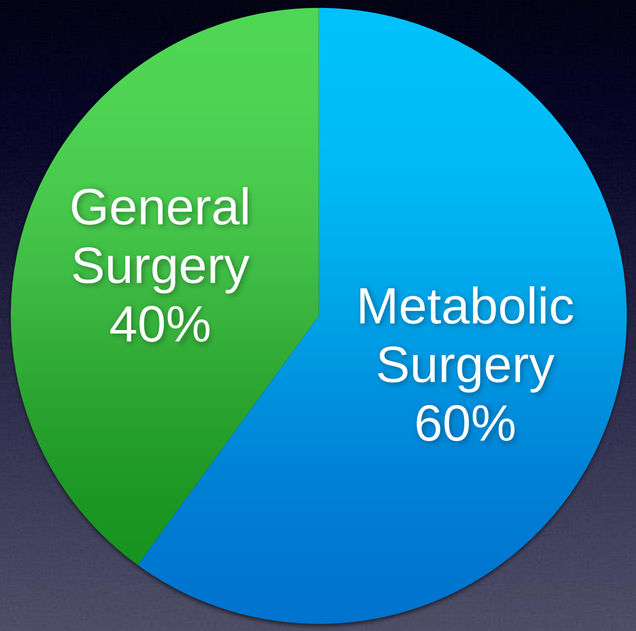
Disclosures

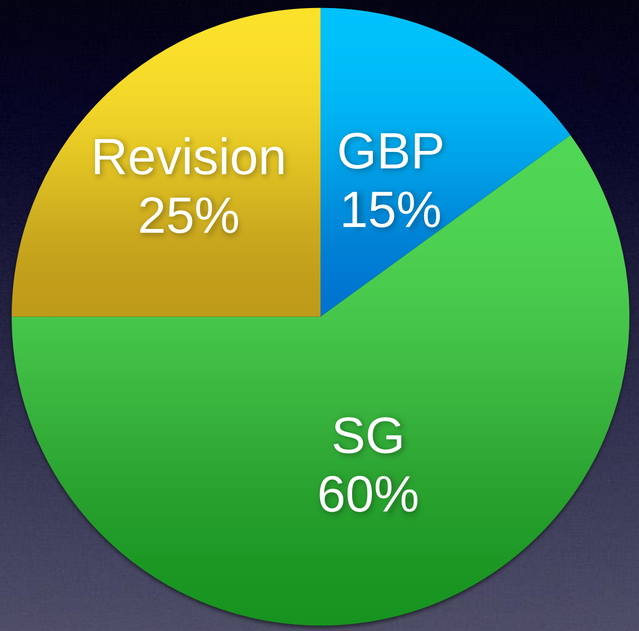
- Ethicon Endosurgery
- Director of MIS and Bariatric Surgery - Fresno Heart and Surgical Hospital
- Chair of Metabolic and Bariatric Services - CHS
- VP Chief Medical and Quality Officer - Fresno Heart and Surgical Hospital

2023

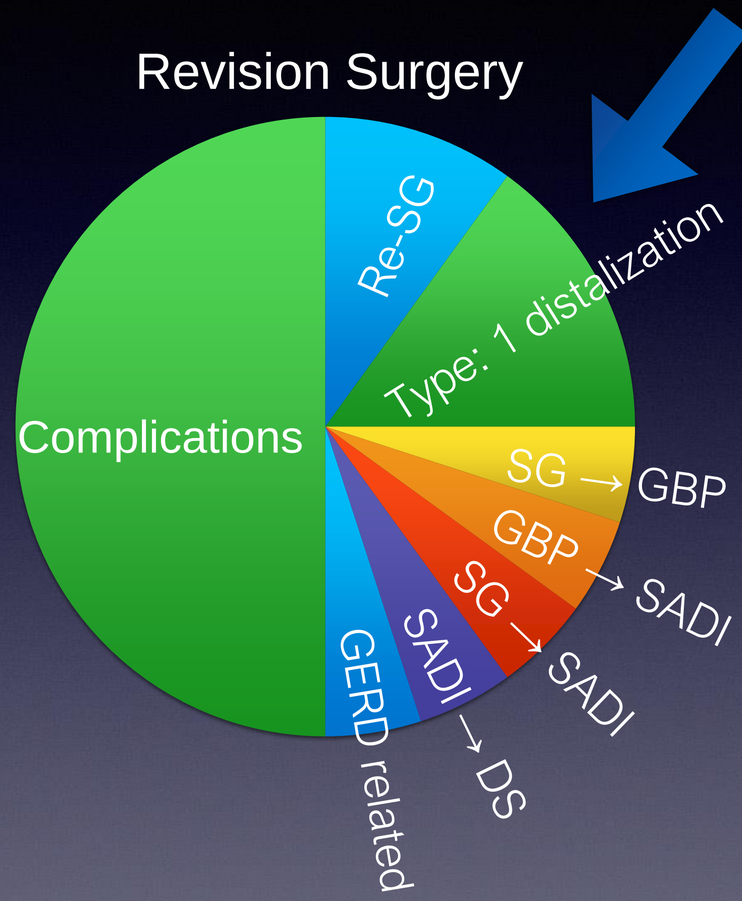
Practice



Metabolic Surgery



Revision Surgery



Take Home Messages

- Suboptimal initial weight loss and recurrent weight gain may be completely different subtypes.
- Shortening TALL increases response and the expense of nutrition.
- Studies regarding bowel length are almost non-interpretable
- BMI and “ideal body weight” should not be the target.
- Optimal health and longevity is the goal.

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Surgery for Obesity and Related Diseases 18 (2022) 555–564

SURGERY FOR OBESITY AND RELATED DISEASES

Review article

The role of total alimentary limb length in Roux-en-Y gastric bypass: a systematic review

Alice Wang, M.D., M.H.S.[a], Lauren Poliakin, M.D.[a], Naresh Sundaresan, M.D.[a], Vilok Vijayanagar, D.O.[b], Alexander Abdurakhmanov, M.D.[a], Kyle J. Thompson, Ph.D.[b], Iain H. Mckillop, Ph.D.[b], Selwan Barbat, M.D.[a], Roc Bauman, M.D.[a], Keith S. Gersin, M.D.[a], Timothy S. Kuwada, M.D.[a], Abdelrahman Nimeri, M.D., F.A.C.S., F.A.S.M.B.S.[a,*]

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Abstract

Background: Roux-en-Y gastric bypass (RYGB) is an established surgical treatment for obesity. Variations in limb length during RYGB procedures have been investigated for optimizing weight loss while minimizing nutritional deficiencies. The role of the total alimentary limb length (TALL; Roux limb plus common channel [CC]), however, is poorly defined.

Objective: Compare TALL in RYGB procedures for weight loss outcomes and malnutrition.

Setting: Systematic review.

Methods: Ovid Medline and PubMed databases were searched for entries between 1993 and 2020. Search terms included "gastric bypass" and "TALL." Two independent reviewers screened the results.

Results: A total of 21 studies measured TALL in RYGB. Of these, 4 of 6 reported a relationship between TALL and weight loss. Additionally, 11 studies reported that when TALL was ≤400 cm and CC <200 cm, 3.4% to 63.6% of patients required limb lengthening for protein malnutrition.

Conclusions: The majority of studies on RYGB do not report TALL length. There is some evidence that weight loss is affected by shortening TALL, while a TALL ≤400 cm with CC<200 cm should be avoided due to severe protein malnutrition. More studies on the effect of TALL are needed. (Surg Obes Relat Dis 2022;18:555–563.)

Key Words: Total alimentary limb length; Roux-en-Y gastric bypass

Roux-en-Y gastric bypass surgery (RYGB) is established as an effective weight loss and co-morbidity resolution strategy that is superior to medical management alone [1,2]. Up to 20% of patients with morbid obesity (body mass index [BMI] >40 kg/m^2) and up to 40% of patients with super obesity (BMI >50 kg/m^2), however, will experience significant weight regain at 10-year follow-up [3–6]. Subsequently, studies have investigated the effect of changing limb lengths to optimize weight loss while minimizing nutritional deficiencies. Few studies, however, have focused on the impact of the total alimentary limb length (TALL), which is composed of the Roux limb (RL) and the common channel (CC). Of further note, the biliopancreatic limb (BPL) and TALL are closely related as increases in the BPL results in a shorter TALL [7,8].

Most surgeons do not measure TALL when performing RYGB with the exception of performing a distal RYGB.

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Surgery for Obesity and Related Diseases 19 (2023) 755–762

SURGERY FOR OBESITY AND RELATED DISEASES

Review article

American Society for Metabolic and Bariatric Surgery literature review on the effect of Roux-en-Y gastric bypass limb lengths on outcomes

Essa M. Aleassa, M.D.[a,*], Pavlos Papasavas, M.D.[b], Toms Augustin, M.D.[c], Zhamak Khorgami, M.D.[d], Sue Benson-Davies, Ph.D.[e], Saber Ghiassi, M.D.[f], Jonathan Carter, M.D.[g], Abdelrahman Nimeri, M.D.[h], Clinical Issues Committee of the American Society for Metabolic and Bariatric Surgery

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Abstract

This literature review is issued by the American Society for Metabolic and Bariatric Surgery regarding limb lengths in Roux-en-Y gastric bypass (RYGB) and their effect on metabolic and bariatric outcomes. Limbs in RYGB consist of the alimentary and biliopancreatic limbs and the common channel. Variation of limb lengths in primary RYGB and as a revisional option for weight recurrence after RYGB are described in this review. (Surg Obes Relat Dis 2023;19:755–762.)

Keywords: Alimentary limb; Biliopancreatic limb; Common channel; Distalization; Roux-en-Y gastric bypass; Roux limb; Total alimentary limb length; Weight loss

The inception of utilizing gastric bypass for weight loss was adopted from gastric operations performed to treat peptic ulcer disease and was initially performed as a loop procedure. This was later modified to a Roux-en-Y configuration to avoid bile reflux esophagitis. Mason and Ito were the first to describe gastric bypass as a means to treat obesity following a series of animal and human studies in 1967 [1]. Their initial gastric bypass operation consisted of a horizontal gastric pouch of fundus that was anastomosed to a loop of jejunum 60 cm distal to the ligament of Treitz. The surgery was performed without the use of a surgical stapler. In 1977, Alden described the use of a nondividing stapler to create a smaller horizontal pouch after taking down the proximal attachments of the greater curvature of the stomach [2]. In the same year, Griffen et al. modified the Mason gastric bypass from a loop to a Roux-en-Y configuration [3]. The jejunum was divided 12–15 cm from the ligament of Treitz, creating a very short biliopancreatic limb (BPL), and the Roux limb was created to be only 30–35 cm long [4]. Thereafter, Torres modified the horizontal pouch into a vertical one [5]. In 1994, Wittgrove et al. described a laparoscopic technique of Roux-en-Y gastric bypass (RYGB) utilizing a circular end-to-end anastomosis (EEA) [6].

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REVIEW ARTICLE

Revision of Roux-En-Y Gastric Bypass for Weight Regain: a Systematic Review of Techniques and Outcomes

Daniel D. Tran[1] · Ifeanyi D. Nwokeabia[2] · Stephanie Purnell[2] · Syed Nabeel Zafar[1] · Gezzer Ortega[1] · Kakra Hughes[1] · Terrence M. Fullum[1]

Published online: 2 May 2016

Abstract
Background Weight regain has led to an increase in revision of Roux-en-Y gastric bypass (RYGB) surgeries. There is no standardized approach to revisional surgery after failed RYGB. We performed an exhaustive literature search to elucidate surgical revision options. Our objective was to evaluate outcomes and complications of various methods of revision after RYGB to identify the option with the best outcomes for failed primary RYGB.
Method A systematic literature search was conducted using the following search tools and databases: PubMed, Google Scholar, Cochrane Clinical Trials Database, Cochrane Review Database, EMBASE, and Allied and Complementary Medicine to identify all relevant studies describing revision after failed RYGB. Inclusion criteria comprised of revisional surgery for weight gain after RYGB.
Results Of the 1200 articles found, only 799 were selected for our study. Of the 799, 24 studies, with a total of 866 patients, were included for a systematic review. Of the 24 studies, 5 were conversion to Distal Roux-en-y gastric bypass (DRYGB), 5 were revision of gastric pouch and anastomosis, 6 were revision with gastric band, 2 were revision to biliopancreatic diversion/duodenal switch (BPD/DS), and 6 were revision to endoluminal procedures (i.e., stomaphyx). Mean percent excess body mass index loss (%EBMIL) after revision up to 1 and 3-year follow-up for BPD/DS was 63.7 and 76 %, DRYGB was 54 and 52.2 %, gastric banding revision 47.6 and 47.3 %, gastric pouch/anastomosis revision 43.3 and 14 %, and endoluminal procedures at 32.1 %, respectively. Gastric pouch/anastomosis revision resulted in the lowest major complication rate at 3.5 % and DRYGB with the highest at 11.9 % when compared to the other revisional procedures. The mortality rate was 0.6 % which only occurred in the DRYGB group.
Conclusion All 866 patients in the 24 studies reported significant early initial weight loss after revision for failed RYGB. However, of the five surgical revision options considered, BPD/DS, DRYGB, and gastric banding resulted in sustained weight loss, with acceptable complication rate.

Keywords Roux-en-Y · Gastric bypass · Bariatric surgery · Revision · Conversion · Weight gain · Weight regain · Weight recidivism

Introduction

Currently, bariatric surgery remains the gold standard of treatment for sustainable weight loss and reduction of comorbidities in morbidly obese patients when compared to other non-surgical options including behavioral modification, diet modification, drug therapy, and exercise [1–4]. Roux-en-Y Gastric Bypass (RYGB) still remains one of the most commonly performed bariatric surgery in the USA [5, 6]. RYGB is a restrictive/malabsorptive procedure that creates a small gastric pouch limiting food intake and calorie absorption [7]. The divided 15–30 mm pouch is anastomosed to the Roux limb of small bowel [8].

Over the last decade, long-term weight loss after RYGB has been remarkable. However, approximately 10-20 % of patients either regain weight or fail to achieve significant weight loss [9]. RYGB failure is due to both anatomical and

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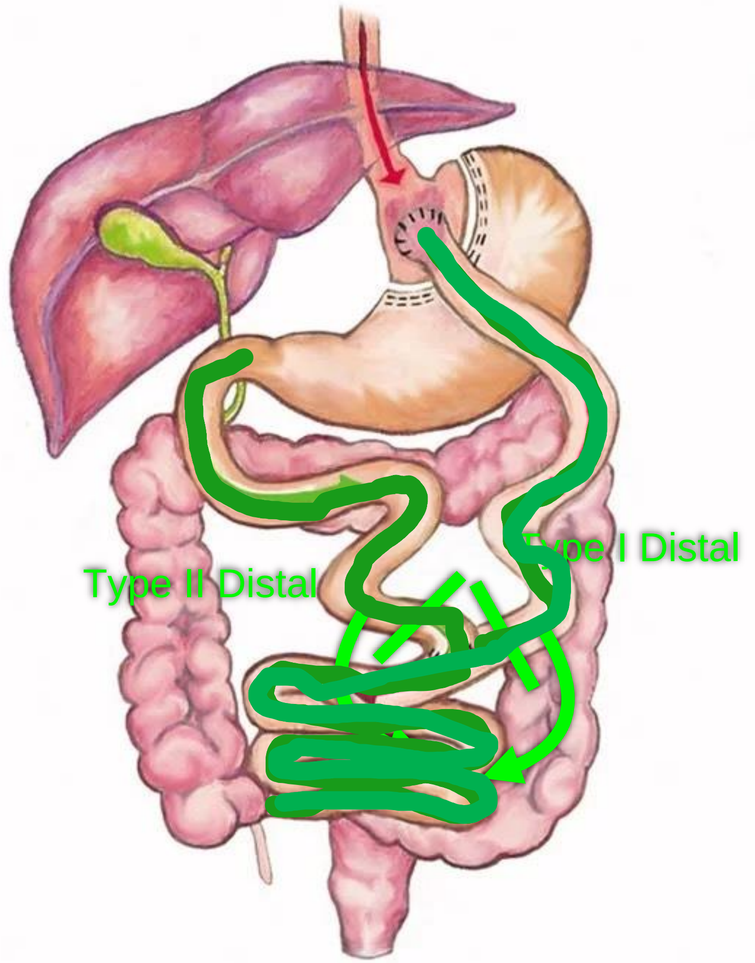
Roux = AL
alimentary limb

BPL
biliopancreatic limb

CL
common channel

AL + CL = TALL
Total alimentary limb



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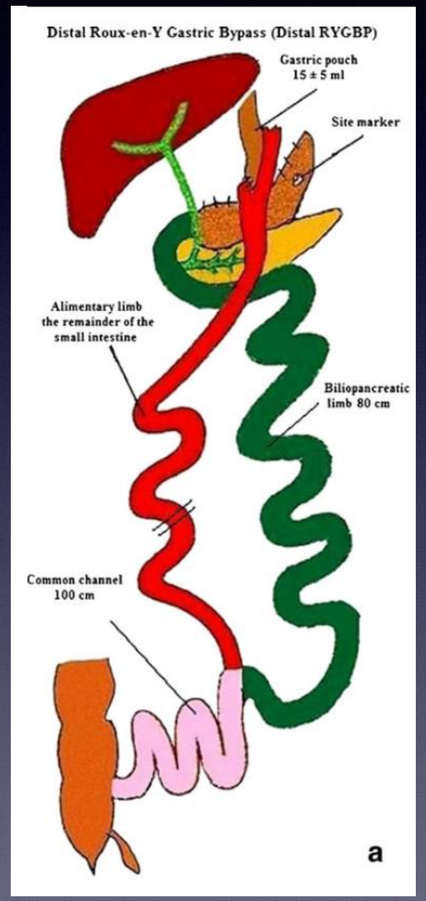
Fresno Medical Education Program

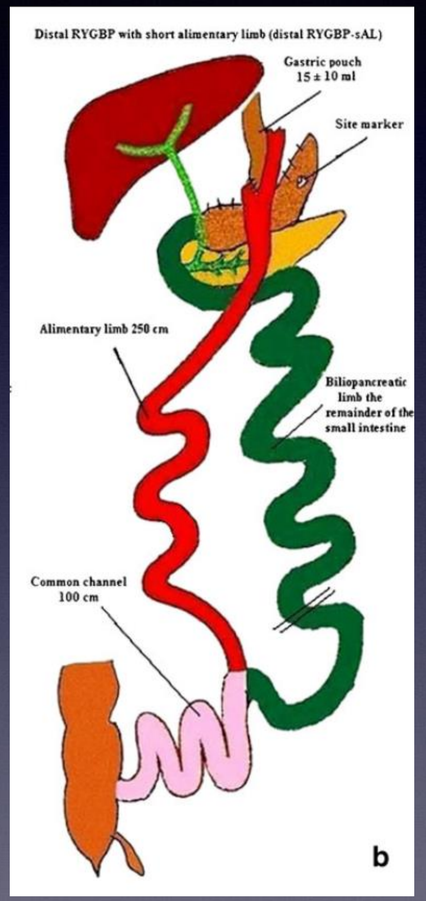
Advanced Laparoscopic Surgery Associates Medical Group

Biliopancreatic Diversion with Roux-en-Y Gastric Bypass and Long Limbs: Advances in Surgical Treatment for Super-obesity
Kalfarentzos, et al. Obesity Surgery 2011

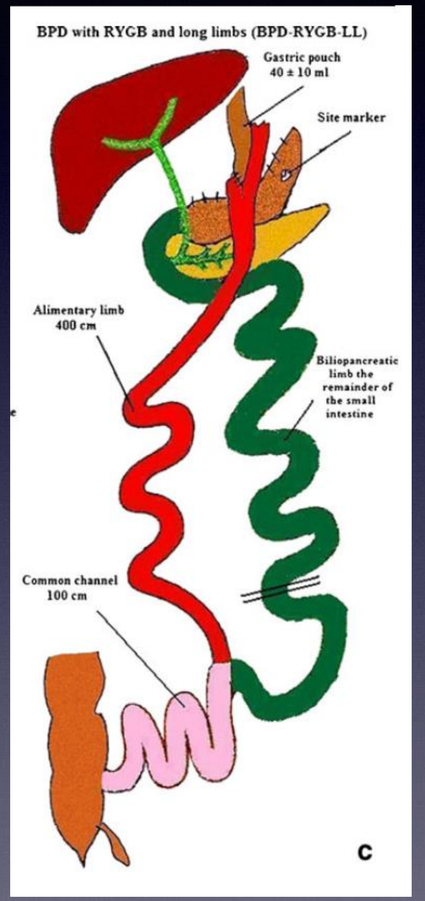
(75) type II distal GBP
AL ? BP 80cm CC 100cm
TALL ?



(44) type I distal GBP
AL 250cm BP ? CC 100cm
TALL 350 cm



(841) type I distal GBP
AL 400cm BP ? CC 100cm
TALL 500 cm



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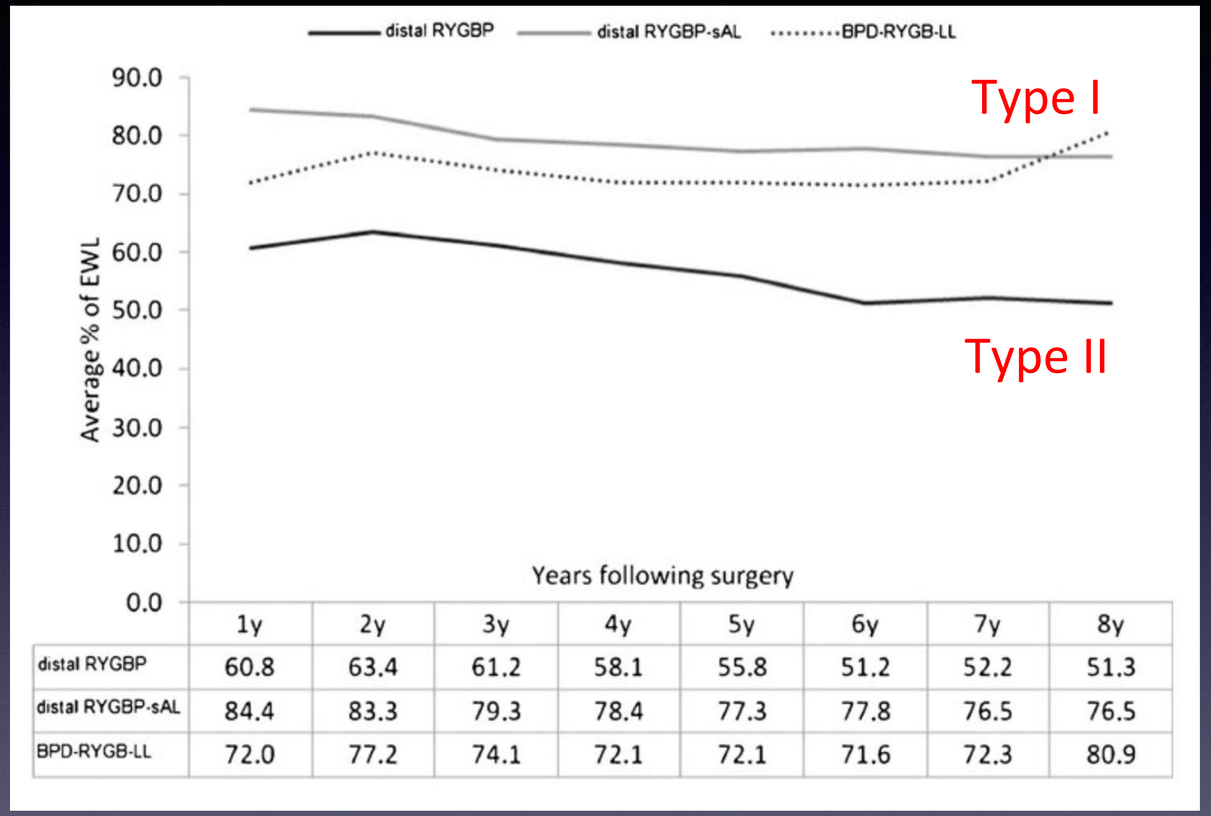
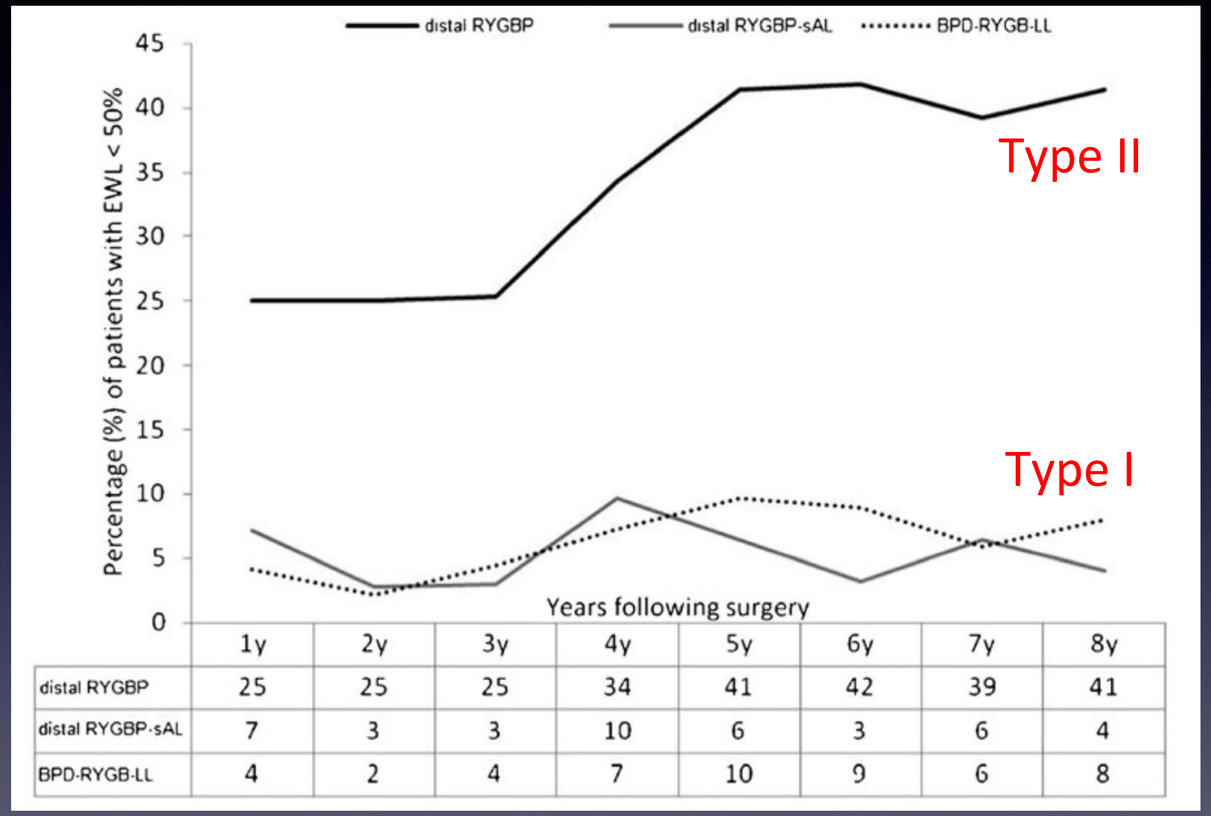


	1y	2y	3y	4y	5y	6y	7y	8y
distal RYGBP	60.8	63.4	61.2	58.1	55.8	51.2	52.2	51.3
distal RYGBP-sAL	84.4	83.3	79.3	78.4	77.3	77.8	76.5	76.5
BPD-RYGB-LL	72.0	77.2	74.1	72.1	72.1	71.6	72.3	80.9



	1y	2y	3y	4y	5y	6y	7y	8y
distal RYGBP	25	25	25	34	41	42	39	41
distal RYGBP-sAL	7	3	3	10	6	3	6	4
BPD-RYGB-LL	4	2	4	7	10	9	6	8

Biliopancreatic Diversion with Roux-en-Y Gastric Bypass and Long Limbs: Advances in Surgical Treatment for Super-obesity
Kalfarentzos, et al. Obesity Surgery 2011

	Distal RYGBP	Distal RYGBP-sAL	BPD-RYGB-LL
Early (≤30 days) morbidity and deaths after bariatric surgery		Δ 150 cm TALL	
Surgical complications, *n* (%)			
Gastrointestinal leakage	2 (2.7)	1 (2.3)	14 (1.7)
Postoperative bleeding	0 (0)	0 (0)	7 (0.8)
Bile leakage	1 (1.3)	1 (2.3)	4 (0.5)
Wound infection	0 (0)	1 (2.3)	1 (0.1)
Wound dehiscence	2 (2.7)	0 (0)	0 (0)
Non-surgical complications, *n* (%)			
Pulmonary complications	2 (2.7)	5 (11.4)	16 (1.9)
Acute renal failure	0 (0)	0 (0)	2 (0.2)
Total early complications, *n* (%)	7 (9.3)	8 (18.2)*	44 (5.2)
Early deaths, *n* (%)	2 (2.7)	0 (0)	4 (0.5)
Late (>30 days) morbidity and deaths after bariatric surgery			
Surgical complications, *n* (%)			
Incisional hernia	20 (26.7)	13 (29.5)	295 (35.1)
Intestinal obstruction	5 (6.7)	5 (11.4)	26 (3.1)
Obstructive jaundice	0 (0)	0 (0)	1 (0.1)
Gastrojejunal stoma stenosis	0 (0)	0 (0)	2 (0.2)
Anastomotic ulcer	0 (0)	0 (0)	5 (0.6)
Non-surgical complications, *n* (%)			
Protein malnutrition	2 (2.7)	11 (25)**	26 (3.1)
Total late complications, *n* (%)	27 (36)	29 (65.9)***	355 (42.2)
Late deaths, *n* (%)	0 (0)	4 (9.1)****	12 (1.4)

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Surgery for Obesity and Related Diseases 14 (2018) 554–561

SURGERY FOR OBESITY AND RELATED DISEASES

Original article

Conversion of standard Roux-en-Y gastric bypass to distal bypass for weight loss failure and metabolic syndrome: 3-year follow-up and evolution of technique to reduce nutritional complications

Saber Ghiassi, M.D., M.P.H.[a], Kelvin Higa, M.D.[b,*], Steven Chang, M.D.[b], Pearl Ma, M.D.[b], Aaron Lloyd, M.P.H.[b], Keith Boone, M.D.[b], Eric J. DeMaria, M.D.[c]

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Received April 17, 2017; accepted January 8, 2018

Abstract

Background: Standard proximal Roux-en-Y gastric bypass (RYGB) fails to achieve long-term weight maintenance and/or control of metabolic syndrome in up to 35% of patients.
Objectives: To improve the performance of the standard proximal gastric bypass by increasing the biliopancreatic limb length at the expense of the common channel.
Settings: Academic-affiliated private practice.
Methods: A retrospective review of all patients who underwent conversion to distal RYGB from 2010 to 2016 was performed. RYGB was modified by dividing the Roux limb at the jejunojejunostomy and transposing it distally to create a shortened total alimentary limb length (TALL) of 250 to 300 cm in the initial 11 patients. Of these, 7 developed protein calorie malnutrition and diarrhea requiring a second procedure to lengthen the common channel an additional 100 to 150 cm (TALL 400–450 cm), leading to resolution of all symptoms. The subsequent 85 patients were converted to distal RYGB with TALL 400 to 450 in a single-stage operation.
Results: Ninety-six RYGB patients underwent conversion to distal RYGB. The mean body mass index and mean excess weight loss at the time of distalization was 40.6 kg/m^2 and 33.6%. At 1, 2, and 3 years after distalization, the mean body mass index was reduced to 34.4, 33.1, and 32.2 kg/m^2, respectively, and excess weight loss improved to 41.9%, 53.7%, and 65.7%, respectively. Diabetes resolved in 66.7%, hypertension resolved in 28.6%, hyperlipidemia resolved in 40%, and sleep apnea resolved in 50% at 1 year. The 30-day complication rate and reoperation rates were 6.3% and 5.2%; an additional 7.3% (7/96) required reoperation for limb lengthening. Hypoalbuminemia developed in 21% at 3 years, but no increase in iron deficiency was observed. Calcium metabolism was affected by the distalization procedure to a greater degree as 21% of patients had low corrected calcium levels, 77% were deficient in vitamin D, and parathyroid hormone levels were above normal in 64% at 3 years.
Conclusion: Revision of proximal RYGB to distal RYGB results in substantial improvement in weight loss and resolution of co-morbidities at 3 years. Diarrhea and protein calorie malnutrition were seen frequently in patients with TALL of 250 to 300 cm, whereas patients with TALL 400 to

Data were presented in part at the American Society for Metabolic and Bariatric Surgery annual meeting at ObesityWeek in Atlanta, Georgia, in November 2014.

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Obesity Surgery (2023) 33:293–302
https://doi.org/10.1007/s11695-022-06388-z

IFSO

ORIGINAL CONTRIBUTIONS

Check for updates

Failed Roux-en-Y Gastric Bypass—Long-Term Results of Distalization with Total Alimentary Limb Length of 250 or 300 cm

Kamran Shah[1,2] · Bent Johnny Nergård[1] · Morten Wang Fagerland[3] · Hjörtur Gislason[1,2]

Received: 18 September 2022 / Revised: 2 November 2022 / Accepted: 27 November 2022 / Published online: 2 December 2022

Abstract

Background Weight loss failure or weight regain may occur after Roux-en-Y gastric bypass (RYGB). Revisional surgery includes distalization. However, few studies have looked at the associations between the total alimentary limb length (TALL) and weight loss outcomes, none with long-term results.
Objectives Peri- and postoperative outcomes were assessed after employing TALL of either 250 cm or 300 cm in the failed RYGB.
Methods This study is a retrospective cohort analysis of 90 patients that underwent laparoscopic distalization between January 2006 and January 2016 due to failed RYBG. The index RYGB was modified to TALL of 250 cm ($n=48$) or of 300 cm ($n=42$) which entailed elongating the bilio-pancreatic limb (BPL) and transposing the Roux limb (RL) to a common limb (CL) of 100 cm and 150 cm, respectively. Long-term weight loss outcomes along with nutritional and vitamin status were analyzed.
Results Preoperative BMI at distalization was 38.6 kg/m^2. After 8 years, excess weight loss (EWL) was 61.8%. No differences between the two groups were seen in weight loss outcomes or early surgical complication rates (6.7%). However, more vitamin and nutritional deficiencies were present in the TALL 250-cm group (50.0% and 35.4%, respectively) versus the TALL 300-cm group (33.3% and 14.3% respectively), which led to laparoscopic revision in 27 patients by lengthening the TALL with 100 cm. Patients with weight regain after index RYGB had in average 59.9% higher EWL than patients with EWL failure.
Conclusion Distalization of the failed RYGBP is safe and effective, but TALL should not be shorter than 300 cm (and CL 150 cm) due to high rates of malnutrition. Adequate supplementation and long-term follow-up are mandatory to prevent serious malnutrition.

Keywords Failed Roux-en-Y gastric bypass · Weight loss failure · Weight regain · Revisional surgery · Distalization · Total alimentary limb length · TALL · Common limb · Common channel · Malnutrition

Key points
- Ninety patients with a failed RYGB due to weight regain and/or weight loss failure underwent type 2 distalization by shortening the total alimentary limb length (TALL) to either 250 cm or 300 cm.
- Promising long-term (8 years) weight loss results were seen in both variants of the distalization with however a very high rate of malnutrition in TALL 250 cm vs TALL 350 cm which led to another surgical revision in 27 patients in total.
- Patients with weight regain has better weight loss outcomes as opposed to those with weight loss failure.

Background

Roux-en-Y gastric bypass (RYGB) is an effective treatment option against obesity and its associated medical problems [1, 2]. However, with time, up to 40% of patients experience weight loss failure and/or weight regain, and different strategies have been implemented to counter this problem [3, 4]. Revisional surgery consists of pouch resizing, salvage

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Surgery for Obesity and Related Diseases 14 (2018) 554–561

SURGERY FOR OBESITY AND RELATED DISEASES

Original article

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Table 1
Follow-up and weight loss before and after distalization using total alimentary limb length (TALL) of 400 to 450 cm

	BMI kg/m^2	Range	%EWL	%TWL	Δ BMI	FU (%)
Index RYGB	48.4 ± 9.0	35.8–79.7	–	–	–	–
At distalization	40.6 ± 7.3	24.5–64.9	33.6 ± 24.6	–	–	–
30 d postdistalization	38.1 ± 6.8	24.7–63.1	18.2 ± 8.9	6.1 ± 2.3	2.5 ± 1.0	96/96 (100)
6 mo postdistalization	34.3 ± 6.2	24.4–49.8	44.1 ± 32.8	13.8 ± 7.1	5.7 ± 3.3	73/81 (90.1)
1 yr postdistalization	34.4 ± 6.6	24.5–47.3	41.9 ± 28.3	15.3 ± 9.6	6.4 ± 4.5	42/60 (70.0)
2 yr postdistalization	33.1 ± 7.0	25.8–47.9	53.7 ± 26.3	19.4 ± 9.4	8.0 ± 4.2	18/33 (54.5)
3 yr postdistalization	32.2 ± 7.2	25.5–48.7	65.7 ± 22.0	24.2 ± 6.9	10.2 ± 3.2	10/20 (50)

BMI = body mass index; %EWL = percent excess weight loss; %TWL = %total weight loss; RYGB = Roux-en-Y gastric bypass; Δ BMI = change in BMI.

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IFSO

ORIGINAL CONTRIBUTIONS

Failed Roux-en-Y Gastric Bypass—Long-Term Results of Distalization with Total Alimentary Limb Length of 250 or 300 cm

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Abstract

Background Weight loss failure or weight regain may occur after Roux-en-Y gastric bypass (RYGB). Revisional surgery includes distalization. However, few studies have looked at the associations between the total alimentary limb length (TALL) and weight loss outcomes, none with long-term results.
Objectives Peri- and postoperative outcomes were assessed after employing TALL of either 250 cm or 300 cm in the failed RYGB.
Methods This study is a retrospective cohort analysis of 90 patients that underwent laparoscopic distalization between January 2006 and January 2016 due to failed RYBG. The index RYGB was modified to TALL of 250 cm ($n=48$) or of 300 cm ($n=42$) which entailed elongating the bilio-pancreatic limb (BPL) and transposing the Roux limb (RL) to a common limb (CL) of 100 cm and 150 cm, respectively. Long-term weight loss outcomes along with nutritional and vitamin status were analyzed.
Results Preoperative BMI at distalization was 38.6 kg/m^2. After 8 years, excess weight loss (EWL) was 61.8%. No differences between the two groups were seen in weight loss outcomes or early surgical complication rates (6.7%). However, more vitamin and nutritional deficiencies were present in the TALL 250-cm group (50.0% and 35.4%, respectively) versus the TALL 300-cm group (33.3% and 14.3% respectively), which led to laparoscopic revision in 27 patients by lengthening the TALL with 100 cm. Patients with weight regain after index RYGB had in average 59.9% higher EWL than patients with EWL failure.
Conclusion Distalization of the failed RYGBP is safe and effective, but TALL should not be shorter than 300 cm (and CL 150 cm) due to high rates of malnutrition. Adequate supplementation and long-term follow-up are mandatory to prevent serious malnutrition.

Keywords Failed Roux-en-Y gastric bypass · Weight loss failure · Weight regain · Revisional surgery · Distalization · Total alimentary limb length · TALL · Common limb · Common channel · Malnutrition

Key points
- Ninety patients with a failed RYGB due to weight regain and/or weight loss failure underwent type 2 distalization by shortening the total alimentary limb length (TALL) to either 250 cm or 300 cm.
- Promising long-term (8 years) weight loss results were seen in both variants of the distalization with however a very high rate of malnutrition in TALL 250 cm vs TALL 350 cm which led to another surgical revision in 27 patients in total.
- Patients with weight regain has better weight loss outcomes as opposed to those with weight loss failure.

Background

Roux-en-Y gastric bypass (RYGB) is an effective treatment option against obesity and its associated medical problems [1, 2]. However, with time, up to 40% of patients experience weight loss failure and/or weight regain, and different strategies have been implemented to counter this problem [3, 4]. Revisional surgery consists of pouch resizing, salvage

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Screenshot

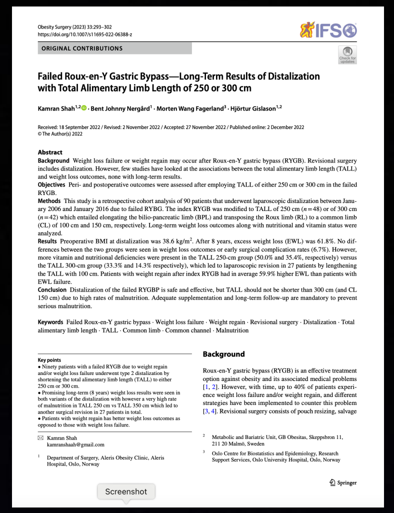
	BMI kg/m^2	Δ BMI	%EWL	%TWL	Follow-up (%)
Index RYGB	47.9±6.7	-	-	-	-
At distalization	38.6±5.8	-	-	-	-
6 months	32.0±5.2	6.6±3.1	54.7±28.4	16.9±6.6	90/90 (100)
1 year	29.4±4.7	9.1±4.3	73.1±35.4	23.0±9.1	90/90 (100)
2 years	28.5±4.1	9.9±5.1	75.7±31.8	24.5±10.3	81/81 (100)
3 years	28.5±4.1	9.9±5.7	73.8±32.3	24.7±11.4	69/77 (89.6)
4 years	28.7±4.3	9.3±5.9	72.5±40.4	23.0±12.0	63/70 (90.0)
5 years	28.3±3.3	9.1±6.0	69.5±35.0	23.0±11.5	50/55 (90.9)
6 years	28.4±3.3	8.2±5.7	67.5±37.0	21.0±11.6	37/38 (97.3)
7 years	27.9±3.6	6.3±4.0	69.7±40.7	19.7±11.8	23/23 (100)
8 years	29.2±2.4	4.9±3.4	61.8±41.2	17.3±10.3	14/14 (100)

RYGB Roux-en-Y gastric bypass, *BMI* body mass index, *%EWL* percent excess weight loss, *%TWL* percent total weight loss

UCSF
Fresno Medical Education Program

Advanced Laparoscopic Surgery Associates Medical Group

TALL 400cm vs 300cm



- TALL 250-300cm ➜ 400-450cm
- 7.3% re-op for malnutrition
- Initial AL 100cm; BPL <50cm
- BMI: 48.4±9.0
  ➜ 40.6±7.3 @ distalization
  ➜ 32.2±7.2 @ 3 years

- TALL 400cm ➜ 250 cm ➜ 300cm
- 7.1% re-op for malnutrition
- Initial AL 150cm; BPL 60cm
- BMI: 47.9±6.7
  ➜ 38.6±5.8 @ distalization
  ➜ 28.5±4.1 @ 3 years
  ➜ 29.2±2.4 @ 8 years

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SURGERY FOR OBESITY AND RELATED DISEASES

Original article

Surgical therapy of weight regain after Roux-en-Y gastric bypass

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Abstract

Background: Roux-en-Y gastric bypass (RYGB) is a well-established surgical method for morbid obesity; however, weight regain (WR) after initially good results may be considered an issue, the treatment of which has found no consensus yet.
Objectives: The aim of this study was to compare the different surgical methods treating WR after RYGB that are used at the Vienna Medical University in a larger number of patients, concerning further weight loss, complications, and reoperations.
Setting: University hospital, Austria.
Methods: This study includes all patients with RYGB who were reoperated due to WR at the Vienna Medical University by December 2016 (n = 84). The follow-up rate was 93%. The following 4 approaches to treating WR after RYGB were taken: (1) pouch resizing, (2) pouch banding, (3) pouch resizing plus pouch banding, and (4) common limb shortening (i.e., distalization).
Results: The mean maximum excess weight loss referring to the WR procedure in the 4 groups was as follows: group 1: 69.0% ± 35.2%, group 2: 62.8% ± 39.5%, group 3: 83.1% ± 30.9%, and group 4: 81.5% ± 41.6%. Reoperations occurred in the following different groups: group 1 had 2 balloon dilations (20%), groups 2 (n = 13) and 3 (n = 29) had 5 (38% and 17%) band removals each, and group 4 had 9 reversal procedures due to malnutrition (30%).
Conclusions: There are nonsignificant differences in terms of additional weight loss between the different methods. However, differences lay in the areas of adverse symptoms and further reoperations. While there was no risk of malnutrition with pouch resizing, there was with distalization. Pouch banding (with or without resizing) poses a higher risk of dysphagia. (Surg Obes Relat Dis 2019;15:1719–1728.) © 2019 Published by Elsevier Inc. on behalf of American Society for Bariatric Surgery.

Key words: Roux-en-Y gastric bypass; Weight regain; Pouch resizing; Pouch banding; Distalization

First performed in 1966, Roux-en-Y gastric bypass (RYGB) is a well-established surgical method for treating morbid obesity [1]. RYGB has been thoroughly studied by means of long-term follow-ups and large patient cohorts. It used to be the most commonly performed bariatric procedure worldwide up until 2013, when it was overtaken by sleeve gastrectomy [2].

Weight regain (WR) after initially good results or insufficient weight loss may be considered an issue after RYGB—as with most bariatric procedures—to varying extents [3]. For example, Hawkins et al. [4], in a study of 617 patients,

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- 30 pts - Initial BMI: 47.0±8.2
  f/u 93% @ 5 years
- AL + CL = TALL 250cm
  BMI: 39.1±7.7 → 33.9±7.7
- 30% re-op for malabsorption
  TALL 250cm → 400cm

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Research Paper

Length of intraabdominal measurement of bowel (LIMB)

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ARTICLE INFO

Keywords:
Bariatric surgery
Gastric bypass
Residency
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Laparoscopy

ABSTRACT

Background: Laparoscopic Roux-en-Y gastric bypass (RYGB) is one of the most commonly performed bariatric surgeries. The steep associated learning curve is dependent on the training facility, laparoscopic experience, and overall procedural volume. William Beaumont Army Medical Center (WBAMC) has been accredited as a bariatric center of excellence and trains resident surgeons in the performance of RYGB.

Objective: This study aimed to investigate the accuracy and precision of a bariatric center of excellence's training of surgical residents in terms of laparoscopic measurements of simulated small bowel. This will act as a surrogate for how well surgical residents learn to run the small bowel during bariatric procedures and how their accuracy and precision change over time in training.

Setting: This study took place at William Beaumont Army Medical Center, a bariatric center of excellence and training institution.

Methods: Participants included surgical residents from WBAMC. Participants used a laparoscopic trainer and two bowel graspers to measure both a collapsing garden hose (simulated bowel) and a nylon rope (control material) to 75 cm (cm) and 125 cm (cm), three times each, with recordings of time required to do so, actual distance measured, and technique used.

Results: Fifteen residents participated in the study. Residents displayed accuracy of 21.6 %. 33%of residents were precise for the 75 cm measurement, and 53 % of residents were precise for the 125-cm measurement. PGY-4 residents were the most accurate while PGY-3 residents were the most precise. There were no statistical differences between junior (PGY 1–4) and senior residents (PGY 5–6) in accuracy or precision in the measurement of 75-cm or 125-cm. No statistical differences were found measuring the hose versus rope in accuracy nor precision. PGY-4 residents completed the task in the least amount of time while PGY-2 residents took the longest to complete each task.

Conclusions: In general, residents are neither precise nor accurate in measurements of simulated bowel lengths, and experience does not contribute to either. Time in residency correlates with laparoscopic speed but not with accuracy nor precision. Extrapolating this data to attending surgeons suggests that estimated lengths of small bowel that are 'run' or measured during laparoscopic cases are neither accurate nor precise. More investigation must be performed in this area.

Introduction

America continues to experience an obesity epidemic. This is also occurring worldwide. Accordingly, the number of bariatric procedures continues to increase annually, with an estimated 256,000 procedures performed in 2019, up from 158,000 in 2011 [1], and the majority of procedures are performed by formally trained minimally invasive and bariatric surgeons. The most common bariatric surgery performed is laparoscopic sleeve gastrectomy (LSG) followed by laparoscopic Roux-en-Y gastric bypass (RYGB) [1]. For the training of general surgeons, the Accreditation Council for Graduate Medical Education provides defined category minimum numbers for residents to complete in order to successfully graduate [2]. General surgery residents must complete at least 40 stomach and small intestine cases (which would include LSG and RYGB). They also must complete 75 complex laparoscopic cases, which also include the aforementioned bariatric procedures. Graduates of a general surgery residency program should be competent and confident in the performance bariatric surgery in their practice when indicated, as the American Board of Surgery indicates expectations of such knowledge upon certification [3]. It should be noted that though

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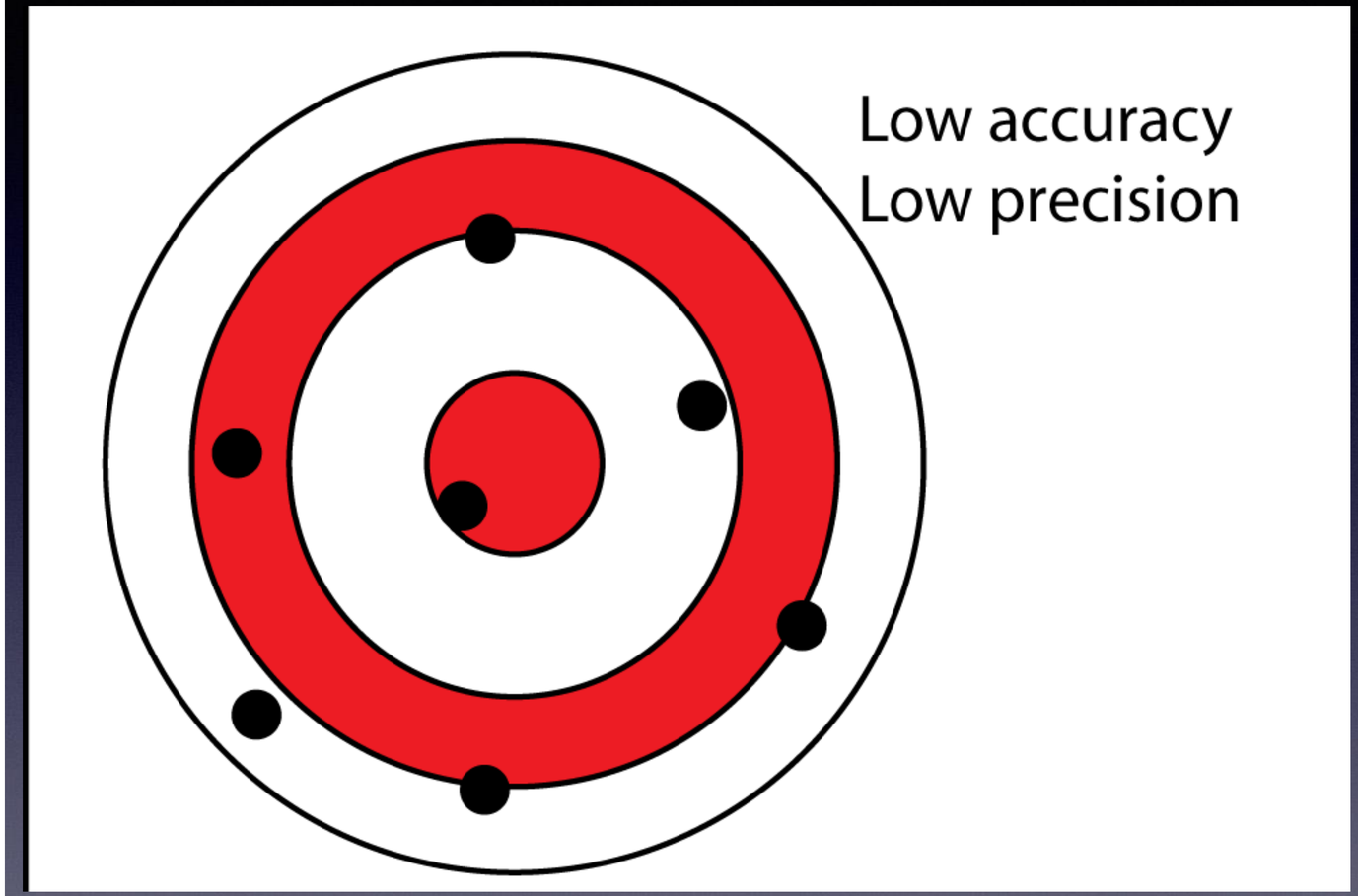
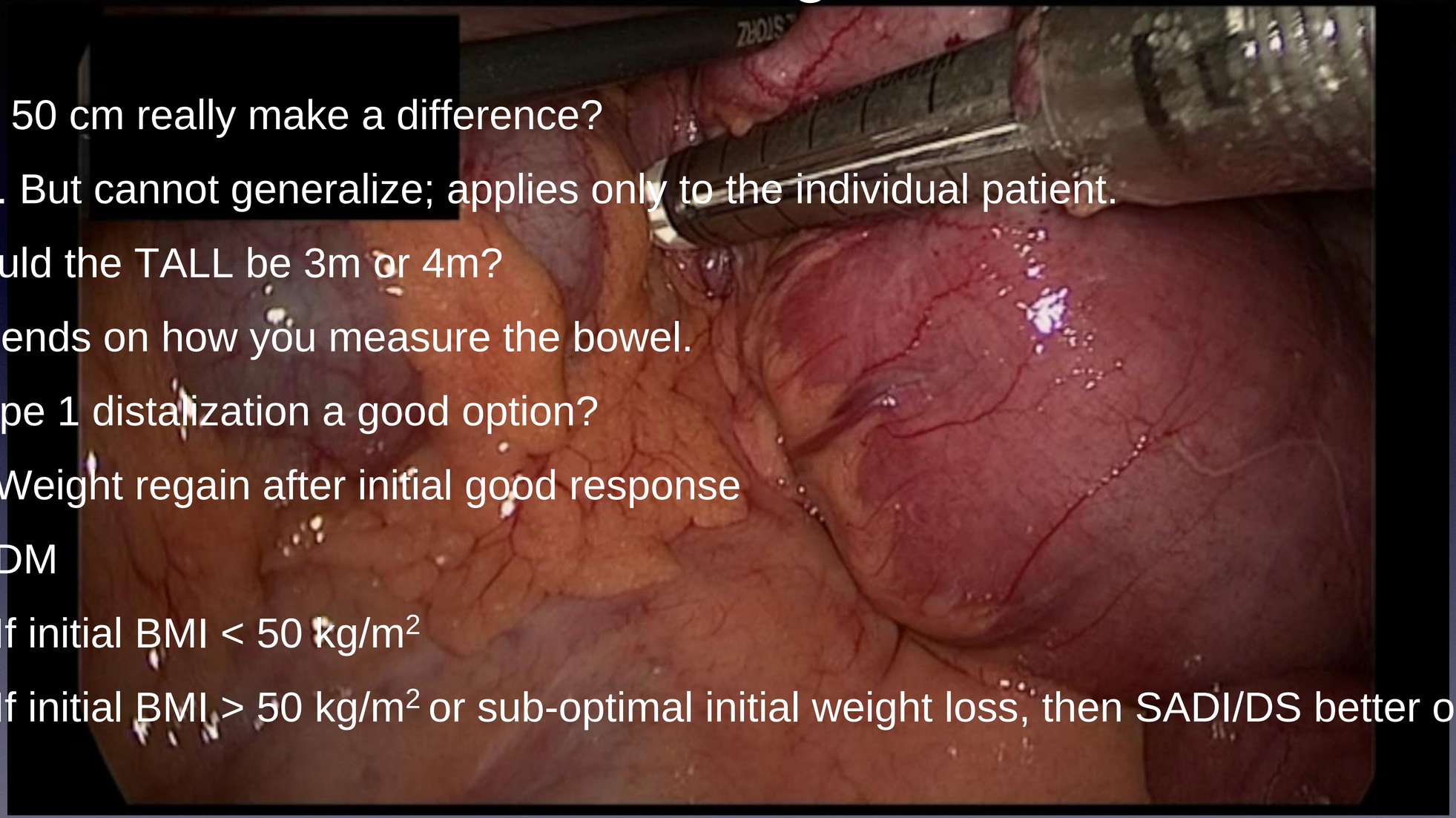


Final Thoughts…



- Can 50 cm really make a difference?

  Yes. But cannot generalize; applies only to the individual patient.
- Should the TALL be 3m or 4m?

  Depends on how you measure the bowel.
- Is type 1 distalization a good option?
  - 👍 Weight regain after initial good response
  - 👍 DM
  - 👍 If initial BMI < 50 kg/m^2
  - 👎 If initial BMI > 50 kg/m^2 or sub-optimal initial weight loss, then SADI/DS better option.

"Great things in business are never done by one person; they are done by a team of people." Steve Jobs

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