Our Meassage after 4000 Cases of One Anastmosis Gastric Bypass

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ORIGINAL CONTRIBUTIONS

Outcomes of Omega Loop Gastric Bypass, 6-Years Experience of 1520 Cases

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ORIGINAL CONTRIBUTIONS

Outcomes of One Anastomosis Gastric Bypass in 472 Diabetic Patients

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Aims of The Study:

- In the current presentation, we reported the results of primary laparoscopic OAGB with emphasis on operative outcome.

- Evaluate the outcome of OAGB on diabetic obese patients at our bariatric unit.

- By extension, evaluate the OAGB surgery as a revision procedure for failed restrictive bariatric operations.

Material and Methods:

- **Preoperative Evaluation:**

- **Operative Technique:**

1. Five-ports technique
2. A long and narrow gastric tube calibrated with a 36-French bougie.
3. There was no need for reinforcement of the staple lines with continuous sutures in the majority of patients.
4. Antecolic end to side anastomosis between the gastric pouch and jejunum at a distance150–200 cm distal to the ligament of Treitz.

Material and Methods:

- **Postoperative Care:**

  Follow-up appointments were scheduled at 2 weeks postoperatively then monthly for the first year, increasing every 3 months thereafter.

- **Definitions of Diabetes Remission** *(ADA)* **:**

  1. *Complete remission of DM:* HbA1c<6.0% at least 1 year without anti-diabetic medications.
  2. *Partial remission:* HbA1c <6.5% for at least 1 year without anti-diabetic medications.
  3. *Improved disease:* HbA1c <7.0% for at least 1 year.

Results:

Weight, EWL%, and BMI pre- and post-OAGB presented by mean ± SD

	0	6 months	12 months	36 months	48 months
No. of patients in follow-up	4000	2931/4000 (73.5%)	2304/4000 (57.7%)	1349/4000 (34.9%)	1086/4000 (27.2%)
Mean of weight kg	127.4±25.3	92.1±19.8*	81.3±16.7	78.9±16.9	79.9±12.9
Mean of EWL%	0	64.3±6.6	81.7±5.1	80.2±5.9	78.9±4.8
Mean of BMI kg/m²	46.8±6.6	36.5±4.5*	29.6±3.1	27.5±3.4	28.3±2.9
Mean of HbA1c %	9.6±1.3	6.7±1.4*	5.7±1.5	5.8±0.9	5.7±0.8

- P value was calculated by paired t test.
- *Statistical significance after surgery.

Results:

Early postoperative complications:

	Number of patients	%
Pulmonary embolism	8	0.2%
Respiratory distress	28	0.7%
Anastomosis leak	4	0.1%
Abdominal bleeding	30	0.8%
GIT bleeding	47	1.2%
Jejunal perforation	4	0.1%
DVT	8	0.02%
Total Number	129	3.2%

Results: Late postoperative complications:

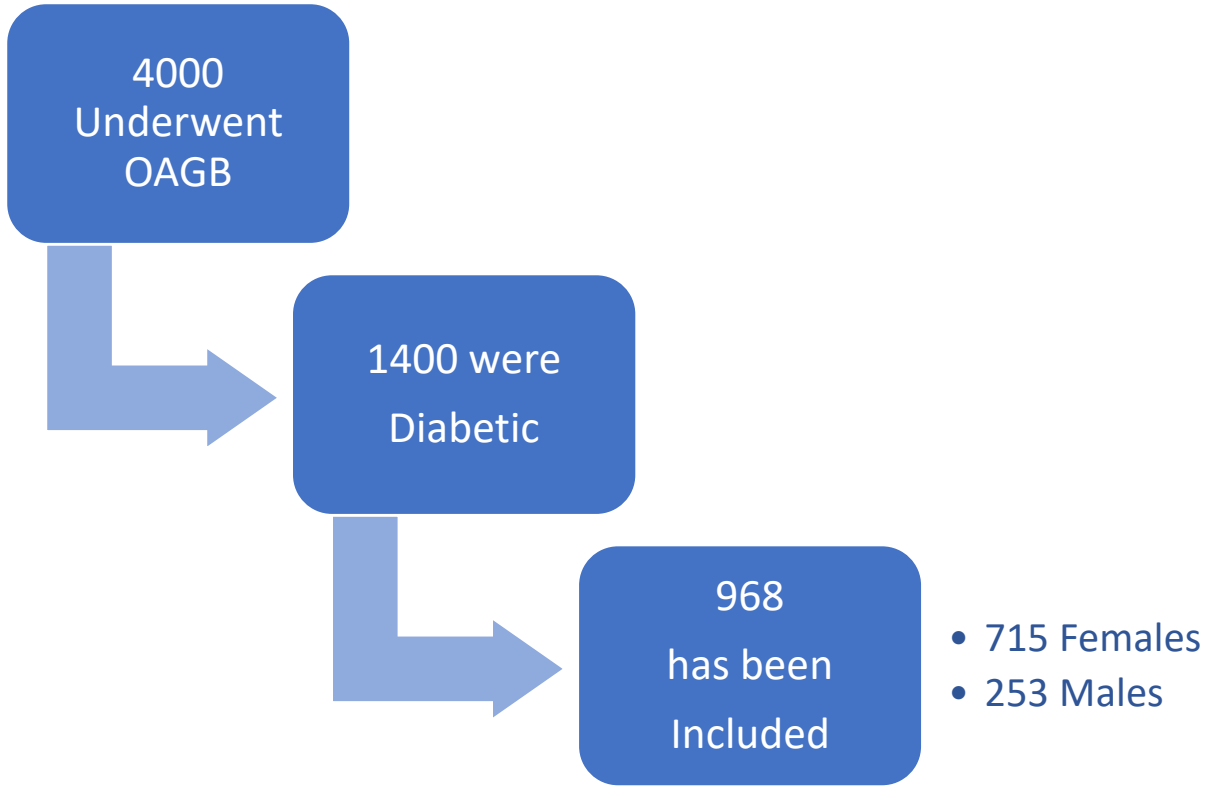
	Number of patients	%	No. of patients treated by surgical intervention
Gastric pouch enlargement	6	0.2%	0/6
Trocar site hernia	0	0%	0/0
Anastomotic ulcer	10	0.3%	0/10
EWL > 100%	10	0.3%	10/10
Iron deficiency anemia	108	2.7%	0/108
Weight gain	37	0.9%	0/37
Interactable reflux	41	1%	5/41
Total	214	5.4%	15/214

	Current study	Musella et al	Rutledge and Walsh	Noun et al.	Carbajo et al.	Chevallier et al.	Lee et al.
Operative time(min.)	35	95	37.5	89	93	129	115.3
STC (%)	3.3	5.5	5.9	2.7	4.4	7	8.5
LTC (%)	6.1	9.0	11.6	4.1	8.1	4	2.8
LTC require surgical repair (%)	0.4	0.8	1.1	3.4	-	-	2.8
EWL % 1 year	81.7	70.1	80	69.9	75	63	64.9
EWL% 3 years	80.2	81.5	80	68.6	-	-	72.9
Mortality rate (%)	0.1	0.2	0.08	-	0.9	-	0.1

Largest published studies, STC: short-term complications, LTC: Long-term complications, EWL%: percentage of excess weight loss.

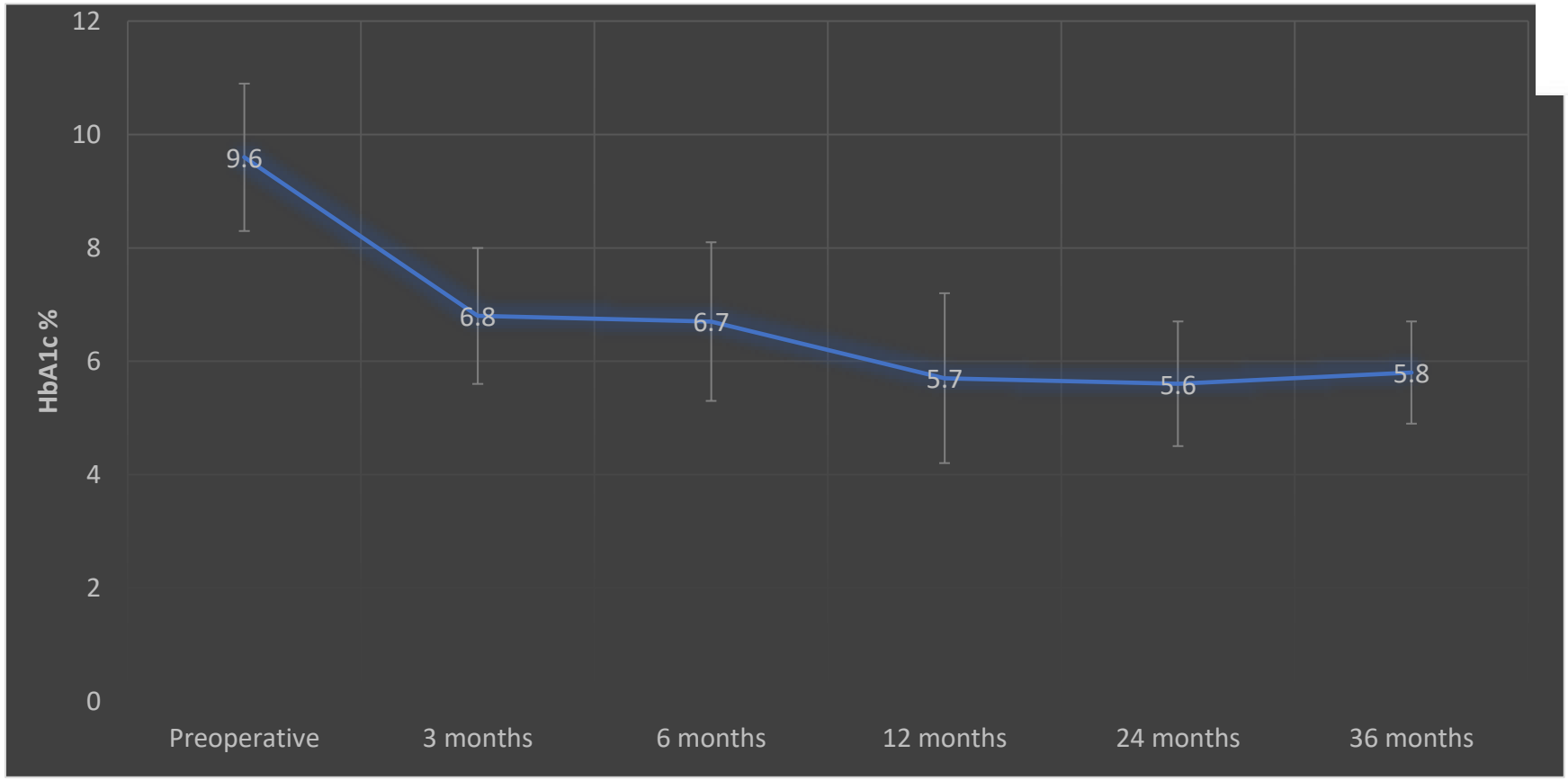
Material and Methods

- Between November 2009 and December 2015



Results:

- **Evolution of HbA1c:**



Evolution of HbA1c after surgery (Mean ± SD)

Results:

Post-operative Diabetes Remission:

	Number of patients	%
Complete Remission	813/968	84.1
Partial Remission	76/968	7.8
Improved Disease	68/968	7
No Improvement	10/968	1.1

Effect of OAGB on diabetes mellitus

Study	Number	Mortality %	Initial BMI	Final BMI	% DM Remission
Current Study	4000	0	46.8	28.3	84.1
Lee et al.	1163	0.2	41.4	27.7	93
Darabi et al.	20	0	49.5	33.4	50
Musella et al.	974	0.2	48	28	86
Kular et al.	1054	0.2	43.2	25.9	93
Guenzi et al.	81	0	47	30.3	87.6

General characteristics of the noncontrolled single-arm OAGB studies

Results:

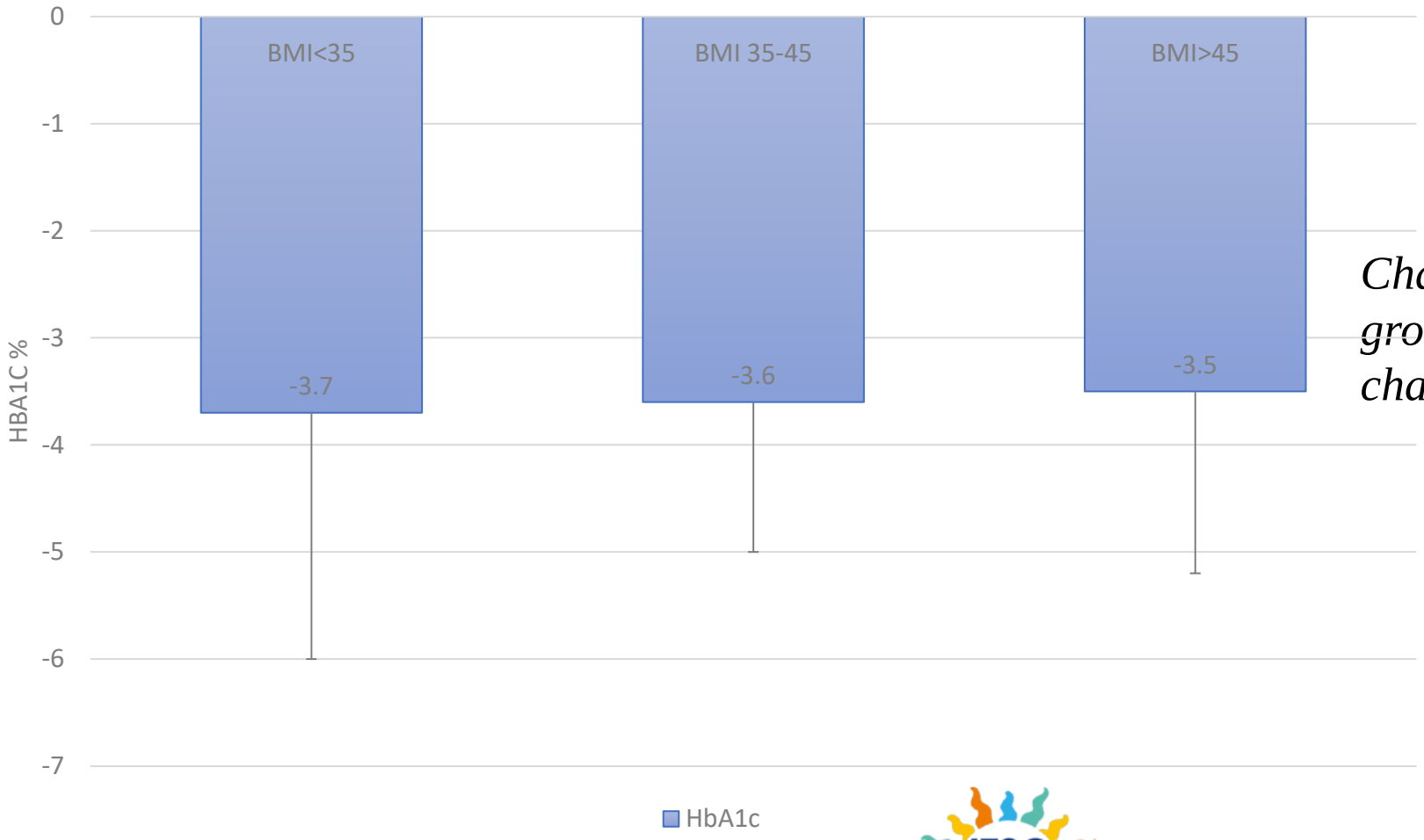
- **preoperative medication of DM as a predictive value:**

Pre-operative treatment of DM	No. of DM remission	Percentage of DM remission
No drugs	88/88	100%
Single oral drug	291/315	95.2%
Two oral drugs	285/299	92.2%
Three oral drugs	21/59	72.4%
Injection	106/207	52%

Diabetes remission rates according to the preoperative management of DM.

Results:

- **preoperative BMI as a predictive value:**



Changes in HbA1c in different BMI groups at one-year follow-up (Mean of changes ± SD).

The Outcomes of Revisional One Anastomosis Gastric Bypass Versus Revisional Roux-en-Y Gastric Bypass After Primary Restrictive Procedures: A Prospective Nonrandomized Comparative Study

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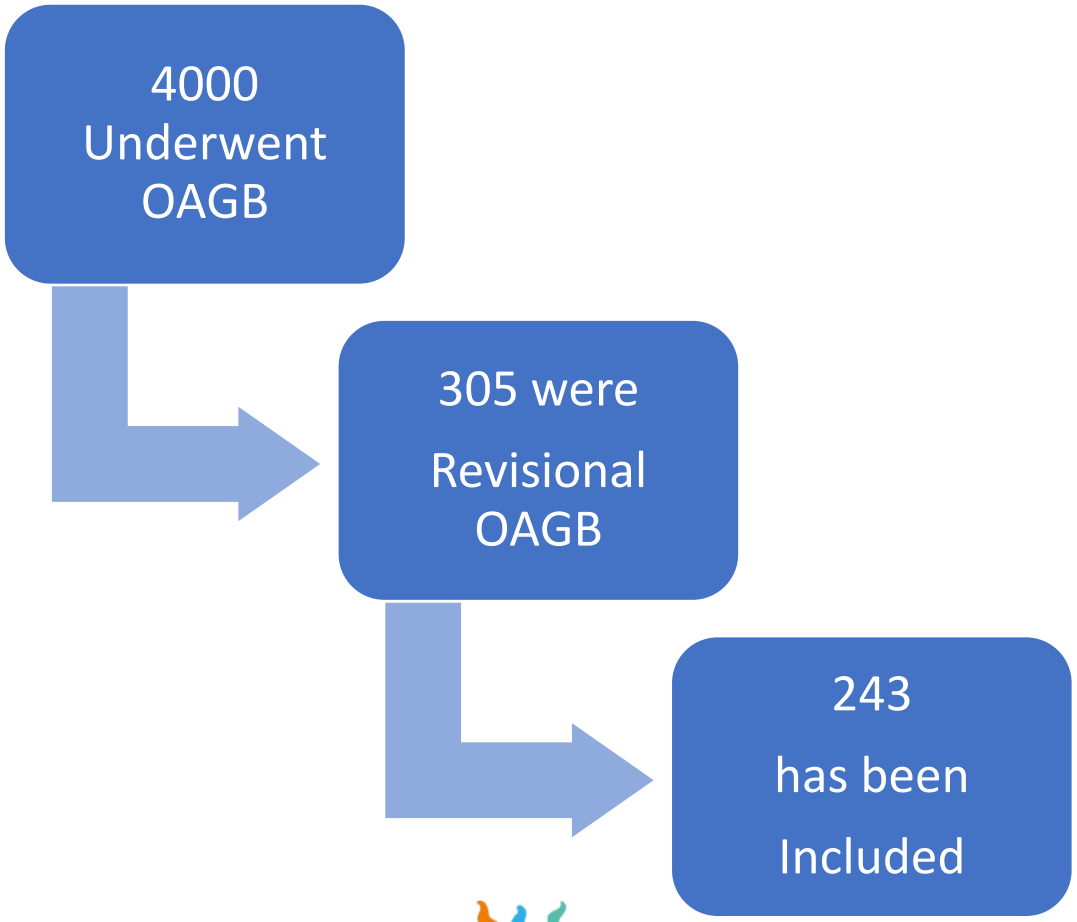
Background: Failed restrictive procedures are usually managed with conversion to another bariatric procedure. Our aim was to evaluate one -anastomosis gastric bypass (OAGB) as a revisional option for failed restrictive procedures. In addition, we compare the outcomes of OAGB versus Roux-en-Y gastric bypass as a revisional bariatric procedures.

Material and Methods: The current series is a prospective study, from May 2009 to December 2016. A total of 348 patients with failed restrictive bariatric operations underwent laparoscopic revisional gastric bypass. Revisional OAGB was performed in 243 patients and revisional Roux-en-Y gastric bypass in 105 patients. The demographic data and outcomes were studied by our multidisciplinary team.

Result: By the end of the study, the mean age was 39.3 ± 10.3 years with body mass index of $37.5 \pm 9.2\,kg/m^2$. At 2-year follow-up, the overall intractable reflux (Symptom-Severity score questionnaire >4) was significantly higher after revisional OAGB (21.4%). The reflux with scoring ≥4 was significantly higher in the vertical band gastroplasty than laparoscopic adjustable gastric band and laparoscopic gastric sleeve (25.2%, 16.9%, and

Material and Methods

- Between May 2009 and December 2016



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Results:

	R-OAGB	R-RYGB	P-Value
Age (years)	38.7±9.8	39.8±10.8	0.427
Sex (F/M)	270:63	69:36	0.377
BMI (kg/m2)	37.8±9.6	37.1±8.4	0.510
Metabolic Syndrome	93 (38.2%)	42 (40%)	0.092
Waist Circumference	112.3±18.9	113.4±20.4	0.145
Albumin	4.3±0.4	4.3±0.3	0.532
Haemoglobin	13.4±1.7	14.1±2.3	0.031

The demographic characteristics between R-OAGB and R-RYGB

Results:

	R-OAGB (n= 243)	R-RYGB (n=105)	P- Value
Operative time (min)	57.7±55.8	85.3±44.5	0.023*
Intra-op. blood loss	108.7±48.9	81.2±96.7	0.604
Mean of EWL%	71.8±5.9	58.3±6.6	0.032*
Minor Complications	15 (6.2%)	12 (11.4%)	0.279
Major Complications	27 (11.1%)	9 (8.6%)	0.946
Leakage	1 (0.4%)	5 (4.7%)	0.032*
Bowel Obstruction	2	1	0.462
Major Bleeding	1	0	0.481
Intractable Reflux	52 (21.4%)	3 (2.9%)	0.001*
Hb One Year Post-OP. (g/dl)	12.8 ± 0.5	8.2 ± 3.2	0.030*
Mortality	1	0	0.481

Operative parameters and complications between R-OAGB and R-RYGB

Symptom score (SS) questionnaire:

(Carlsson et al,1998)

- *Severity of symptoms of heartburn and regurgitation*
  - *Grade 0:* No symptoms.
  - *Grade 1:* Mild symptoms with spontaneous remission. No interference with normal activity and sleep.
  - *Grade 2:* Moderate symptoms with spontaneous, but slow, remission. Mild interference with normal activity and sleep.
  - *Grade 3:* Severe symptoms without spontaneous remission. Marked interference with normal activity and sleep.

- *Frequency of symptoms of heartburn and regurgitation*
  - *Grade 0:* Absent.
  - *Grade 1:* Occasional (< 2 days per week).
  - *Grade 2:* Frequent (2 to 4 days per week).
  - *Grade 3:* Very frequent (> 4 days per week).

- *The final score for each symptom was obtained by multiplying the scores for severity and frequency. The total score was obtained by adding the final scores of individual symptoms and noted as Symptom Score (SS).*

Symptom score (SS) questionnaire:

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*Do you have any of following symptoms?
If so, please circle the appropriate response below.

Name	(ID;)	Age	
		Gender	M·F

	Question	Fill-in space				
		Never	Occasionally	Sometimes	Often	Always
1	Do you get heartburn?	0	1	2	3	4
2	Dose your stomach get bloated?	0	1	2	3	4
3	Dose your stomach ever feel heavy after meals?	0	1	2	3	4
4	Do you sometimes subconsciously rub your chest with your hand?	0	1	2	3	4
5	Do you ever feel sick after meals?	0	1	2	3	4
6	Do you get heartburn after meals?	0	1	2	3	4
7	Do you have an unusual (eg, burning) sensation in your throat?	0	1	2	3	4
8	Do you feel full while eating meals?	0	1	2	3	4
9	Do some things get stuck when you swallow?	0	1	2	3	4
10	Do you get bitter liquid (acid) coming up into your throat?	0	1	2	3	4
11	Do you burp a lot?	0	1	2	3	4
12	Do you get heartburn if you bean over?	0	1	2	3	4
	Please describe any other symptoms you experience.	Sum points				Total point

Sum points: [ ] + [ ] + [ ] + [ ] = [ ]

Acid reflux related symptom = [ ] Points
Dyspeptic (Dysmotility) symptom = [ ] Points

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Results:

- The GERD questionnaire uses a grading of symptoms of heartburn and regurgitation. A severity score ≥4 is considered positive for GERD. (Carlsson et al,1998)

Questionnaire Score	R-OAGB Number (%)	R-RYGB Number (%)
Score <4 (1,2 and 3)	191 (78.6) *	102 (97.1)
Score= 4	12 (4.9) *	0
Score= 5	14 (7.4) *	2 (1.9)
Score =6	18 (6.9) *	1 (0.9)
Score= 7	8 (2.1) *	0
Total	243 (100)	105 (100)

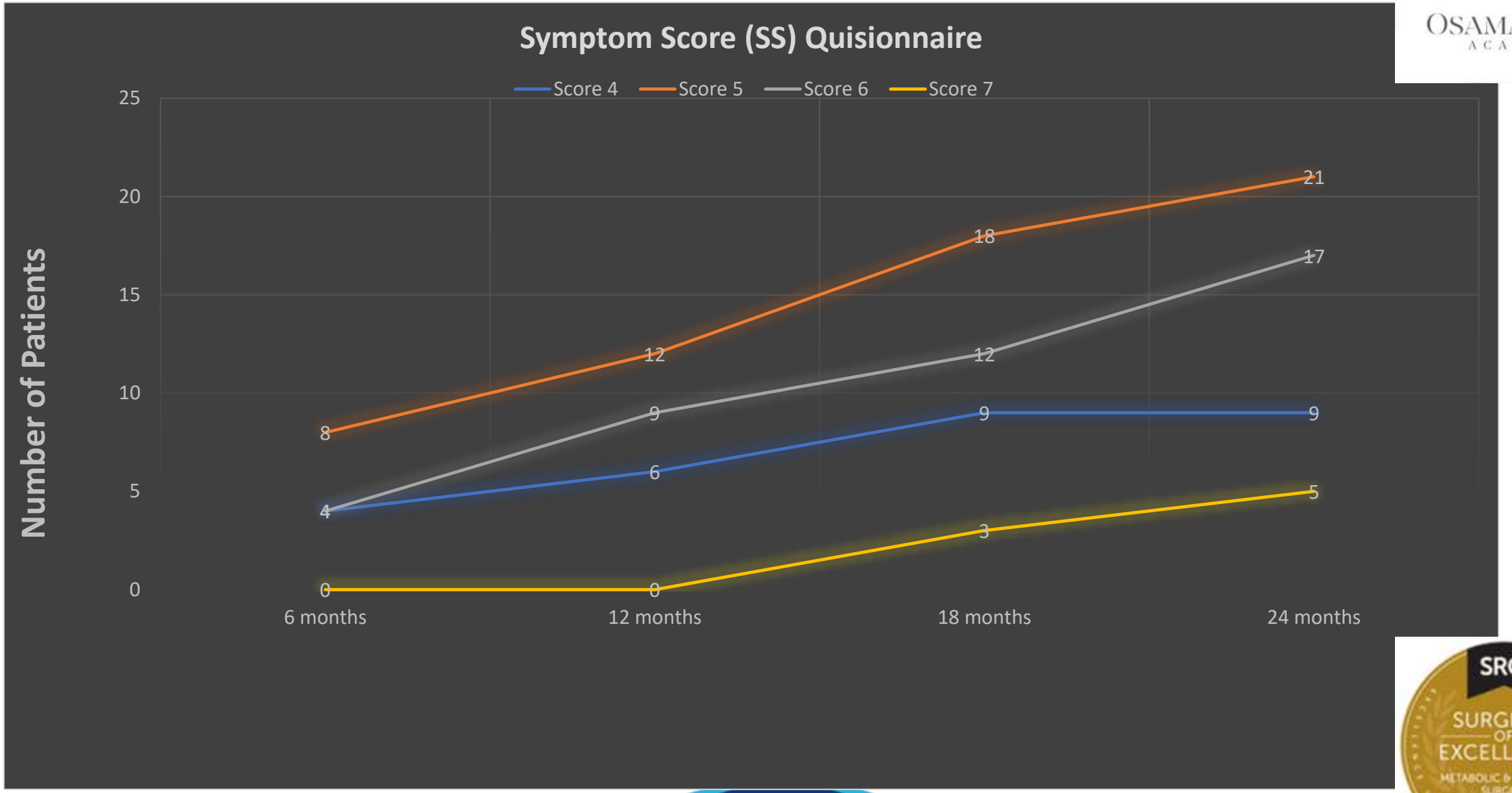
* Statistical significance (p-value < 0.05)

The GERD questionnaire uses a grading of symptoms of heartburn and regurgitation. A severity score ≥4 is considered positive for GERD. (Carlsson et al,1998)

Questionnaire Score	OAGB Redo after LVBG Number (%)	OAGB Redo after LAGB Number (%)	OAGB Redo after LVSG Number (%)
Score <4 (1,2 and 3)	107 (74.8) *	54(83.1)	30 (85.7)
Score= 4	9 (6.3) *	2 (3.1)	1 (2.9)
Score= 5	9 (6.3) *	3 (4.6)	2 (5.7)
Score =6	12 (8.4) *	4 (6.1)	2 (5.7)
Score= 7	6(4.2) *	2 (3.1)	0 (0)
Total	143 (100)	65 (100)	35 (100)

* Statistical significance (p-value < 0.05)

Results:



Number of patients complaining of GERD (SS score ≥ 4) for patients who underwent R-OAGB

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Conclusion

- OAGB is a simple, safe, effective, easy to learn. It has acceptable complications and mortality rates comparing with LVSG or RYGB.

- BMI could not be used for the prediction of postoperative diabetic remission, but preoperative medication is a good predictive factor.
- Reflux after OAGBP still debatable issue and needs more and more studies and larger series to be concluded.

- Although R-OAGB has a better weight loss than R-RYGB, it has a higher chance of reflux and anemia in long-term follow-up.

- R-OAGB has acceptable reflux after LAGB and LVSG, but not recommended after LVBG.

- R-OAGB is not the ideal procedure of redo after a restrictive procedure.

Million Thanks to my Prestigious Team

Thank You

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