

# Midterm Outcomes of One Anastomosis Gastric Bypass for patients with BMI<35 kg/m<sup>2</sup> from a Large Single Center

Authors: Shahab Shahabi Shahmiri, Shiva Safari, Erfan Sheikhabaei, Mohammad Fathi · Delaram Moosavi, Seyed Nooredin Daryabari, Abdolreza Pazouki, Chetan D. Parmar, Mohammad Kermansaravi

**Presenter:** Shahab Shahabi, MD,MPH,FAMIS,FIFSO

Assistant Professor of Surgery, Minimally Invasive Surgery Research Center, Division of Minimally Invasive and Bariatric Surgery, Hazrat -e Fatemeh Hospital, Center of Excellence of European Branch of International Federation for Surgery of Obesity, Iran University of Medical Sciences, Tehran, Iran



XXVII Ifso World Congress



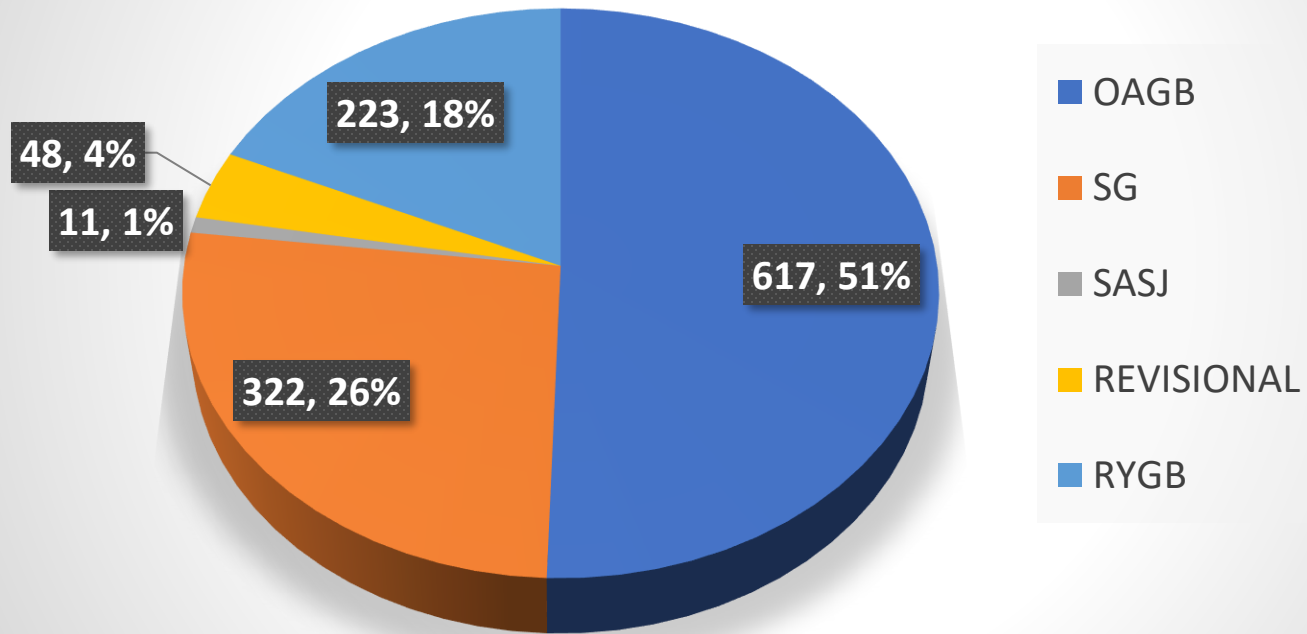
Melbourne 2024

CONFLICT OF INTEREST DISCLOSURE

I have no potential conflict of interest to report



### My MBS Procedures Distribution N=1556



- **IFSO & ASMBS guidelines: ↓BMI threshold for MBS**  
**BMI ≥ 30 kg/m<sup>2</sup> with T2DM**  
**BMI 30-34.9 kg/m<sup>2</sup> & no weight loss or no improvement in comorbidities**  
**with nonsurgical methods**
- **OAGB: One of the popular MBS / ↑ recent years**  
**3<sup>rd</sup> frequently primary MBS worldwide and 1<sup>st</sup> in some countries**  
**more attention in patients with severe obesity**
- **Favorable outcomes:**
  - Short operative time
  - Low perioperative complication rate
  - Significant and durable weight loss
  - Good remission of obesity associated medical problems
  - simple reversal to normal anatomy
- **The safety and efficacy of OAGB for patients with a BMI of ≤ 35 kg/m<sup>2</sup> are controversial (limited evidence)**



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SURGERY FOR OBESITY  
AND RELATED DISEASES

Original article

2022 American Society for Metabolic and Bariatric Surgery (ASMBS) and International Federation for the Surgery of Obesity and Metabolic Disorders (IFSO): Indications for Metabolic and Bariatric Surgery



- **A large international survey of bariatric surgeons** → Prefer SG and RYGB rather than OAGB for adult patients with class I obesity may relate to:
  - unknown outcomes
  - recent approval by IFSO and ASMBS
  - team preference
- **A systematic review (376 patients)** → Safety and metabolic efficacy of OAGB for patients with T2DM with BMI<35kg/m<sup>2</sup> is at least as good as, if not superior to SG and RYGB
- The limited number of studies with large samples and long duration
- We aim to report our 5-year experience of OAGB in patients with BMI<35 kg/m<sup>2</sup> from a high-volume center of excellence for MBS with a high referral rate

Shahmiri et al. BMC Surgery (2023) 23:272  
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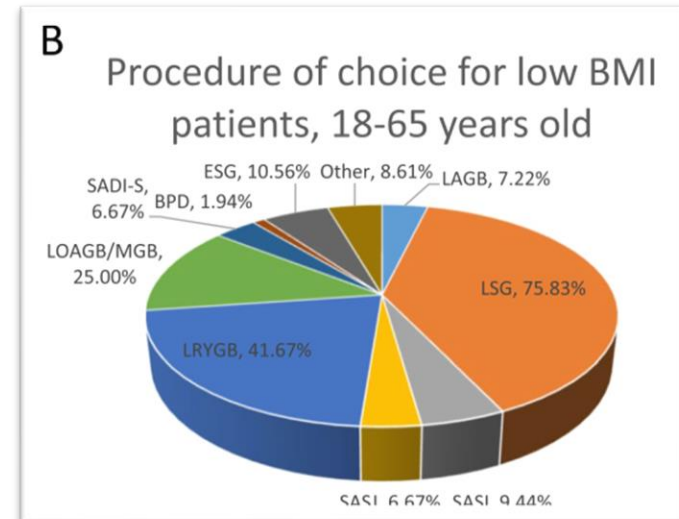
BMC Surgery

RESEARCH

Open Access

**Bariatric and metabolic surgery in patients with low body mass index: an online survey of 543 bariatric and metabolic surgeons**

Shahab Shahabi Shahmiri<sup>1,2,3</sup>, Chetan Parmar<sup>4</sup>, Wah Yang<sup>5</sup>, Panagiotis Lainas<sup>6,7</sup>, Sjaak Pouwels<sup>8</sup>, Amir Hossein DavarpanahJazi<sup>1,2,3</sup>, Sonja Chiappetta<sup>9</sup>, Yosuke Seki<sup>10</sup>, Islam Omar<sup>11</sup>, Ramon Vilallonga<sup>12</sup>, Radwan Kassir<sup>13</sup>, Syed Imran Abbas<sup>14</sup>, Ahmad Bashir<sup>15</sup>, Rishi Singhal<sup>16</sup>, Lilian Kow<sup>17</sup> and Mohammad Kermansaravi<sup>1,2,3\*</sup>



Retrospective study

182 patients who underwent primary OAGB between 2012 and 2023 and had a BMI < 35 kg/m<sup>2</sup>

8 secondary conversional OAGB were excluded

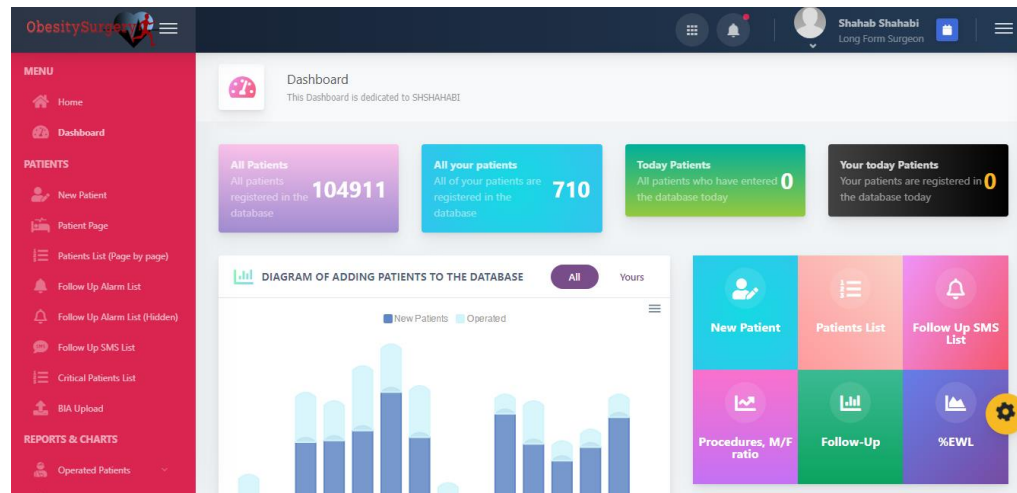
Variables:

Demographic data

Weight and BMI

Lab data

Comorbidities



Obesity Surgery (2022) 32:2083–2086  
<https://doi.org/10.1007/s11695-022-06014-y>



LETTER TO THE EDITOR



### The First Web-Based Iranian National Obesity and Metabolic Surgery Database (INOSD)

Mohammad Kermansaravi<sup>1,2</sup> · Shahab Shahabi Shahmiri<sup>1,2</sup> · Alireza Khalaj<sup>3</sup> · Seyed Mehdi Jalali<sup>4</sup> · Masoud Amini<sup>5</sup> · Nasser Malekpour Alamdari<sup>6</sup> · Mohsen Mahmoudieh<sup>7</sup> · Ali Jangjoo<sup>8</sup> · Syed Imran Abbas<sup>9</sup> · Seyed Morteza Moosavi Naeini<sup>10</sup> · Masoud Sayadishahraki<sup>7</sup> · Foadad Eghbali<sup>1,2</sup> · Seyed Hadi Mirhashemi<sup>11</sup> · Somayyeh Mokhber<sup>12</sup> · Amirhossein Davarpanah Jazi<sup>12,13</sup> · Abdolreza Pazouki<sup>1,2</sup>

## Results

- Preoperative characteristics of patients with BMI<35 kg/m<sup>2</sup> who underwent OAGB

Variables	n=174
Sex, F/M n (%)	144 /30(82.8/17.2)
Age, year	41.14±10.48
BMI, kg/m <sup>2</sup>	33.37±1.33
Weight, kg	91.67±9.57
T2DM, n (%)	54 (31.0)
HTN, n (%)	25 (14.4)
HLP, n (%)	56 (32.2)
Hypothyroidism, n (%)	31 (17.8)
OSA, n (%)	9 (5.2)
Heartburn, n (%)	29 (16.7)
Low back pain, n (%)	74 (42.5)
Knee pain, n (%)	68 (39.1)
PCOS, n (%)	11 (6.3)

- **Perioperative**
  - Mean BPL length →  $134.8 \pm 26.9$  cm (range, 100-200 cm)
  - Duration of surgery →  $60.7 \pm 7.4$  minutes
  - Length of hospital stay → 1.3 days
  - Only two patients (1.15%) had intraoperative complications
    - Small bowel perforation & bleeding from spleen injury → Managed by in-situ repair
  - Eight (4.6%) patients required ICU care
- **Postoperative Problems:** During the 30-day → No death
  - 4 patients (2.3%) experienced bleeding:
    - Two patients → Intraluminal bleeding → Managed conservatively
    - Two patients → Extra luminal bleeding (from staple line) → Required laparoscopy
  - One patient experienced diabetic ketoacidosis
  - One patient (0.57%) had leak → Addressed through laparoscopy



Results

Month of follow up after OAGB	Number of eligible Pt	No. of Pt who have been followed up, n (%)	Lost Weight, kg	BMI, kg/m <sup>2</sup>	TWL%	EWL%	Number of Pt with BMI<18.5	BPL, cm
1	174	167(95.98)	9.44±3.45	29.96±1.69	10.25±3.89	42.08±16.84	0	-
3	174	146(83.91)	18±5.28	26.88±1.84	19.55±4.69	79.22±21.3	0	-
6	159	138(86.79)	22.67±5.84	25.14±2.05	24.81±5.73	99.74±25.36	0	-
9	150	128(85.33)	25.17±6.27	24.21±2.12	27.55±6.07	110.96±26.97	0	-
12	144	116(80.56)	25.96±6.43	23.87±2.22	28.41±6.49	115.41±29.06	1	200
18	120	103(85.83)	25.64±8.02	23.88±2.89	28.32±8.67	114.59±35.5	1	140
24	114	89(78.07)	25.3±7.27	24.00±2.56	27.88±7.74	113.17±32.38	2	200,140
36	86	54(62.79)	24.27±6.91	24.41±2.65	26.75±7.62	108.75±32.98	1	110
48	60	42(70)	22.76±6.72	25.06±2.69	25.14±7.51	101.24±34.16	0	-
60	50	35(70)	22.06±8.34	25.52±2.77	23.85±8.68	94.5±37.64	1	110

# Results

Figure1. %Total Weight Loss 1-60 months after OAGB

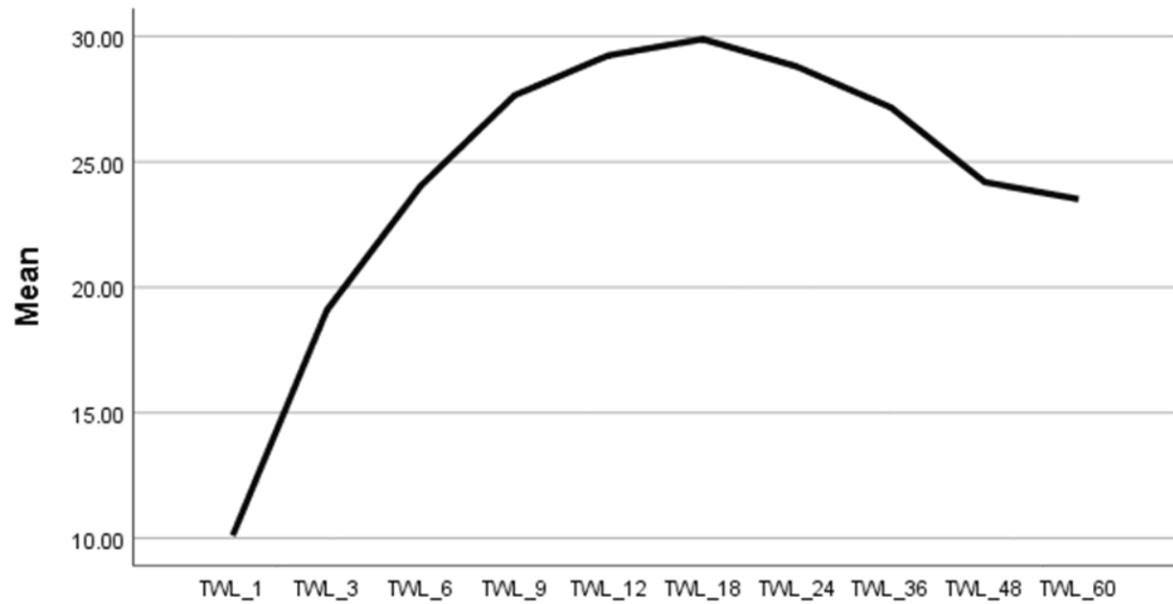
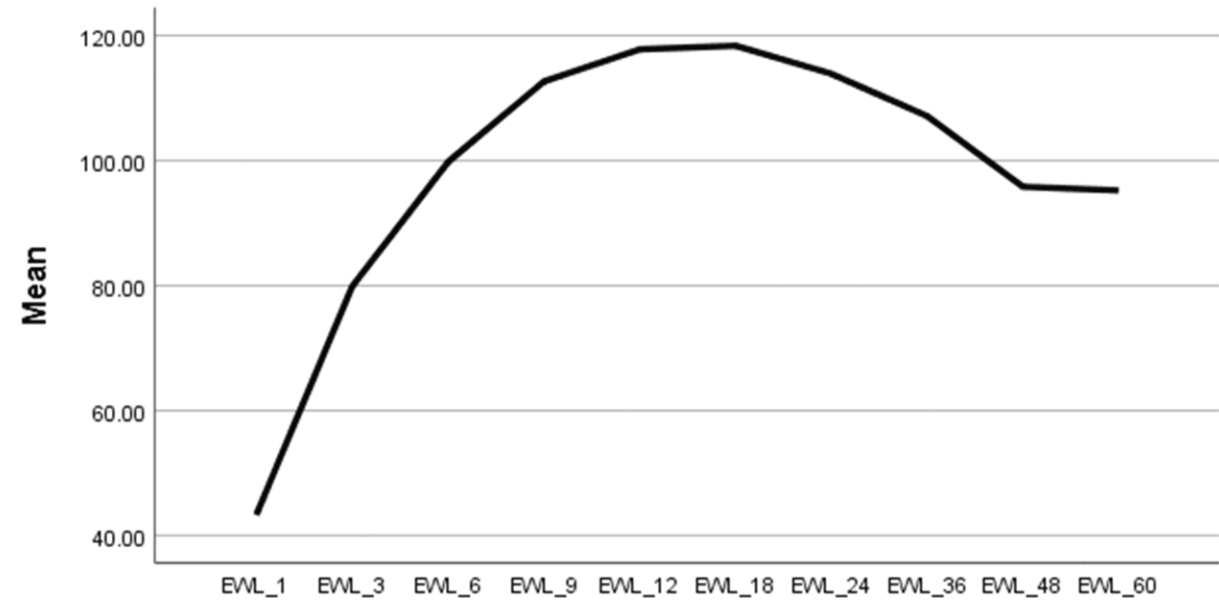


Figure2. %Excess Weight Loss 1-60 months after OAGB



## Results

### Status of obesity associated medical disease before and 6 and 12 months after OAGB with available data at follow-up

Condition	Number of patients before surgery	Remission at 6-month			Remission at 12-month		
		Partial	Complete	p	Partial	Complete	p
HTN	25	3(12.0)	11(44.0)	<0.001	4(16.0)	6(24.0)	<0.001
T2DM	54	20(37.0)	22(40.7)	<0.001	15(27.8)	21(38.9)	<0.001
OSA	9	1(11.1)	6(66.7)	<0.001	0	6(66.7)	<0.001
HLP	56	7(12.5)	16(28.6)	<0.001	6(10.7)	13(23.2)	<0.001
Heartburn	29	2(6.9)	14(48.3)	<0.001	6(20.7)	5(17.2)	<0.001

## Results

Variables	Preoperative	6-month	p	12-month	p	24-months	p
FBS (mg/dL)	130.63±63.28	102.23±25.04	<0.001	94.52±23.28	<0.001	99.53±16.47	0.008
HbA1c	6.55±1.97	5.7±1.06	<0.001	5.74±1.05	<0.001	5.49±1.02	0.080
TC (mg/dL)	192.69±52.07	177.98±39.32	<0.001	162.24±41.17	<0.001	170.05±32.29	0.001
LDL (mg/dL)	112.98±40.94	102.7±37.55	0.002	86.66±30.9	<0.001	96.95±25.8	0.006
HDL (mg/dL)	46.29±12.09	48.12±13.7	0.394	51.64±16.42	0.541	49.85±8.71	0.002
TG (mg/dL)	185.63±107.48	126.05±64.23	<0.001	120.82±67.32	<0.001	103.1±46.73	<0.001
Hemoglobin (g/dL)	13.79±1.49	12.87±1.4	<0.001	12.72±1.48	<0.001	12.44±1.26	0.001
Ferritin (ng/mL)	79.61±88.94	73.64±70.89	0.875	48.35±68.79	0.196	49.84±51.9	0.012
Vitamin B <sub>12</sub> (pg/mL)	435.83±295.61	679.47±545.57	<0.001	618.96±513.2	0.040	353.11±184.71	0.301
Folic Acid (ng/mL)	15.19±49.33	17.17±12.65	0.003	15.65±6.58	0.113	14.68±4.38	0.009
Vitamin D <sub>3</sub> (ng/mL)	29.64±15.18	40.45±15.32	<0.001	40.78±12.7	0.001	38.01±20.79	0.714
Zinc (mcg/dL)	86.5±15.7	85.19±15.86	0.660	85.2±15.94	0.940	88.74±14.51	0.587
Calcium (mg/dL)	9.98±6.79	9.45±1.07	0.330	9.21±0.49	0.936	9.23±0.39	0.611
ALT (U/L)	32.16±26.52	19.39±10.33	<0.001	26.25±24.8	0.529	22.76±10.14	0.108
AST (U/L)	24.55±14.1	20.04±8.02	0.001	21.77±10.77	0.696	23.5±11.24	0.364
ALK (U/L)	173.2±58.77	186.49±71.14	0.057	179.17±62.03	0.551	150.15±59.76	0.316
Albumin (g/dL)	4.44±0.38	4.39±0.37	0.092	4.28±0.39	0.069	4.25±0.44	0.162
Uric Acid (mg/dL)	4.81±1.33	4.37±1.14	0.032	3.97±1.22	<0.001	3.9±1.33	<0.001
TSH (mIU/L)	2.42±1.47	2.11±1.61	0.142	2.32±2.05	0.959	4.47±8.1	0.394

## Results

- **At 6- and 12-month follow-up, T2DM remission rates were 77.7% and 66.7%, respectively**
- **Although Hb level was decreased in our patients and some of them were diagnosed as having anemia based on the reference level of 12 mg/dl, they were successfully managed on conservative management with oral and intravenous Iron (Ferinject) supplement or multi-vitamin plus mineral supplement**
- **At 12- and 24-month follow-up, only two patients had benign low levels of albumin responsive to medical treatment and unrelated to BPL lengths (i.e., 130 and 180 cm)**

## Discussion

- MBS is highly recommended in patients with BMI<35 especially when non-surgical managements have failed or one of the obesity-associated medical problems mostly T2DM has occurred
- OAGB is an acceptable MBS procedure for patients with class I obesity with substantial and sustainable weight loss during five years

**No consensus** has been reached for gastric pouch size and BPL length in class I obesity

- The most routine and safe BPL is around 150 cm in class II obesity  
Class I obesity → No consensus
- The mean BPL length of the previous studies is around 150 cm (median: 120 cm)

## Discussion



- **OAGB for BMI<35 kg/m<sup>2</sup> (class I obesity) with or without obesity-associated medical problems**
- **Significant and sustainable effects in losing weight with a peak effect at 12 and 18 months**
- **Helps to remit T2DM and HTN in a majority of cases, improving lipid profile**
- **In comparison to RYGB or SG has no increased burden of postoperative problems or deficiency in nutritional factors, minerals, or vitamins rather than what is expected and known from previous investigation**
- **Except for a risk of excessive weight loss apparently unrelated to BPL length, decrease in Hb and Alb not be reached to a dangerous levels or become symptomatic necessitating to put all patients under surveillance with regular checking of different variables in their blood after surgery at**
- **least for 24 months in order not to risk malnutrition or liver failure**

THANKS FOR YOUR ATTENTION



Dr. shahab shahabi

Fellowship in advanced minimally invasive and bariatric surgery



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