A 3 year retrospective study post RYGB in patients with weight gain after sleeve gastrectomy – A comparison of weight loss with nutritional parameters

- Speaker: Dr. Manish Khaitan

Warm greetings from Team Nobesity

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PROFESSIONAL AFFILIATIONS

- Immediate Past President Of Obesity Surgeons Society of India (OSSI)
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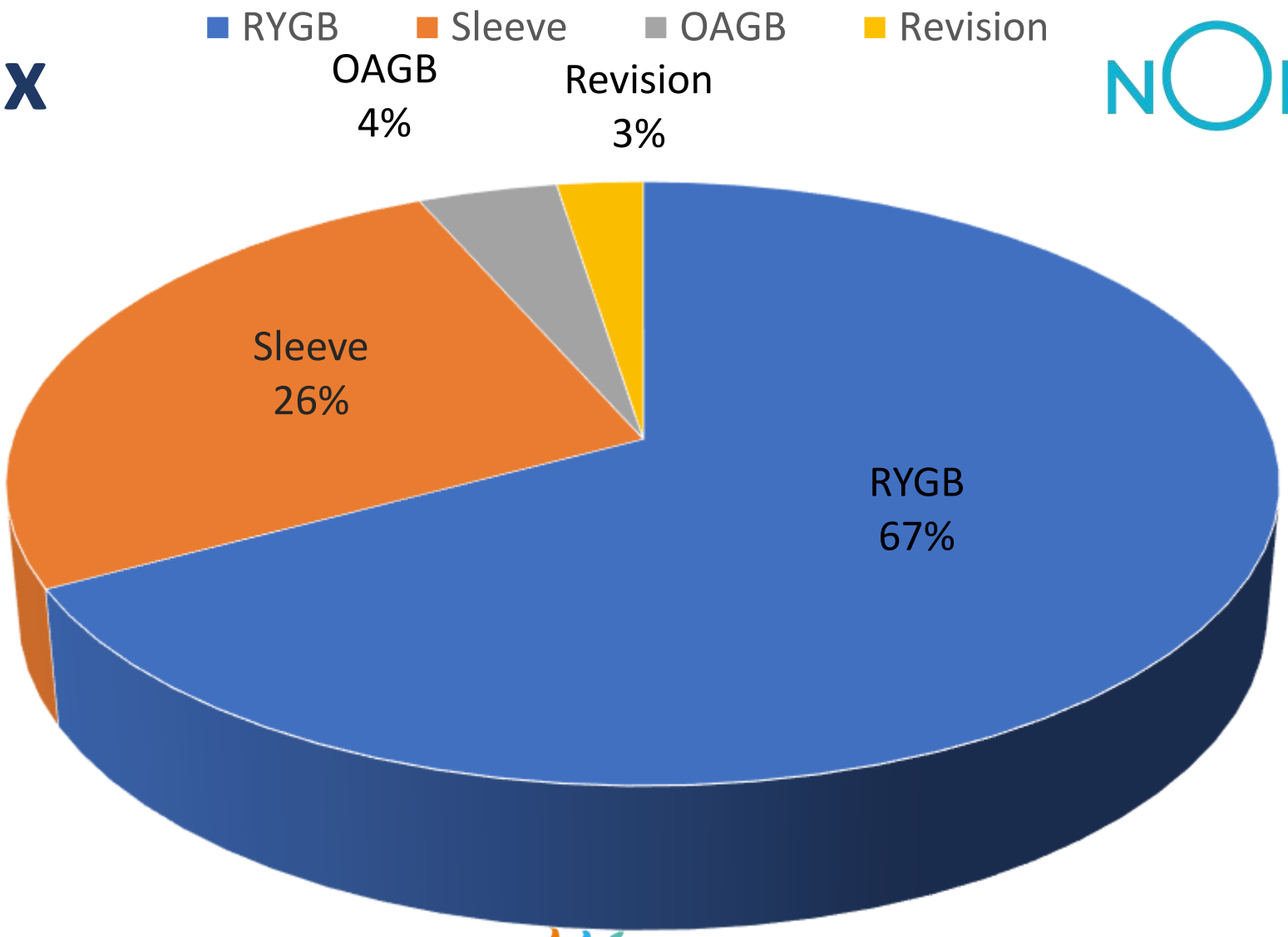
- Member of Indian Association of Gastrointestinal Endosurgeons (IAGES)
- Member of Indian Medical Association (IMA)

Case Mix



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Disclosure

- No disclosures

INTRODUCTION

- No ideal bariatric procedure exists for every patient, and all bariatric surgical procedures have an associated failure/complication rate which may require a revisional surgery.
- With the increasing demand for bariatric surgery, a growing number of patients require revisional surgery owing to the undesirable results of their primary bariatric procedure.
- The following table shows the nomenclature used by the American Society for Metabolic and Bariatric Surgery Revision Task Force to define revisional bariatric procedures.
- However, the problem in the current approach to revisional bariatric surgery lies in that there is no agreement on what constitutes failure of initial therapy.

Type of operation	Indication	Example
Conversion	Procedures that change an index procedure to a different type of procedure	Laparoscopic adjustable gastric banding to RYGB, laparoscopic sleeve gastrectomy or OAGB
Corrective	Procedures that address complications or inadequate response of a previous bariatric operation	Endoscopic therapy to reduce the gastrojejunal stomal size after RYGB
Reversal	Procedures that restore original anatomy	Reversal of RYGB for severe complications such as intractable nausea, vomiting, psychological issues, excessive weight loss

Need for revisional surgery

- The most frequently reason for revision surgery was failure of the primary procedure that is <50% of excess weight lost (EWL), with weight is stable for last 6 months.
- Second most common reason is reflux refractory to medical management diagnosed based on symptoms of heartburn and regurgitation as per the Montreal Criteria, and all patients with reflux had a trial of medical management. Prior to conversion, all patients underwent a gastroscopy and upper GI contrast as part of the preoperative.
- Next most common reason for revision was weight regain after sleeve gastrectomy. Weight regain at our centre was based on one of the following criteria

    a) regaining weight to achieve a BMI >35

    b)An increase in weight of >10 kg from nadir

    c) An increase in BMI of >5 kg/m2 above the weight loss nadir

Methods

- Approval was obtained from our institutional review board. A retrospective review of a prospectively maintained database was performed to identify patients who had undergone revision of their Sleeve gastrectomy with a RYGB procedure from Feb 2016 - Feb 2019.
- Patient history, physical exam, blood work, and CT abdomen and plevis , and esophagoduodenoscopy were performed.
- A multidisciplinary team including bariatric physician, dieticians and psychologists were involved and patients dietary habit and compliance was assessed.
- The risk of nutritional deficiencies, increased bowel movements, and need for more expensive nutritional supplements were carefully discussed with the patients.

Surgical technique

- The surgical technique is similar to normal RYGB at our centre except the limb lengths. The gastric sleeve was horizontally transected approximately 7 – 8 centimetres (cm) below the gastroesophageal junction. If the sleeve was dilated, it is trimmed around a 36 Fr. Bougie.
- If a hiatal hernia is found during surgery, circumferential dissection of the esophagus and stomach is done with the gastroesophageal junction reduced to 2-3 cm below the hiatus. A crural repair is performed with non-absorbable sutures with an additional anterior suture placed to further close the hiatal hernia defect as needed.
- Total bowel length was measured. The length of the common channel was fixed at 450cm. The Roux limb which is fixed at 80cm and rest was Biliopancreatic limb. Stapled side to side jejunostomy was performed. Mesentric defect was closed.
- The Roux limb was brought up in an antecolic manner and a stapled end-to-side gastrojejunostomy was performed using a linear stapled technique. Petersons defect was closed. At the end of the procedure, an air leak test was performed to assess for anastomotic leak.

Nutritional Care

- Postoperatively, patients were started on vitamin supplements using the American Society of Metabolic and Bariatric Surgery's (ASMBS) nutritional recommendations for RYGB as a guide.
- An additional 1200–1500 mg of calcium was also advised.
- Protein recommendations were increased from 60 to 70 g daily to 80 g daily.
- Patients were instructed to separate doses of the multivitamin to hopefully aid in absorption.

Follow-up

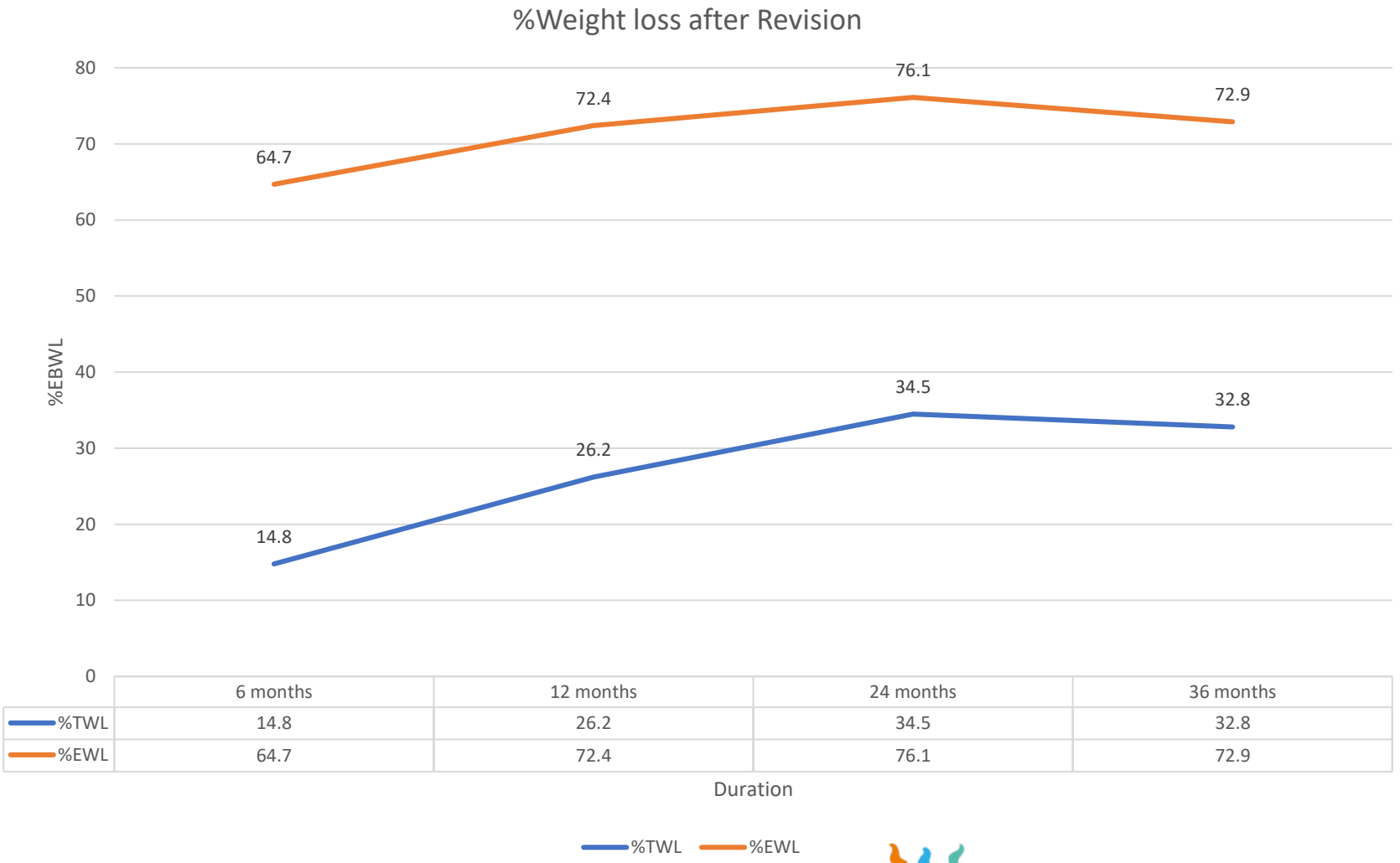
- All patients were scheduled for follow-up postoperatively at 4 weeks, every 3 months for 1 year, and then every 6 months.
- Blood work, including nutrition levels was recommended every 3 months.
- Check endoscopy was done at 6 months and 1 year postoperatively.
- All patients were also regularly contacted by phone to check in on their condition and overall satisfaction after surgery.

RESULTS

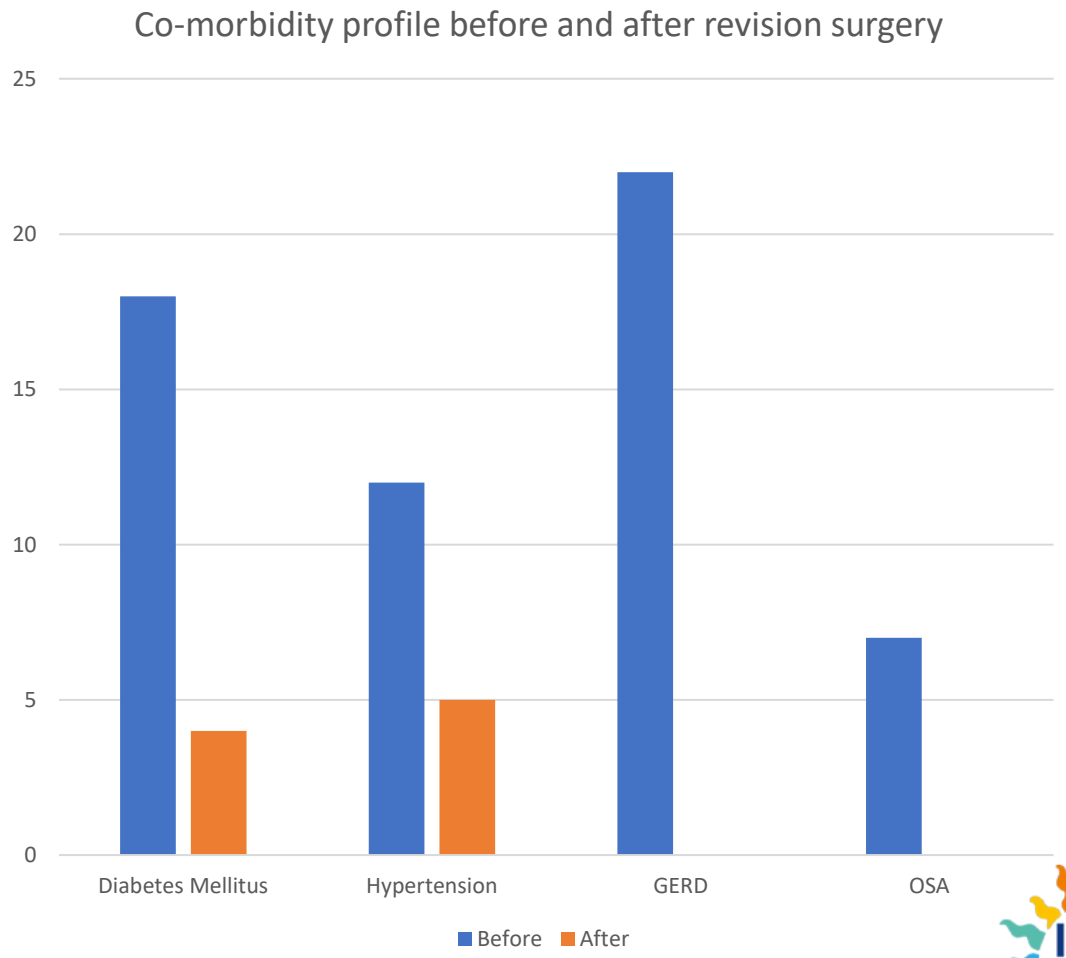
Patient profile	n=46
Age (years)	46.65 ± 22.1
Male:Female	10M:36F
Mean Pre-Sleeve weight (KG)	123.4±25.3
Mean Pre-Sleeve BMI (KG/M2)	48.1±7.7
Maximum weight loss achieved after Sleeve gastrectomy	84.05±16.29
Mean Pre revision weight(KG)	104.5±29.39
Mean Pre revision BMI (KG/M2)	43.2±14
Mean duration between primary surgery and revision (months)	74.4±20.3
Maximum weight loss after revision (KG)	35.4±12.9
Average Small Bowel length (CM)	850±270

Follow Up Rate

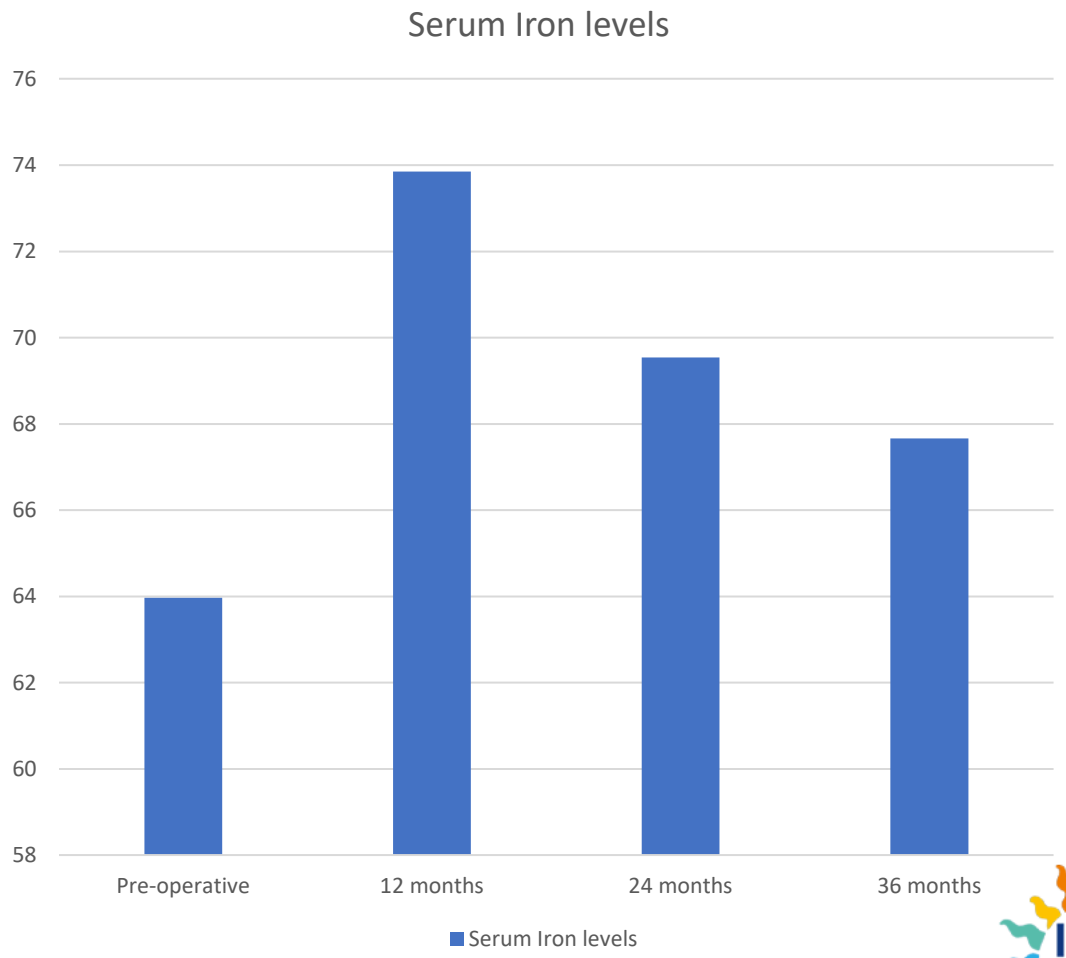
Duration	Patients in follow up
6 months	95.6%(44/46)
12 months	89.1% (41/46)
24 months	71.7%(33/46)
36 months	67.3% (31/46)



	6 months	12 months	24 months	36 months
%TWL	14.8	26.2	34.5	32.8
%EWL	64.7	72.4	76.1	72.9

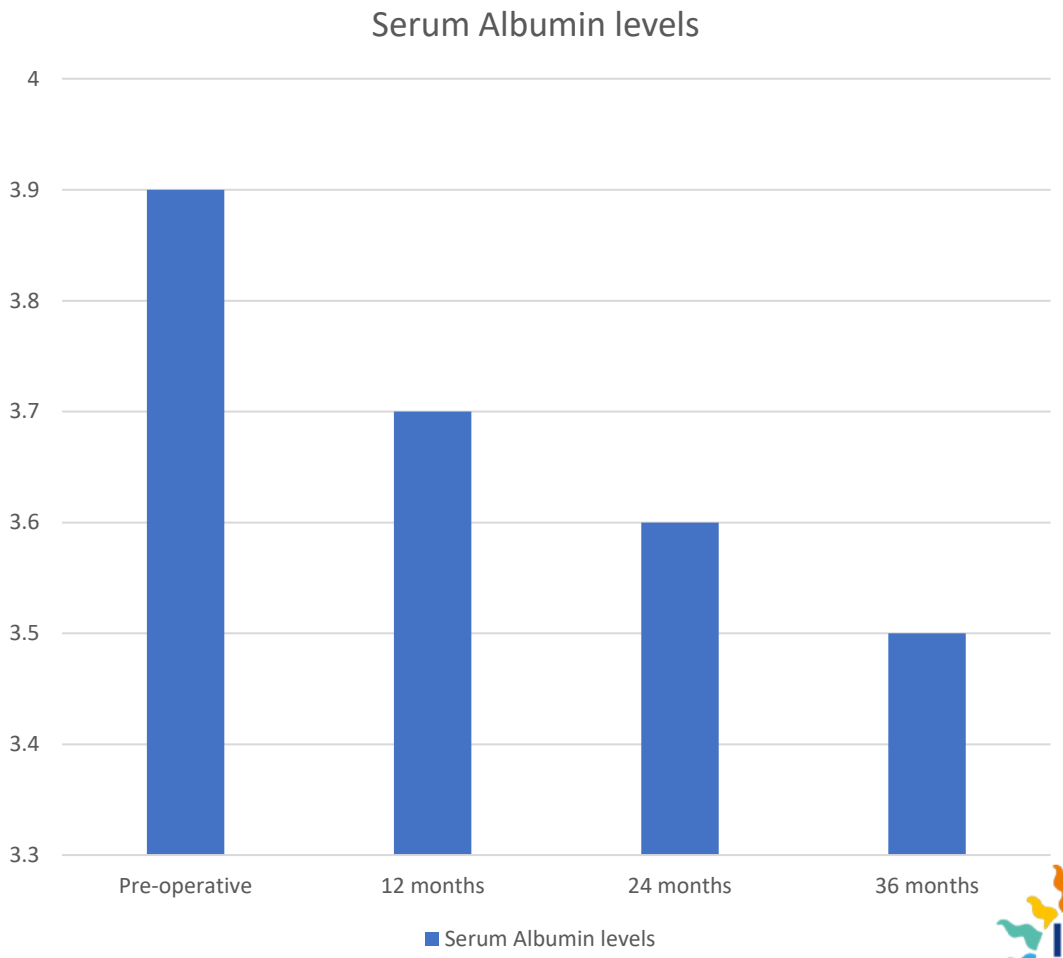


	Co-morbidity profile (n=46)	
	Before	After
Diabetes mellitus	18/46	4/46
Hypertension	12/46	5/46
GERD	22/46	0/46
OSA	7/46	0/46

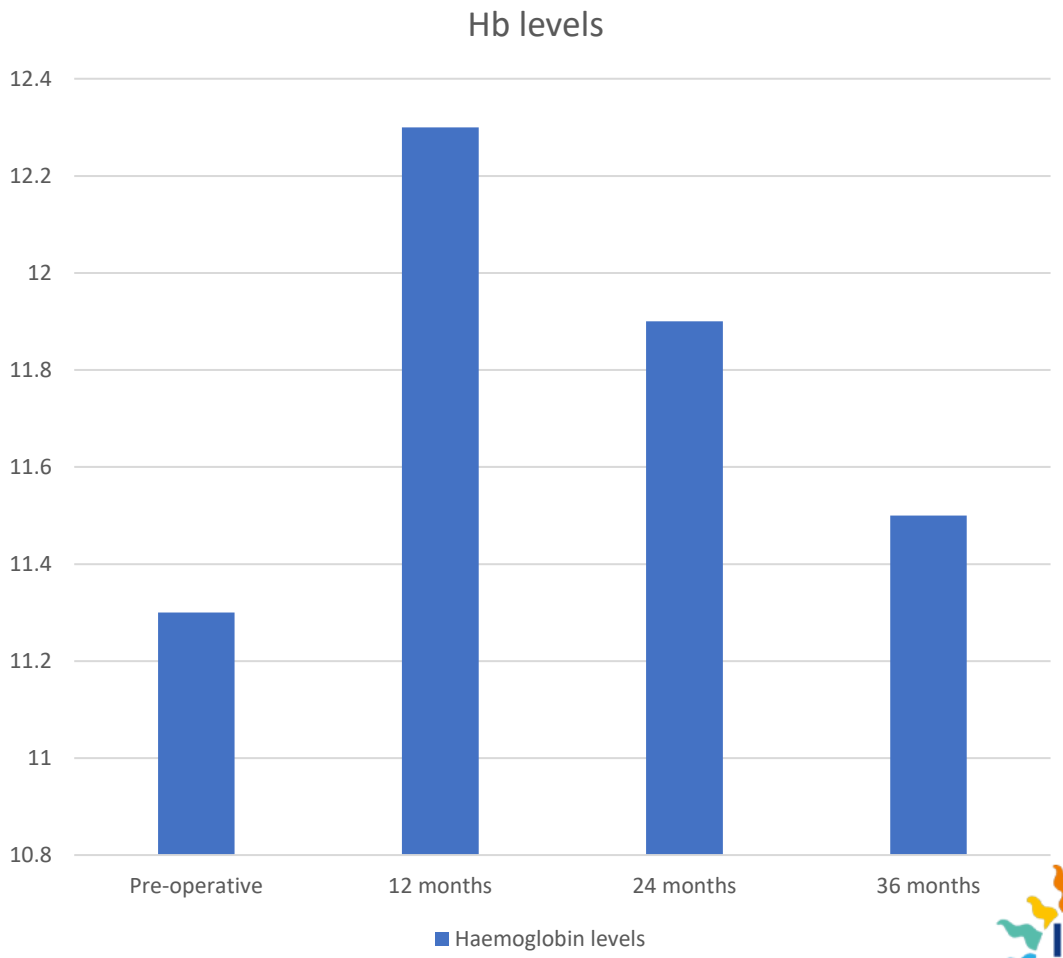


	Serum Iron levels (mcg/dl)
Pre-operative	63.97±49.46
12 months	73.85±41.54
24 months	69.54±44.57
36 months	67.66±42.45

Iron deficiency defined as Haemoglobin <11gm%, Serum iron <50mcg/dl



	Serum Albumin levels (mcg/dl)
Pre-operative	3.9±0.46
12 months	3.7±0.55
24 months	3.6±0.62
36 months	3.5±0.92



	Haemoglobin levels (mg/dl)
Pre-operative	11.3±1.24
12 months	12.3±1.29
24 months	11.9±1.22
36 months	11.5±1.02

Iron deficiency defined as Haemoglobin <11gm%, Serum iron <50mcg/dl

Complications	n=46
Bleeding	2
Leak	1
GJ stricture	1
pulmonary complications	2
30 day mortality	0
30 day readmission	5
port site hernia	0

DISCUSSION

- We started this study with the aim to evaluate the outcomes of RYGB as a revisional surgery after Sleeve Gastrectomy.

- With SG failures, many revision options are now available such as re-sleeve, RYGB, OAGB, Sleeve plus procedures, or BPD-DS.
- The disadvantage of a re-SG is significantly higher leak rates with less weight loss.
- In conversion surgery for weight regain, Homan et al. found a statistically better % excess weight loss after DS compared to RYGB (59% versus 23%).
- The disadvantage of DS is inadequate oral intake and severe malabsorption that can be as high as 5%.
- Current literature favors RYGB as a conversion procedure for inadequate weight loss.

- In our experience experience we agree with these reports because RYGB provides adequate weight loss and GERD management with minimal risk for the severe nutritional and metabolic derangements that can be seen with DS.
- While there are studies looking at the effects on weight loss and GERD resolution after revision of SG to RYGB, our study also reports the outcomes of obesity associated comorbidities including OSA.

- Our series demonstrated results that were similar to Quezada et al., and we show that patients who are converted to RYGB achieve additional weight loss after the revision.
- Both the %TBWL and %EWL after at three years in the present studies are high compared to results after revisional surgery published in literature.

CONCLUSION

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- Revisional surgery is challenging but safe when performed by an experienced team. Following conversion to RYGB, additional weight loss may be achieved, however there is significant benefit from resolution of obesity related comorbid disease and SG related side effects.
- With the availabilty of newer Anti-Obesity pharmacotherapy, lesser aggressive limb length in revisional surgery could also provide much benefits.

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thank you!