



# Concomitant Hiatal Hernia Repair with Sleeve Gastrectomy: Can Gastroesophageal Reflux be Alleviated ?



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# Introduction

- In obese patients undergoing BS
  - HH: 23 - 52 %
  - Symptoms of Reflux: 50 - 70 %
- Hiatus hernia or a lax hiatus:
  - One of the contributory factor
- Sleeve Gastrectomy: Most commonly performed BS
  - ***De novo GERD (15 - 23%)***

# Introduction

- Impact of SG + HHR on GERD in morbidly obese patients with HH
  - Conflicting outcomes
  - Lack of consensus
- Aim of this study:
  - Effect of concomitant SG + HHR in patients with or without GERD using GERD-Q questionnaire

# Methods

## ➤ Retrospective analysis

- n = 63
- SG with concomitant HHR
- April 2013 to October 2020

## ➤ Use of PPIs, reflux symptoms (GERD-Q) & selective UGIE (de novo GERD)

- baseline and at 12 months after surgery

## ➤ Diagnosis of HH:

- Preoperative endoscopy, or
- Intraoperative assessment



# Baseline demographics

- Total number of patients operated: 63
  - Lost to follow up: 11
- Patients evaluated: 51
  - M:F 9 : 42
  - Mean follow-up:  $3.7 \pm 2.0$  years

# Baseline demographics

- Mean Age: 43.4 ± 11.5 y
- Mean BMI: 44.4 ± 5.0 kg/m<sup>2</sup>
- Mean GERD-Q score: **9.4 ± 2.9**
- ***Reflux symptoms***
  - n = 26 (51%)
  - Regular PPIs: 21 (41.2%)
  - Mean GERD-Q score: 9.8 ± 3.1

## *Preop endoscopy*

Esophagitis: 16 (32.7%)  
LA-A (15); LA-B (1)

HH: 20 (40.8%)

Esophagitis + HH: 6 (12.2%)

- Lax hiatus: 9 (17.6%)
- ***HH on Intra-op assessment: 42 (82.3%)***

# Surgical Technique

- Dissection to expose the crura till mediastinal space



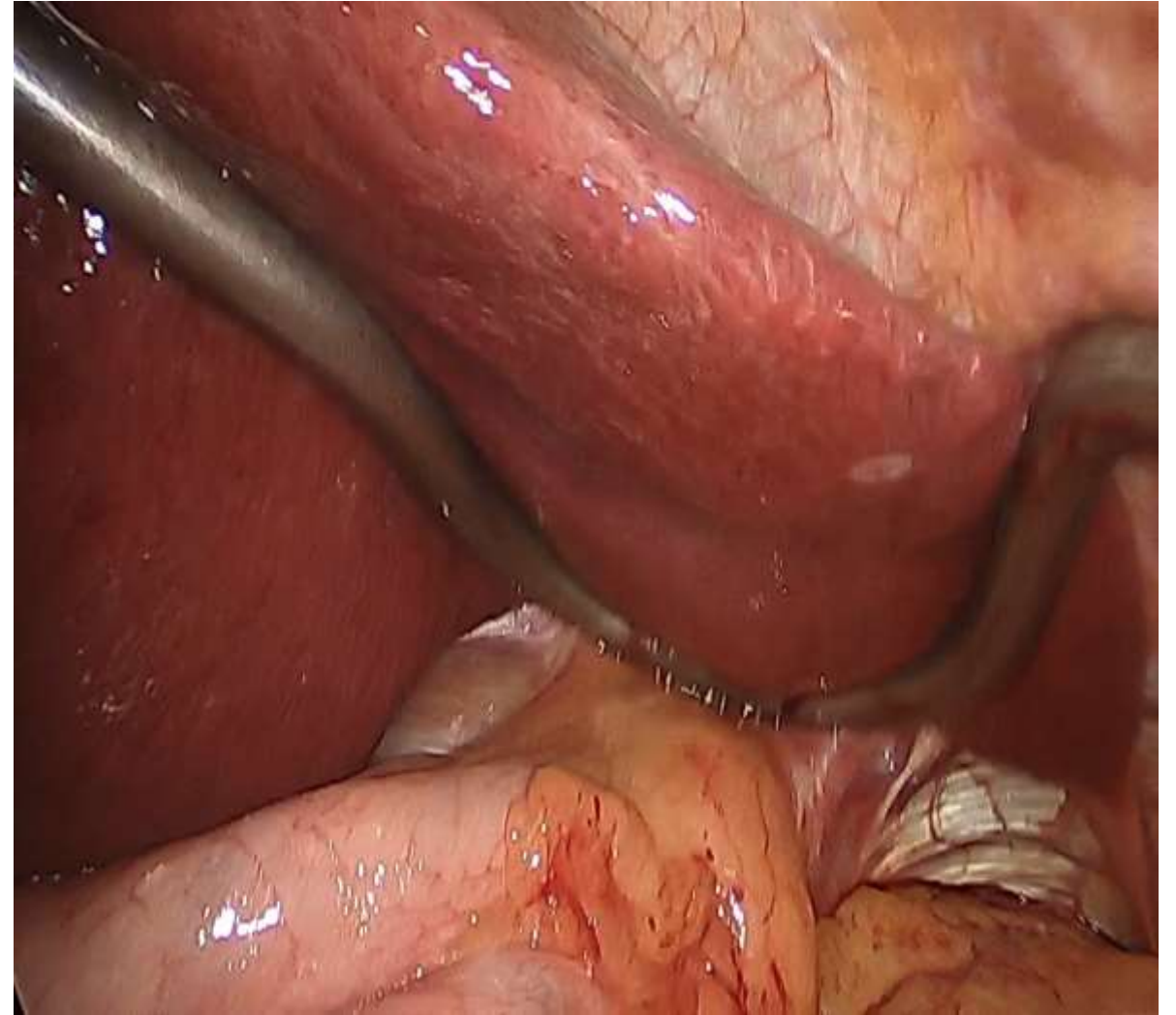
- EGJ retracted to achieve 3cm of intraabdominal esophageal length



- Gastric sleeve over a 38 Fr gastric tube



- Posterior crural closure: 2 to 3 interrupted non-absorbable sutures



# Results (n = 51)

## ✓ GERD-Q scores (n = 51):

- Mean GERD-Q score:  $9.4 \pm 2.9$  to  $6.5 \pm 2.1$  ( $p = 0.001$ )

## ✓ Reflux symptoms (n = 26):

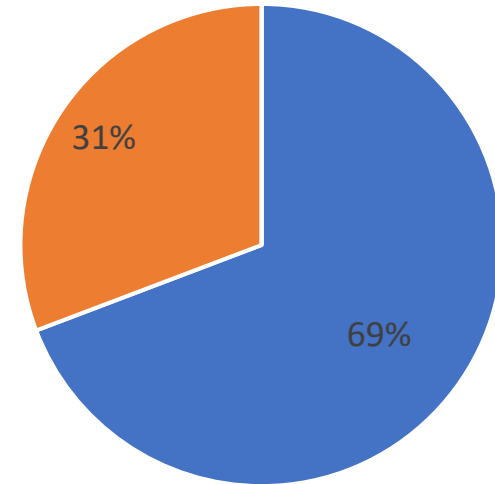
- 18 (69.2%) - improvement (GERD-Q:  $6.6 \pm 1.9$ )
- 8 (30.4%) - no change (GERD-Q:  $9.1 \pm 2.2$ )

## ✓ PPI use (n = 21):

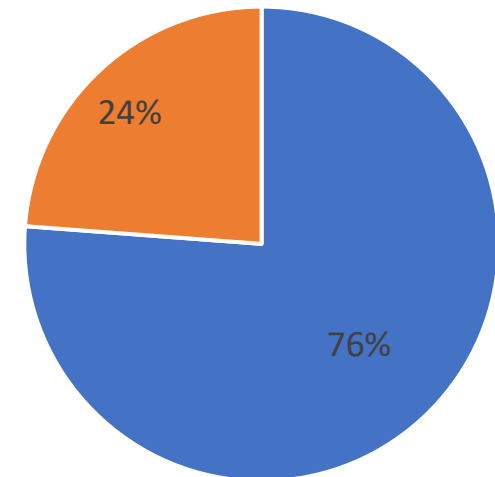
- 16 (76.2%) - improvement
- 5 (23.8%) - no change

## ✓ *De novo* GERD: 5 (20%)

Reflux Symptoms



PPI usage





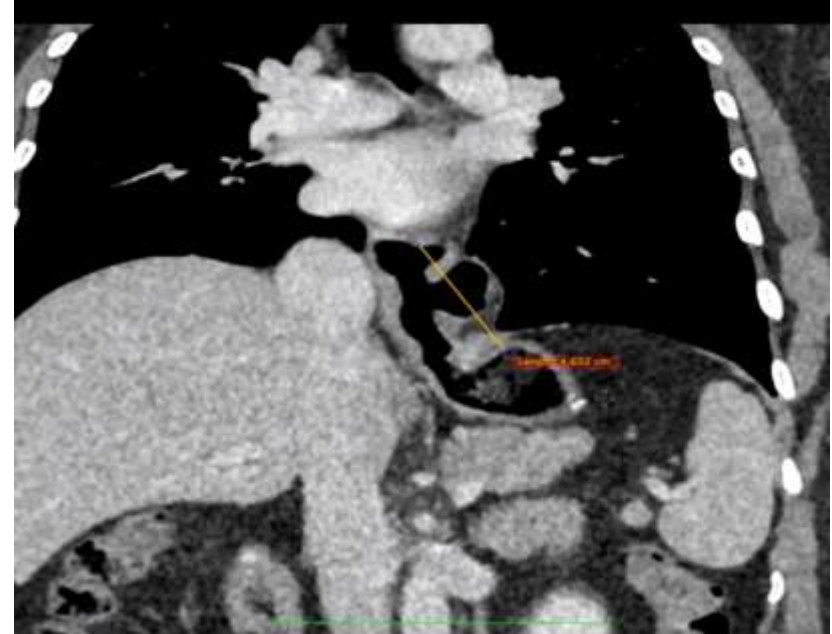
# Results

## ➤ De novo GERD (n = 5; 20%)

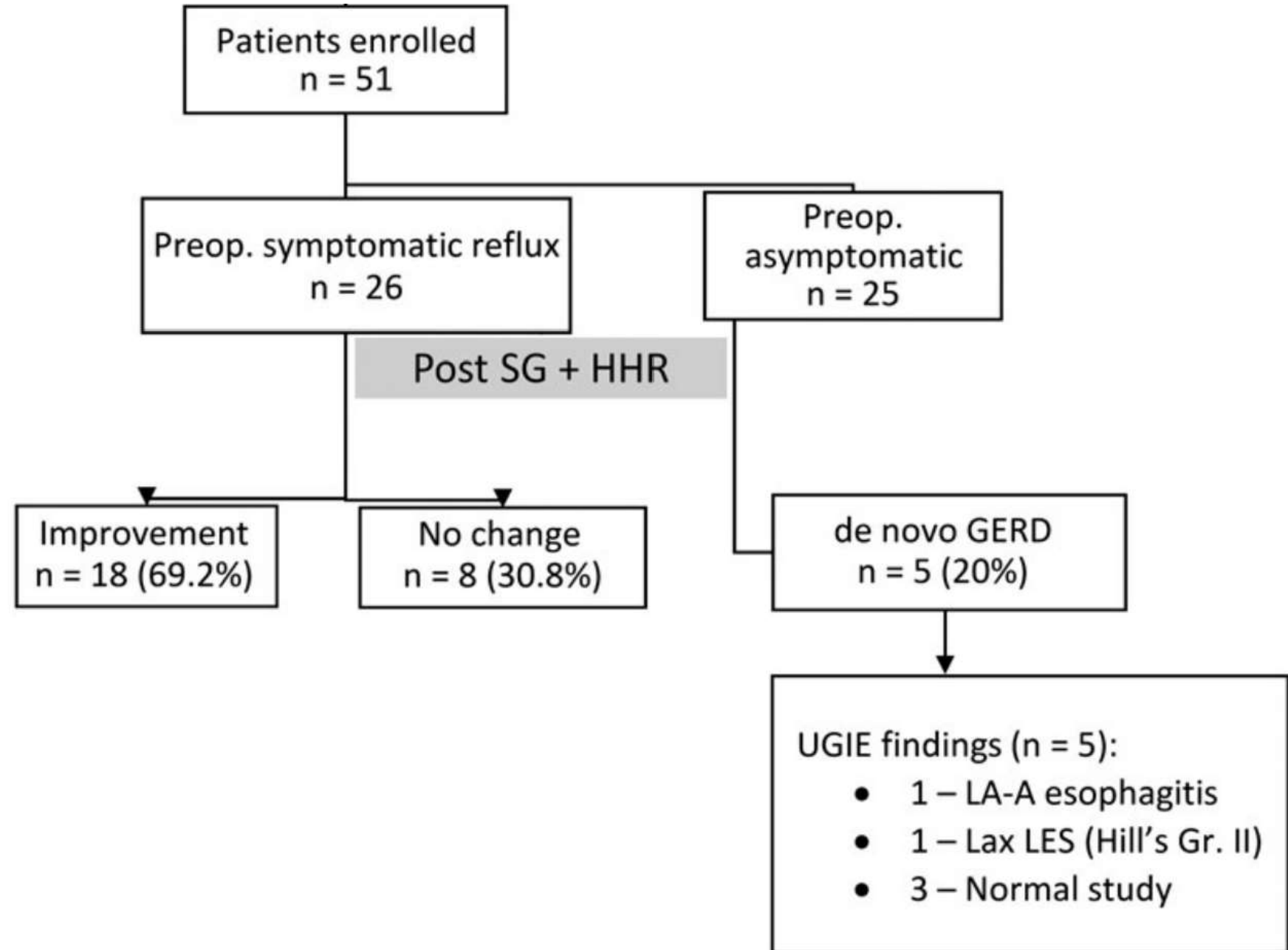
- UGIE findings (n = 5):
  - 1 – Lax LES (Hill Gr. III) + LA-A esophagitis
  - 1 – Lax LES (Hill Gr. II)
  - 3 – Normal study

## ➤ Conversion

- *1 patient*: RYGB for HH recurrence



# Results



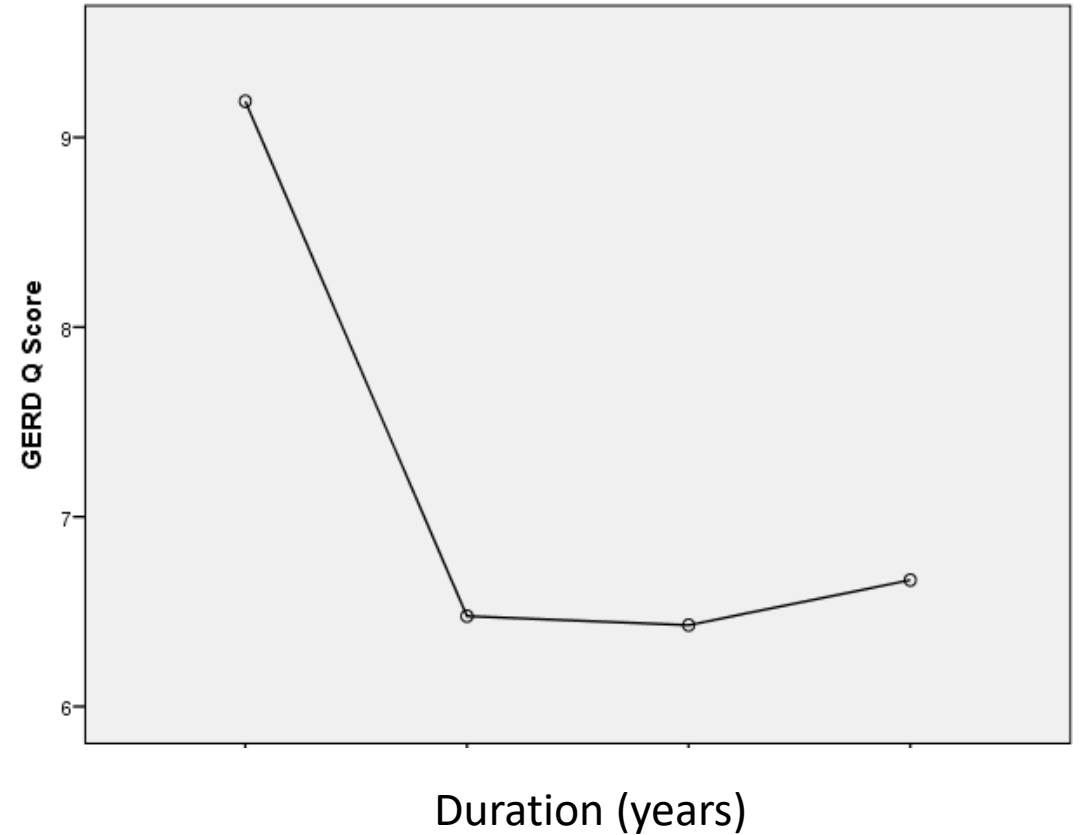
# Results: < 3-yr vs ≥ 3-yr

- < 3-yr (n = 32)

GERD-Q score	6.4 ± 2.1
GERD remission* (n = 26)	70.6% (12/17)
Cessation of PPIs use# (n = 21)	83.3% (10/12)
De novo GERD	13.3% (2/15)

- ≥ 3-yr (n = 19)

GERD-Q score	6.7 ± 2.1
GERD remission* (n = 26)	66.7% (6/9)
Cessation of PPIs use# (n = 21)	66.7% (6/9)
De novo GERD	30% (3/10)



# Discussion

- SG + HHR, Systematic Review & Meta-analysis
  - n = 937 (18 studies)
  - One RCT, 6 Prospective and 11 Retrospective
  - Follow-up: 6 – 94 m
- **Results**
  - Prevalence of GERD, Pre vs Post: 54.7% vs 29.7%
  - **Incidence of GERD remission: 68%**
  - Incidence of *de novo* GERD: 12%
  - HH recurrence: 11%

# Discussion

## • SG + HHR Vs SG alone

### 1) Prospective study\*

- SG + HHR: 78; SG alone: 102
- Follow-up: 6 m
- GERD in SG + HHR gp: pre vs post - 38.4% vs 30.8% (  $p = 0.3$  )
- GERD in SG gp: pre vs post - *39.2% vs 19.6% (  $p = 0.003$  )*

### 2) RCT#

- SG + HHR: 49; SG alone: 50
- Follow-up: 12 m (78%)
- No significant difference

*\*Santonicola A et al. SOARD 2014*

*#Snyder B et al. SOARD 2016*

# Limitations

- Observational study
- Lost to follow-up: 17.5%
- Subjective assessment of reflux via questionnaire
- No control arm
- Selective follow-up endoscopy

# Conclusions

- In patients undergoing BS with symptoms of Reflux
  - Intraop assessment of hiatus is necessary (**UGIE - 40.8% vs Intraop - 82.3%**)
  - P/o lax hiatus or HH – mandates concomitant repair
- Concomitant HHR with SG
  - improvement of the reflux symptoms (**69%**)
  - alleviates the use of PPI (**76%**)
- Future studies
  - Prospective; Longer follow-up; Objective assessment

**Thank You**