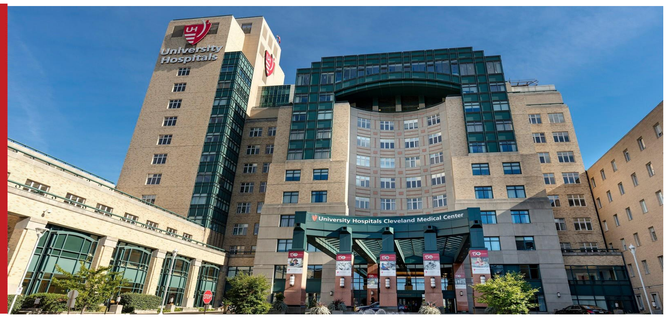
Sleeve Gastrectomy Morphology Improves Long Term GERD and reoperation Outcomes

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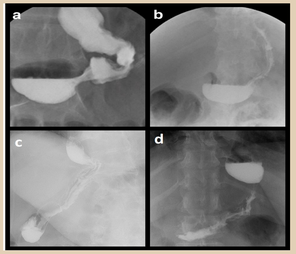


Background

- Based on previous study by Alvarez et al at our institution, the long term effects of different sleeve gastrectomy (SG) morphology types on weight-loss and gastroesophageal reflux disease (GERD) was investigated at eight years post operatively and showed the following;
  - ❖ Lower Pouch morphology was used as a surrogate for surgical technique and was found to be associated with greater reduction in BMI compared to dumbbell morphology, however there was no significant difference in GERD occurrence.
- Lower pouch morphology is considered the most ideal morphology shape for SG based on several studies (1,2).
- GERD occurrence was defined as an EMR diagnosis accompanied by pharmacotherapy.
- Compounding on our previous study, we hypothesize less variability in SG morphology with creation of more lower pouch in new cohort of patients leading to better GERD, BMI and reoperations outcomes.

Study Design

- Retrospective study of patients (n=882) who underwent SG from 2015 to 2019 at a single academic institution.
- Postoperative day 1 upper gastrointestinal series (UGIS) and two-year weight-loss and GERD outcomes were available for 493 patients.
- SG classification images were categorized into Dumbbell, Lower Pouch, Tubular or Upper Pouch by two independent observers (Radiologist and Surgeon). Interrater agreement was 90.6%.
- Univariate analyses were conducted to explore potential associations between SG morphology types and outcomes.

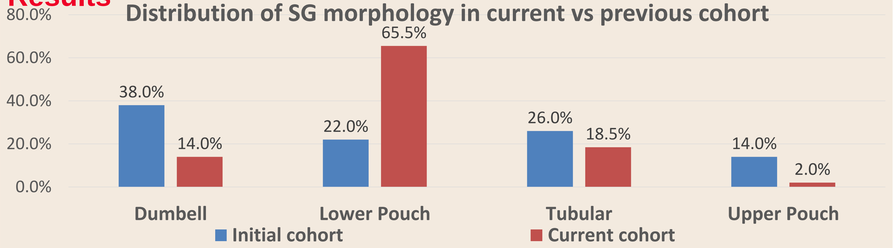


Standardized SG morphology types by Toro et al. Dumbbell (a), Lower Pouch (b), Tubular (c) or Upper Pouch (d)

Results

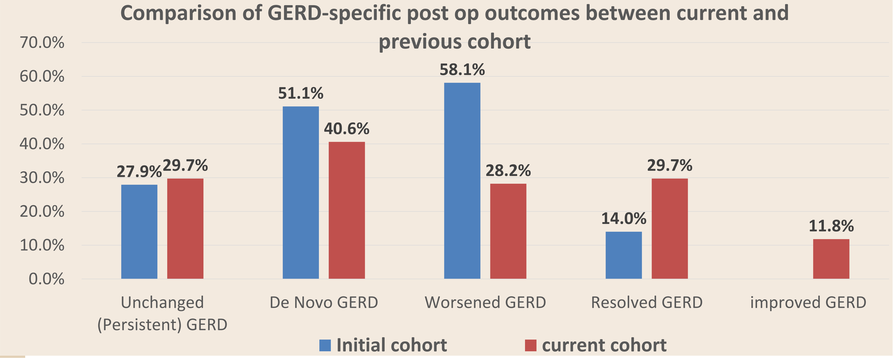
- Mean follow up of 25.6±3.9 months.
- 81.9% female and 18.1% male, mean age 45.5±11.7 years.
- Hiatal hernia (HH) noted in 34.9% of patients and HH repair (HHR) performed at index SG in 23.5%.
- GERD was significantly more prevalent at follow-up (52.3% vs. 39.6%; p=0.00006.

Results



Comparison of GERD and BMI outcomes between SG morphology types

N total = 493	Dumbbell (n=69)		Lower pouch (n=323)		Tubular (n=91)		Upper pouch (n=10)		p
	N or Mean	% or SD	N or Mean	% or SD	N or Mean	% or SD	N or Mean	% or SD	
BMI at Initial Bariatric Visit	49.0	9.1	49.1	10.7	50.8	9.8	46.7	7.5	0.4449
Postop BMI at 2 Years	37.2	8.7	37.1	9.0	37.2	8.3	34.0	6.2	0.7323



Results

Additional foregut and bariatric procedures for GERD after index operation

	Lower pouch	DB+Tubular+ High pouch	Total
RYGB + HHR	4.025%	3.53%	3.85%
RYGB	0.619%	0.00%	0.41%
HHR + MSA	0.619%	0.59%	0.61%
HHR	1.548%	1.76%	1.62%

Conclusions

1. This study cohort had 40% increase in prevalence of lower pouch possibly due to improvement in surgeon expertise in producing more ideal SG morphology.
2. Mean BMI, number of preoperative medications and number of obesity associated diseases decreased, with increased prevalence of GERD two-year follow-up, however there was no significant difference between morphology groups.
3. 6.9% of cohort underwent a metabolic or foregut re-operation for GERD in the more recent cohort down from 11?% in the prior cohort

In conclusion, Sleeves performed between 2015 and 2019 had more favorable morphology than our initial experience. Even though the results are not statistically significant, less GERD and more resolution of GERD is seen in the more recent series and fewer reoperations are needed. Suggesting a more favorable sleeve morphology results in better outcomes.

References

1.Alvarez R, Youssef J, Zadeh J, Sarode A, Barger R, Abbas M, Khaitan L. Sleeve gastrectomy morphology and long-term weight-loss and gastroesophageal reflux disease outcomes. Surg Endosc. 2023 Jan 16. doi: 10.1007/s00464-022-09555-6. Epub ahead of print. PMID: 36645483.
2.Toro JP, Lin E, Patel AD, Davis SS, Sanni A, Urrego HD, Sweeney JF, Srinivasan JK, Small W, Mittal P, Sekhar A, Moreno CC (2014) Association of radiographic morphology with early gastroesophageal reflux disease and satiety control after sleeve gastrectomy. J Am Coll Surg 219:430–438. https://doi.org/10.1016/j.jamcollsurg.2014.02.036

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