University Hospitals

Revising the Sleeve: Unraveling Sleeve Morphology

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UH RISES
Research in Surgical Outcomes and Effectiveness

Background

- Sleeve morphology and its relation with revision surgery remains poorly defined. Our aim was to explore the changes in sleeve morphology immediately postoperatively to those requiring revision later.
- Ideal sleeve morphology is considered to be the lower pouch morphology.

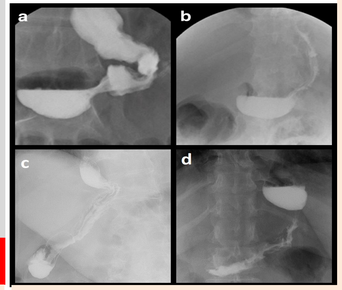
Methods

- Retrospective review of all patients who underwent SG (n=822) at a single academic institution from 2015 to 2019.
- 33 patients underwent a procedure for gastroesophageal reflux disease (GERD) during the 2 year follow up period.
- SG classification images were categorized into Dumbbell, Lower Pouch, Tubular or Upper Pouch.
- Descriptive analysis were conducted to investigate the relationship between sleeve morphology and revision surgery.

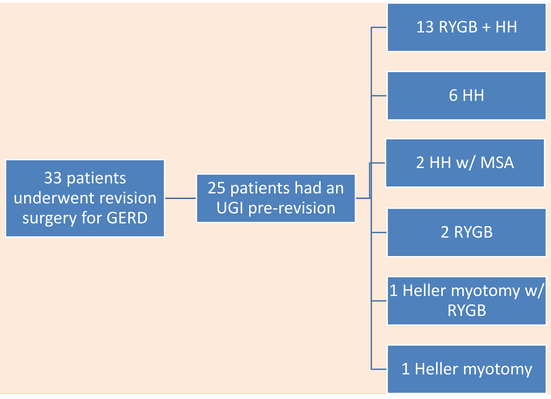
Results

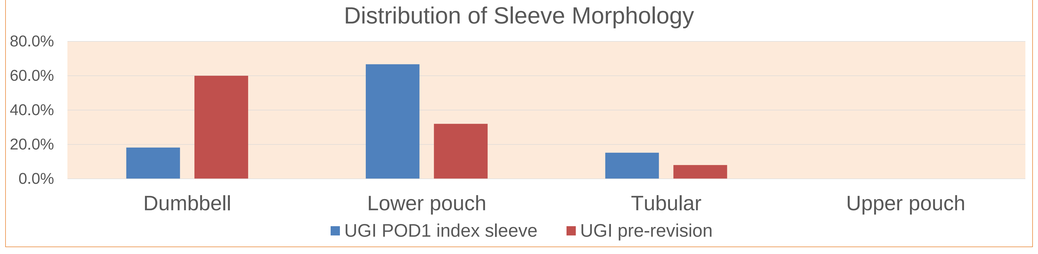
- Out of 33 patients, 8 underwent concomitant hiatal hernia repair at the index operation with SG. Preoperatively, 19 had GERD out of which 15 were on daily PPI. Postoperatively, 11 patients had de novo GERD, 8 had worsened, 3 remained the same, 4 improved and 4 had resolution of GERD.
- Seven patients had the lower pouch morphology on POD1 UGI and sustained it pre-revision (mean pre-revision BMI: 41.5, mean weight loss: 8.2). Pre-revision BMI> 35 was found in 5 patients of this group

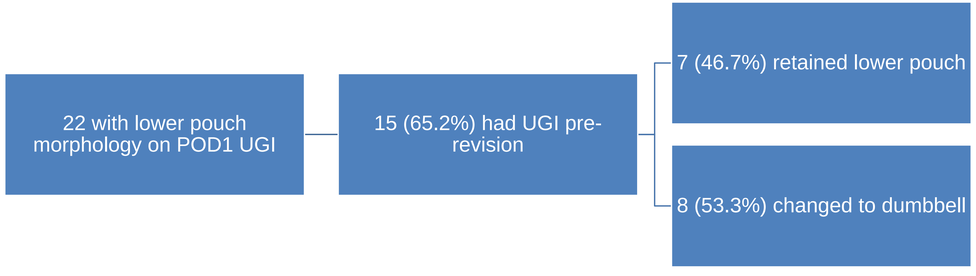
Results



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







Results

Sleeve morphology on UGI POD1 and relation to weight loss

	Dumbbell (n=6)	Lower pouch (n=15)	Tubular (n=4)
Mean initial BMI	50.2	44.9	60.8
Mean pre-revision BMI	39.6	36	44.24
Mean BMI weight loss	10.6	8.9	16.56
% of shape retention on pre-revision UGI	100%	46.7%	50%
% of shape conversion	0%	53.3% (All were dumbbell)	50% (1 dumbbell and 1 lower pouch)

- Eight patients (mean pre-revision BMI=31, weight loss: 9.5) had the lower pouch sleeve morphology on POD1 UGI that transformed into the dumbbell morphology. Pre-revision BMI>35 were found in 2 patients out of this group.
- Amongst the 25 patients that had the UGI pre-conversion, 10 of these patients had changed morphology.

Conclusions

- Sleeve morphology does change over time – our study showed a 40% rate of morphology change over a two year follow up.
- The lower pouch sleeve morphology was predominant at the index procedure although a little over half transformed to dumbbell pre-revision.
- Our study found that the patients that transformed from lower pouch to dumbbell morphology had more weight loss compared to the cohort that retained the lower pouch morphology. However, the mean initial BMI was higher by approximately 9 points.
- Limitation includes low number of patients.

References

- 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.
- 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