Larger Sizing of the LINX® Device Reduces Need for Endoscopic Dilation or Device Removal

Colin P. Dunn, MD1, Jennifer C. Wang1, Valerie P. Huang1, Emily Boyd, Eduardo Martinez, Justin R. Henning, MD1, Luke R. Putnam, MD MS1, Nikolai A. Bildzukewicz, MD1, John C. Lipham, MD1

1University of Southern California, Los Angeles, CA

Background: Magnetic sphincter augmentation (MSA) is an effective surgical option for gastroesophageal reflux disease (GERD), with long-term data supporting its safety. Nevertheless, postoperative dysphagia necessitating dilation has a prevalence of up to 30%. Our group increased the relative size of the LINX® device used on each patient beginning January 1, 2018. We hypothesized that this change would reduce post-operative interventions without affecting efficacy of the device.

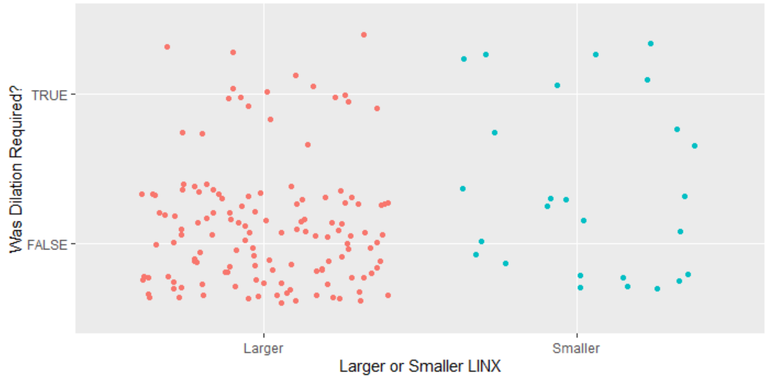
Methods:

- Retrospective review of LINX® implantation at two tertiary medical centers
- Larger sizing=three sizes greater than the point at which the magnetic bond on the sizing device broke, ie "three over pop" versus the standard "2 over pop"
- Background demographics, preoperative GERD workup variables, including the GERD health-related quality of life (GERD-HRQL) score, and postoperative outcomes
- A multivariable logistic regression model was created to assess need for postoperative endoscopic dilation.

Results:

Variable	Larger LINX®	Smaller LINX®	p-value
n	167	517	
Age, years (mean (SD))	54.83 (14.72)	55.05 (15.73)	0.89
Male Gender (n (%))	73 (55.3)	247 (53.5)	0.783
Body Mass Index (mean (SD))	24.08 (11.44)	22.61 (10.63)	0.156
Follow Up in Days (mean (SD))	126.90 (140.48)	594.69 (566.60)	**<0.001**
Preop Dysphagia (n (%))	53 (43.4)	167 (36.6)	0.203
Preop Demeester Score (mean (SD))	40.12 (24.56)	45.27 (27.84)	0.653
Preop HRQL Score (mean (SD))	26.21 (12.39)	18.66 (8.39)	**<0.001**
Postop HRQL Score (mean (SD))	8.95 (9.60)	11.84 (14.74)	0.301
PPI Usage at Last Follow up (n (%))	5 (12.5)	101 (22.1)	0.222
Postop Dilation (n (%))	18 (13.4)	101 (22.4)	**0.032**
Device Removal (n (%))	3 (1.8)	47 (9.1)	**0.003**

Table1: Background and Demographics. N=number, HRQL=health-related quality of life, PPI=proton pump inhibitor



Variable	Odds Ratio (95% Confidence Interval)	p-value
Preoperative Dysphagia	2.83 (1.12-7.46)	**0.01**
Concurrent Hiatal Hernia Repair	0.358 (0.126-1.06)	0.055
Smaller LINX®	3.31 (1.17-9.16)	**0.02**

Table2: Results of multivariable logistic regression model predicting persistent dysphagia for >30 days postop, requiring balloon dilation.

Discussion/Conclusion: Despite having a poorer preoperative GERD-related quality of life, the patients who received the larger LINX® size had equal symptom relief and required less endoscopic dilations or device removals as treatment for persistent dysphagia. This suggests that the relatively larger device performs better overall. The original protocol for LINX® sizing produced a device that was too tight. Longer follow up in the larger group is needed. Additional dilations and removals may occur as this group is followed over time.