



PERSISTENT AND DE NOVO GERD AFTER SLEEVE GASTRECTOMY: MANOMETRIC AND PH – IMPEDANCE STUDY FINDINGS

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BACKGROUND:

Sleeve Gastrectomy (SG) is the most popular bariatric surgery around the world, several studies show that SG produce Gastroesophageal reflux disease (GERD). However the risk factors and physiologic changes before and after SG have not been elucidated.

METHODS:

Retrospective review of prospectively collected database consisting of 225 patients who underwent SG between 2006 - 2016 was conducted. Demographic data, pH study and manometric studies before and after SG were reviewed. During manometric study gastric pressure was measured before and after 100 cc water ingestion.

RESULTS:

The High-Resolution Manometry (HRM) found a significant decrease in Lower Esophageal Sphincter (LES) pressure from 12.26 ± 6.87 mmHg to 8.88 ± 6.29 mmHg. After SG, 53,33% LES were classified as incompetent ($p < 0.01$). Mean gastric pressure increased to 27.09 ± 38.31 ; however, post SG meal gastric pressures significantly increased to 18.81 ± 11 and 133.84 ± 151.59 respectively. These findings resulted in pathologic inversion of the esophago-gastric pressure gradient in 45.16 % ($p < 0.01$) of the patients who underwent SG. The number of patients with esophageal dysmotility doubled and patients with previous dysmotility did not improve. DeMeester score was abnormal in 35% and 83.3 % before and after SG respectively.

	PRE-OP (MEAN \pm SD)	POST-OP (MEAN \pm SD)	NORMAL VALUES
HIGH RESOLUTION ESOPHAGEAL MANOMETRY			
LES PRESSURE (mmHg) (N=66)	12.26 \pm 6.87	8.88 \pm 6.28	10 - 43
BASAL GASTRIC PRESSURE (mmHg) (N=66)	8.99 \pm 5.73	18.81 \pm 11.19	0 - 20
AFTER 100 CC WATER GASTRIC PRESSURE (mmHg) (N=66)	27.09 \pm 38.31	133.84 \pm 151.59	< 50
24 – HOUR AMBULATORY PHMETRY			
DEMEESTER SCORE (N=60)	16.71 \pm 12.78	42.88 \pm 32.08	< 14.72

	PRE-OP PREVALENCE	POST-OP PREVALENCE
24 – HOUR PHMETRY & IMPEDANCE		
DEMEESTER > 14.72	35% (n=21)	83.33% (n=50)
ABNORMAL IMPEDANCE	47.17% (n=25)	88.67% (n=47)
HIGH RESOLUTION ESOPHAGEAL MANOMETRY		
LES INCOMPETENCE	31.82% (n=21)	63.64% (n=42)
GASTRO-ESOPHAGIC GRADIENT INVERSION	6.06% (n=4)	48.48% (n=32)

DE NOVO GERD	
DEMEESTER > 14.72 (N=60) → 39 NO GERD PRE	79.48% (31 GERD/39)
24 HOUR IMPEDANCE (N=53) → 28 NO GERD PRE	82.14% (23 GERD/28)
GASTRO-ESOPHAGIC GRADIENT INVERSION (N= 66) → 62 NO GERD PRE	45.16% (28 GERD/62)
LES INCOMPETENCE (N=66) → 45 NO GERD PRE	53.33% (24 GERD/45)

*N is patients with pre and post op testing

The Novo GERD was 79%. No significant resolution of GERD after SG occurred, 90,47% of patients who previously had altered DeMeester values continued to be pathologic.

CONCLUSION:

SG produces several physiologic changes including decrease LES pressure, inversion of Esophagogastric pressure and esophageal had altered DeMeester values continued to be pathologic dysmotility. These anatomic and physiologic changes explain GERD after SG. DeMeester Score did not improve after surgery and a significant number of patients developed De Novo reflux.

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