Vertical Sleeve Gastrectomy with Ligamentum Teres Cardiopexy: A Systematic Review and Meta-analysis

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BACKGROUND

- Sleeve gastrectomy (SG) is widely used in bariatric surgery but is associated with increased risks of reflux, erosive esophagitis, and Barrett's esophagus.
- Cardiopexy using the ligamentum teres has been proposed to manage reflux without long-term medication or additional surgeries.
- A systematic review and meta-analysis were conducted to assess the efficacy and safety of cardiopexy in reducing reflux symptoms.

METHODS

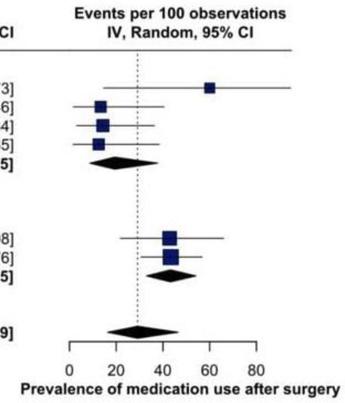
- Primary outcomes included remission of gastroesophageal reflux disease (GERD) symptoms, discontinuation of medication, postoperative complications, and operative time.
- We systematically searched PubMed, EMBASE, and Cochrane Central.

Ligamentum teres cardiopexy during Vertical Gastrectomy reduces GERD symptoms and medication use after surgery.

Outcomes	Events(%) (95% CI)
GERD Remission	82.88 (74.54-88.90)
Discontinuation of medication	29.16 (16.31-46.49)
Complications	8.20 (3.00-20.51)

1B. Remission of medication use

Study	Year	Events	Total	Weight	Final Prelevance	95% CI
Proton-Pump Inhibitors						
Caballero et al.	2022	3	5	10.8%	60.00	[14.66; 94.73]
Gálvez-Valdovinos et al.	2015	2	15	13.4%	13.33	[1.66; 40.46]
Hutopila et al.	2017	3	21	16.2%	14.29	[3.05; 36.34]
Vâge et al.	2017	2	16	13.5%	12.50	[1.55; 38.35]
Total (95% CI)		**10**	**57**	**54.0%**	**19.36**	**[8.68; 37.75]**
Heterogeneity: $Tau^2 = 0.3282$; $Chi^2 = 5.16$, df = 3 (P = 0.16); $I^2 = 42\%$						
PPI and other medications						
Lind et al.	2024	9	21	20.7%	42.86	[21.82; 65.98]
Mackey et al.	2023	26	60	25.3%	43.33	[30.59; 56.76]
Total (95% CI)		**35**	**81**	**46.0%**	**43.21**	**[32.90; 54.15]**
Heterogeneity: $Tau^2 = 0$; $Chi^2 = 0$, df = 1 (P = 0.97); $I^2 = 0\%$						
Total (95% CI)		**45**	**138**	**100.0%**	**29.16**	**[16.31; 46.49]**
Heterogeneity: $Tau^2 = 0.5067$; $Chi^2 = 12.96$, df = 5 (P = 0.02); $I^2 = 61\%$						
Test for subgroup differences: $Chi^2 = 4.86$, df = 1 (P = 0.03)						



RESULTS

Outcome	Mean (95% CI)
Operative time	77.57 (50.44;104.70)

Maximum patients included: 480

13 included studies

Follow-up: from 6 to 12 months

CONCLUSION

- Our meta-analysis suggests that ligamentum teres cardiopexy during VG reduces GERD symptoms and medication use after surgery.
- It also appears to be a safe procedure with a relatively short operative time.