Laparoscopic pylorus-preserving gastrectomy vs Roux-en-Y distal gastrectomy for early middle-third gastric cancer: Multicenter Western cohort with propensity score matching

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BACKGROUND:
Early middle-third gastric cancer demands oncologic cure without sacrificing function. Asian series suggest pylorus-preserving gastrectomy may improve outcomes versus distal gastrectomy with Roux-en-Y, but Western uptake is limited and long-term oncologic and quality-of-life evidence remains scarce.

OBJECTIVE:
Compare mid-term oncologic outcomes and quality of life between laparoscopic pylorus-preserving gastrectomy (PPG) and distal gastrectomy with Roux-en-Y reconstruction (DGRY) in patients with early-stage gastric cancer (EGC) located in the middle third of the stomach.

METHODS:
- Design: Multicenter retrospective cohort in three oncology centers in Medellín (2014–2022).
- Inclusion criteria: Early gastric adenocarcinoma cT1N0M0 in the middle third/body, not suitable for endoscopic submucosal dissection.
- Exclusion criteria: Multifocal tumors, proximal/distal location outside the gastric body, intraoperative conversion.
- Interventions: Pylorus-preserving gastrectomy (n=18) vs distal gastrectomy with Roux-en-Y reconstruction (n=36), all performed by experienced gastric oncologic surgeons.
- Outcomes and statistics: Oncologic and perioperative safety outcomes plus long-term quality-of-life parameters (EORTC QLQ-STO22), compared between groups using bivariate analysis and propensity score matching.

RESULTS
- **Fifty-four patients** with early gastric cancer were analyzed (PPG n=18; DGRY n=36) after excluding 7 cases due to advanced stage or conversion.
- **Baseline and perioperative outcomes were comparable**, including demographics, comorbidities, tumor size, operative time, and blood loss. Table 1
- **DGRY achieved higher lymph node yield and longer distal margins** than PPG (both p<0.01).
- **Despite these technical differences, 3-year DFS and OS were comparable**. Figure
- Both groups maintained high long-term quality of life, with **PPG showing favorable signals in reflux and appetite-related domains**.Table 2

Why it matters: Western evidence on PPG remains limited. This study addresses whether function can be preserved without compromising oncologic outcomes in middle-third EGC.

Table 2. Quality of life, assessed using the EORTC QLQ-STO22 scale between PPG and DGRY. Lower scores indicate better quality of life.

Symptom	PPG initial n=18	DGRY initial n=36	p	PPG at 36m n=15	DGRY at 36m n=33	p
Dysphagia	8.6	7.2	0.748	1.7	1.0	0.882
Abdominal pain	21.5	19.4	0.772	6.8	8.9	0.655
Reflux	16.9	14.8	0.772	7.2	4.6	0.580
Food restriction	14.5	13.6	0.901	18.4	12.7	0.468
Dry mouth	28.8	25.3	0.630	22.3	24.6	0.769
Taste alteration	20.1	19.2	0.901	21.6	22.6	0.898
Anxiety	29.2	31.2	0.783	11.9	10.3	0.838
Body image	31.7	33.6	0.793	31.2	31.5	0.969
Hair loss	0.0	0.0	1.0	0.0	1.0	0.831

Table 1. Baseline characteristics

Variables	PPG n=18	DGRY n=36	p
Age (year)	62.3 ± 11	66.1 ± 13	0.91
Sex (M:F)	11:7	21:15	0.66
BMI (kg/m²)	23.8 ± 2.5	24.2 ± 2.5	0.61
Comorbidities (%)	2 (11)	3 (8.3)	0.72
Previous abdominal surgeries (%)	3 (17)	7 (19)	0.89
Tumor size in mm	26.6	31.3	0.80

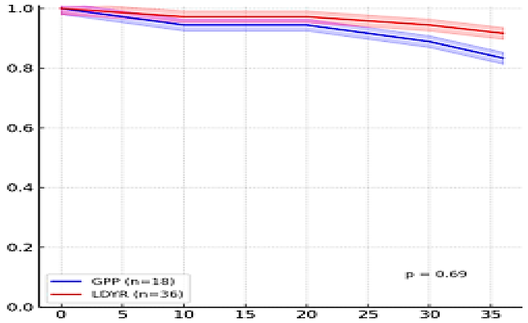

Figure. Overall survival

PPG and endoscopy

Post-PPG sequelae

CONCLUSIONS:
- **In selected patients with middle-third EGC, laparoscopic PPG achieved comparable 3-year DFS and OS to DGRY.**
- **PPG showed favorable functional/QoL signals, particularly in reflux and appetite-related domains.**
- **These findings support PPG as a feasible function-preserving option in experienced Western centers.**

TAKE HOME MESSAGE
PPG preserved 3-year oncologic outcomes without an apparent trade-off and showed favorable QoL signals in selected domains.