Which is a better procedure for diabetes-associated gastroparesis?

Sleeve or bypass?

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Introduction

• Gastroparesis is a syndrome of delayed gastric emptying in the absence of mechanical obstruction

• Symptoms include: early satiety, nausea, vomiting, GERD, bloating, upper abdominal pain

• Causes of gastroparesis:
  1) Diabetes
  2) Injury to vagus nerve during esophageal/gastric surgery
  3) Idiopathic
  4) Others (medications, MS, Parkinson’s, scleroderma, etc)
Introduction CONT

- Prevalence of gastroparesis in diabetic patients
  - 5% in T1DM and 1% in T2DM (but higher in academic centers, 40% and 10-20%, respectively) \(^1\)

- Diagnosis require 4-hr gastric emptying study with solids

- Initial management is medical with dietary modifications (similar to WLS diet), hydration and electrolyte balance, optimizing blood sugar control, and the use of prokinetic agents.
Role of surgery

• Surgical assistance/therapy indicated if medical therapy fails

• Gastrojejunal tubes – for gastric decompression and distal enteral feeding

• Gastric electrical stimulator?
• Pyloroplasty?
• Subtotal/completion gastrectomy with R-Y reconstruction? (*a la RYGB*)
• *Sleeve gastrectomy*?
No real algorithm present since level of evidence sparse

- GES most effective for diabetic gastroparesis (NOT for post-surgical and idiopathic gastroparesis) ¹

- Pyloroplasty appears to be effective diabetic gastroparesis ²

- Subtotal/total gastrectomy with R-Y reconstruction is effective for post-surgical gastroparesis ³, ⁴

Roux-en-Y gastric bypass for gastroparesis

• Makes sense ➔ bypass the majority of the atonic stomach

• Unlike standard RYGB, should resect (atonic) gastric remanant to minimize risk of gastric dilation

• Sparse data available on this recommendation
Roux-Y gastrectomy for chronic gastric atony

*Karlstrom L and Kelly KA.*

- 40 patients (32 with PSG, 6 with IG, and 2 with DG)
- Underwent subtotal gastrectomy with R-Y GJ
- No early post-op mortality
- Mean F/U 32 months
- 66% had improvement in Sxs (56% had significant improvement)
- 33% had no improvement
Long-term outcome after gastrectomy for intractable diabetic gastroparesis.

Watkins PJ, Buxton-Thomas MS, Howard ER.

- 18 T1DM patients (1994 – 2000)
- Underwent subtotal gastrectomy (70% stomach removed) with 60 cm Roux limb
- 6 of 7 patients with severe vomiting resolved with follow-up > 6 years out

- 3 patient developed renal failure requiring dialysis
- 1 patient died 5 months post-surgery
- 1 patient died 3 months after start of dialysis
Near-total completion gastrectomy for severe postvagotomy gastric stasis.


• 62 patients (1985 – 1996)
• All had severe post-gastrectomy gastric stasis and had a median of four previous gastric surgeries
• All underwent completion gastrectomy
• In-hospital mortality 0%
• Complications 40% (5% anastomotic leak)
• 43% had at least near complete resolution (of N/V and post-prandial pain)
• 57% had no change in their Sxs
Gastric Bypass Surgery as Primary Treatment of Recalcitrant Gastroparesis

Kiranmayai Muddasani, Pavlos Papasavas, Darren Tishler
University of Connecticut, Hartford, CT

- Retrospective case series
- 5 patients (3 morbidly obese and diabetic)
- All underwent RYGB (one had GES removed at time of procedure)
- Mean F/U 266 days (55 – 375 days)
- Mean weight loss 80 lbs (28 – 138 lbs)
- All patients experienced resolution or significant improvement in gastroparesis Sxs (discontinued prokinetic meds)
Sleeve gastrectomy for gastroparesis

• Rationale: SG increases gastric emptying (combination of lead-pipe/gravity and antral contraction?)

• Even less data than the RYGB
Laparoscopic longitudinal gastrectomy and duodenojejunostomy for treatment of diabetic gastroparesis

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- 45yo male with T2DM for 13 years with DG (on insulin)
- 220 lbs (before DG) ➞ 130 lbs
- Underwent SG (and DJ for dilated proximal duodenum)
- At 36 weeks post-op, weight stabilized at 185 lbs, tolerating regular diet, and OFF INSULIN
- Mechanism for anti-diabetic effect (despite weight gain) is the enhanced nutrient stimulation of the neuroendocrine L cells of the distal small bowel (secondary to accelerated GI transit) ¹
Sleeve gastrectomy for diabetic gastroparesis.

*Melissa Bagloo and Marc Bessler.*
NewYork-Presbyterian/Columbia

- 4 patients (2010)
- All underwent SG (could not get GES)

- 2 patients had immediate resolution of Sxs
- 2 patients required nutrition support for six months, but then were on regular diets and without N/V

- Study underway?
Summary

• Both RYGB (with concomittant gastric remanant resection) and SG appear to be reasonable options for the treatment of diabetic gastroparesis

• Further studies are needed