

# Risk factors for Early Readmission Due To Marginal Ulcer After Laparoscopic Roux-en-Y Gastric Bypass: A 2015-2021 MBSAQIP Analysis

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MAYO CLINIC  
Advanced GI & Bariatric Surgery

# CONFLICT OF INTEREST DISCLOSURE

Nothing to disclose.



# I. INTRODUCTION

- ❑ The rate of ulcer formation after surgery is variable and a wide range of incidence is reported in the surgical literature. [1]
- ❑ Difference between MU in the early postoperative period (<30 days) and those that occur later (>30 days). Evidence suggests that early MU (<30 days) may be part of normal wound healing and only a small percentage become symptomatic. [2]

[1] Ribeiro-Parenti L, Arapis K, Chosidow D, Marmuse JP (2015) Comparison of marginal ulcer rates between antecolic and retrocolic laparoscopic Roux-en-Y gastric bypass. *Obes Surg* 25:215–221

[2] Csendes A, Torres J, Burgos AM (2011) Late marginal ulcers after gastric bypass for morbid obesity. Clinical and endoscopic findings and response to treatment. *Obes Surg* 21:1319–1322




# I. INTRODUCTION

2020

Surgical Endoscopy  
<https://doi.org/10.1007/s00464-020-07650-0>



## Marginal ulceration following Roux-en-Y gastric bypass: risk factors for ulcer development, recurrence and need for revisional surgery

Adam Di Palma<sup>1</sup> · Benjamin Liu<sup>1</sup> · Azusa Maeda<sup>1</sup> · Mehran Anvari<sup>2,3</sup> · Timothy Jackson<sup>1,4</sup> · Allan Okrainec<sup>1,4</sup> 

- ✓ Retrospective study – Period: 2011 to 2017. Total of 2839 LRYGB.
- ✓ Incidence of MU was 6.9% with 1% requiring revisional surgery. Median of MU occurrence: 4.5 months after LRYGB
- ✓ **Risk factors:** history of smoking (OR 5.03), immunosuppression (OR 4.60), and preoperative NSAID use (OR 3.11).



# I. INTRODUCTION

2021

Obesity Surgery  
<https://doi.org/10.1007/s11695-021-05363-4>



ORIGINAL CONTRIBUTIONS



## Incidence and Prognostic Factors for the Development of Symptomatic and Asymptomatic Marginal Ulcers After Roux-en-Y Gastric Bypass Procedures

Julian Süsstrunk<sup>1,2</sup> • Lara Wartmann<sup>3</sup> • Diana Mattiello<sup>1</sup> • Thomas Köstler<sup>1</sup> • Urs Zingg<sup>1</sup>

- ✓ Retrospective study – Period: 2013 to 2018. Total of 568 LRYGB.
- ✓ Incidence of symptomatic MU was 15.1%. Median of MU occurrence: 14.2 months after LRYGB
- ✓ **Risk factors:** Smoking (OR 2.65) and T2DM (OR 1.18)



# I. INTRODUCTION

2023


Journal of Gastrointestinal Surgery (2023) 27:1066–1077  
<https://doi.org/10.1007/s11605-023-05619-7>



ORIGINAL ARTICLE



## Predictors of marginal ulcer after gastric bypass: a systematic review and meta-analysis

Azizullah Beran<sup>1</sup> · Mohammad Shaear<sup>2</sup> · Saif Al-Mudares<sup>3</sup> · Ishna Sharma<sup>4</sup> · Reem Matar<sup>5</sup> · Mohammad Al-Haddad<sup>1</sup> · Marita Salame<sup>4</sup> · Ray Portela<sup>4</sup> · Benjamin Clapp<sup>6</sup> · Barham K. Abu Dayyeh<sup>5</sup> · Omar M. Ghanem<sup>4</sup> 

- ✓ Metanalysis – 14 studies. Total of 344,829 LRYGB.
- ✓ **Risk factors:** Helicobacter pylori (OR 4.97), smoking (OR 2.50), and diabetes mellitus (OR 1.80). Trend of an increased risk of MU associated with NSAIDs (OR 2.43) and lower risk with PPIs (OR 0.44)

# I. INTRODUCTION

2022



Surgery for Obesity and Related Diseases ■ (2022) 1–6

SURGERY FOR OBESITY  
AND RELATED DISEASES

Original article

## Proton pump inhibitor prophylaxis after Roux-en-Y gastric bypass: A national survey of surgeon practices

Spyridon Giannopoulos, M.D.<sup>a</sup>, Dimitrios I. Athanasiadis, M.D.<sup>a</sup>, Benjamin Clapp, M.D.<sup>b</sup>,  
Victoria Lyo, M.D.<sup>c</sup>, Omar Ghanem, M.D.<sup>d</sup>, Nancy Puzziferri, M.D.<sup>e</sup>,  
Dimitrios Stefanidis, M.D., Ph.D.<sup>a,\*</sup>, on behalf of the American Society for Metabolic and  
Bariatric Surgery Research Committee

***The duration of postoperative PPI administration varied; it was 3 months in 43.6%, 1 month in 20.2%, and 6 months in 18.6% of patient***



# Study Aim

Determine:

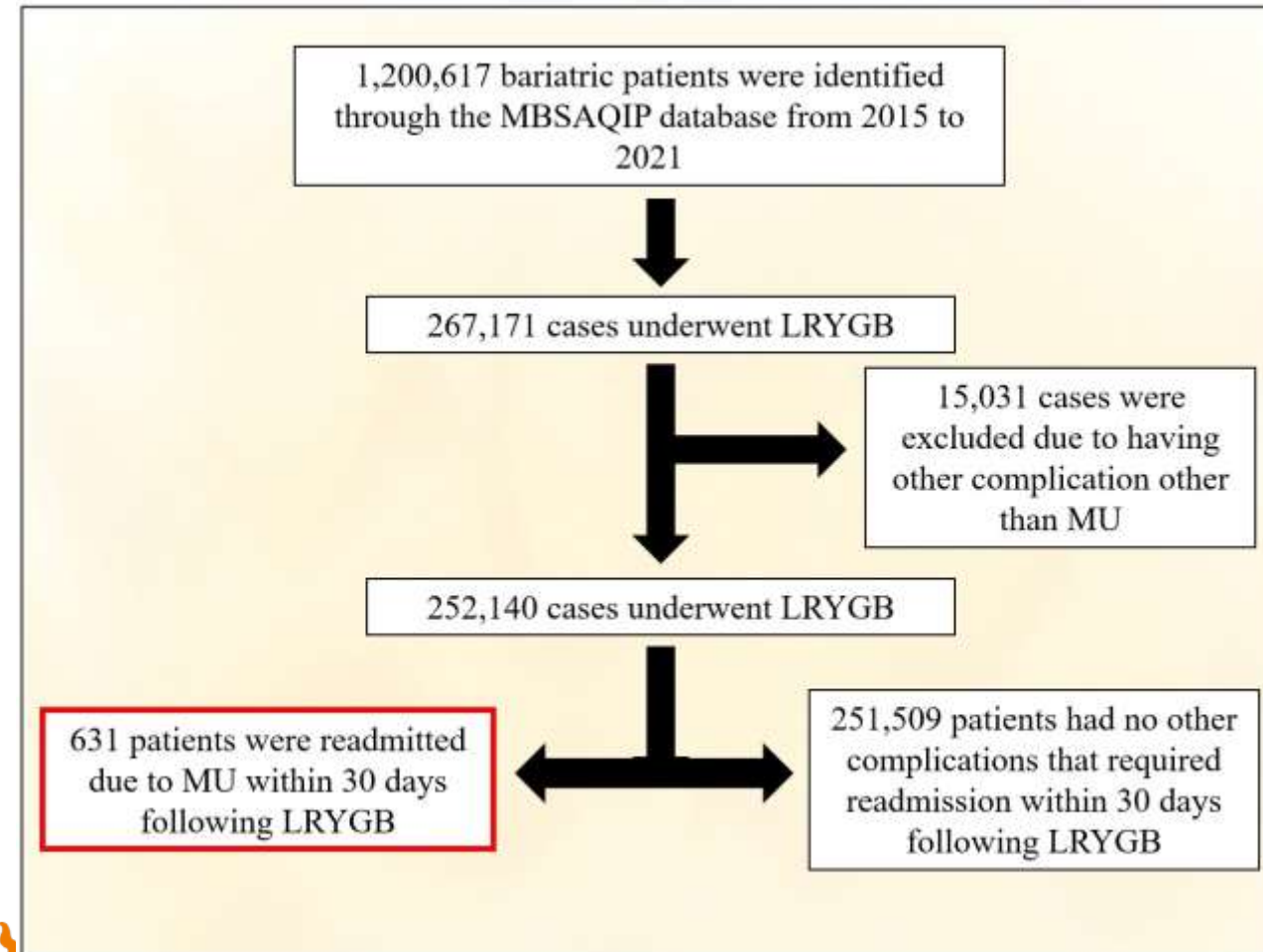
- Risk factors associated with early MU.
- 30-day outcomes of patients with readmission due to MU after LRYGB.



## II. METHODS

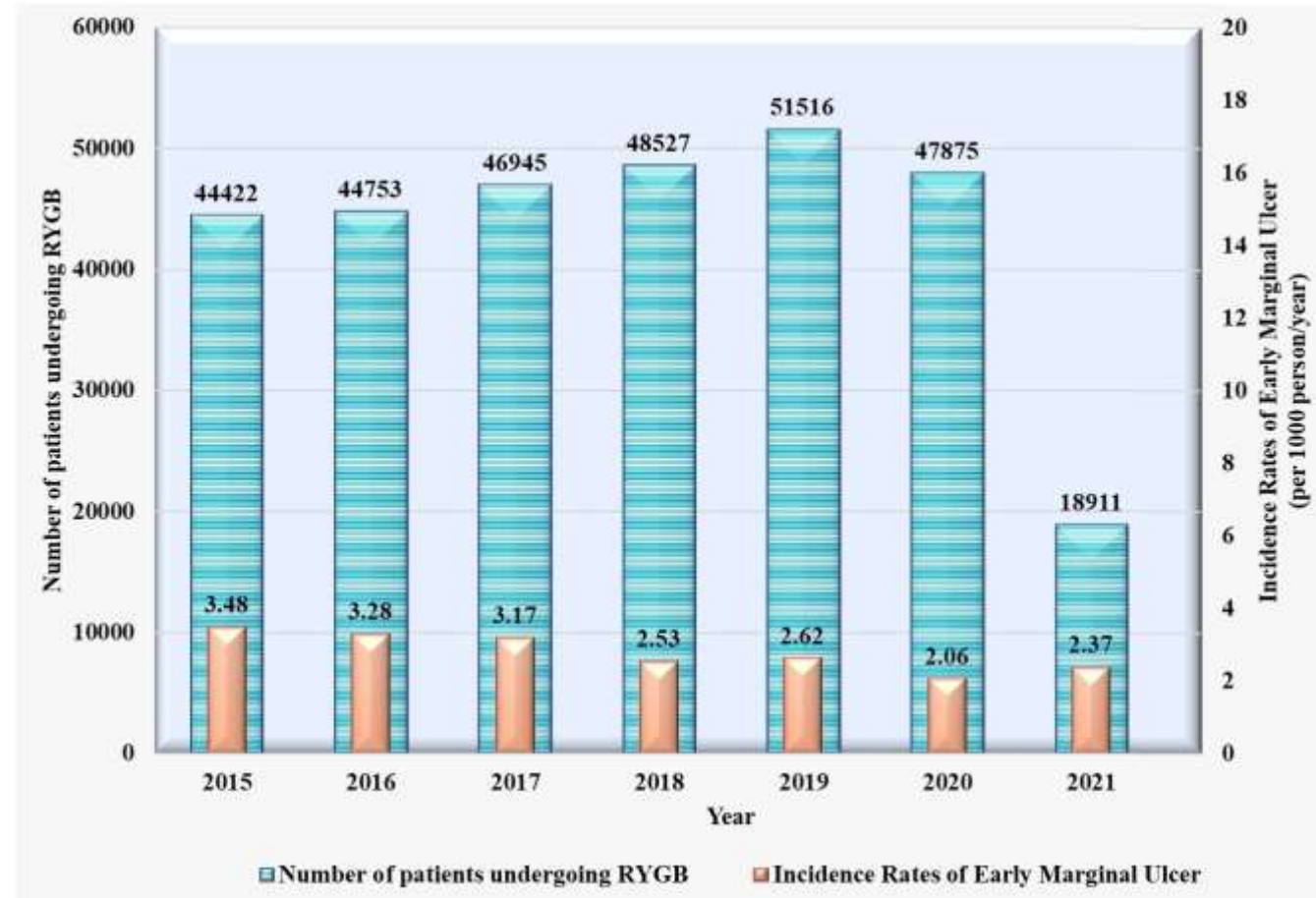
### MBSAQIP Database, 2015-2021

- ❑ **Inclusion criteria:** 18 to 65 y/o patients who had readmission due to Marginal Ulcer after LRYGB.
- ❑ **Exclusion criteria:** Surgical approaches other than laparoscopic. Cause of readmission other than Marginal Ulcer after LRYGB. Cases with missing data were eliminated.



# III. RESULTS

- ❑ **Incidence Rates:** From 3.48 to 2.37 per 1000 person/year from 2015 to 2021
- ❑ 631 (0.3%) readmissions due to MU within 30 days after LRYGB
- ❑ **Median of Early Marginal Ulcer occurrence:** 20 days after RYGB
- ❑ **Findings:**
  - 89.5% required a procedure (N=565)
    - ✓ Endoscopic management 79.5% (N=502)
    - ✓ Reoperation 4.1% (N=26)
    - ✓ Endoscopic management + Reoperation 5.9% (N=37)



**Fig 2.** Incidence Rates of Early Marginal Ulcer after RYGB from 2015 to 2021 MBSAQIP Database

# III. RESULTS

## Risk Factors associated with Early MU

- Previous Cardiac Stent (OR 2.85)
- History of DVT (OR 2.19)
- Renal Insufficiency (OR 2.17)
- Therapeutic anticoagulation (OR 1.81)
- Chronic steroid use (OR 1.64)
- African American (OR 1.61)
- Operative time > 120 min (OR 1.20)

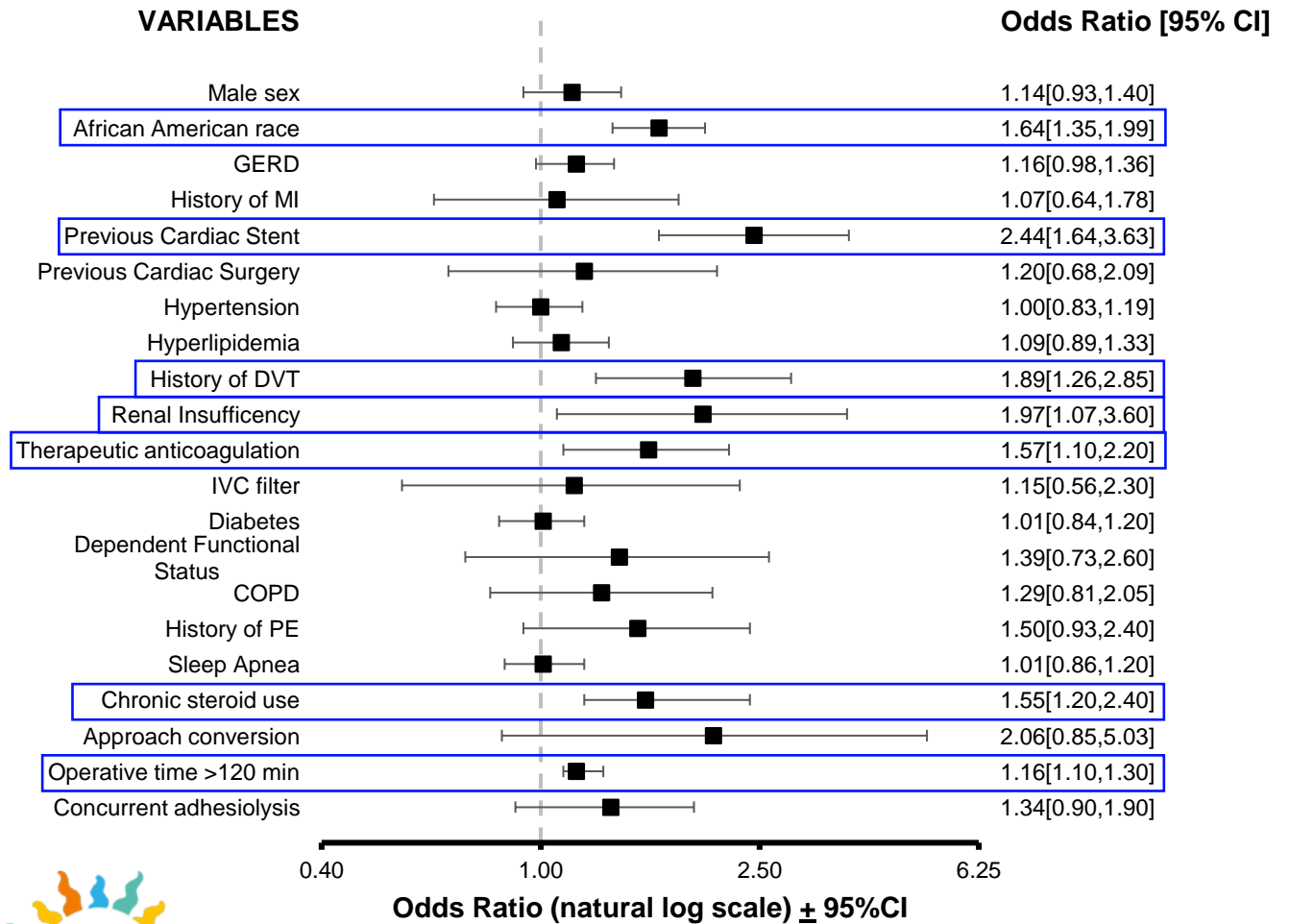
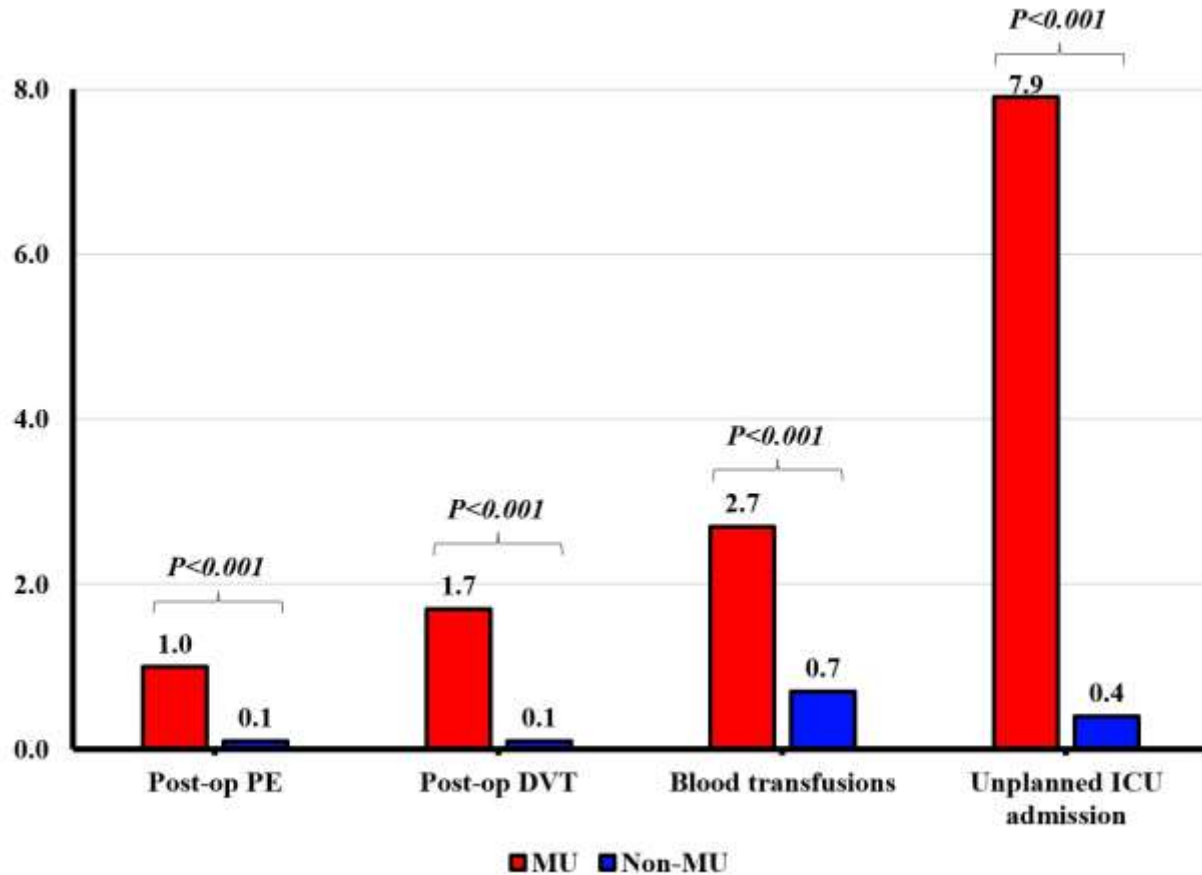


Fig 3. Multi-logistic regression analysis of Marginal Ulcer

# III. RESULTS



- ↑ Postoperative Pulmonary Embolism
- ↑ Postoperative Deep Vein Thrombosis
- ↑ Blood Transfusions
- ↑ Unplanned ICU admission

**Fig 4.** 30-day outcomes of patients with Marginal Ulcer versus those without Marginal Ulcer (Non-MU)

## IV. CONCLUSIONS

- The incidence of early readmission for MU following RYGB was less than 1%. Most of these cases required an endoscopic intervention. Some patient-related factors and increased operative time contributed to an increased risk of early readmission due to MU.