

# POCUS Scanning of the Gastric Antrum Prior to Upper Endoscopy Procedures in Patients Who Take GLP-1 Agonists: A Case Report

Sarah Spencer, BSN, RN, Texas Christian University  
Dru Riddle, PhD, DNP, CRNA, FAAN

## INTRODUCTION

- Upper endoscopy procedures are highest risk for pulmonary aspiration<sup>11</sup>
- Patients on GLP-1 agonists despite prescribed or increased fasting times, may show up with a full stomach<sup>4,9</sup>
- Gastric antrum POCUS is accurate,<sup>1</sup> can reduce risk, and is not reasonably expected to negatively impact the endoscopy schedule<sup>12</sup>
- This case report is an example of an instance where gastric POCUS could have been utilized to improve patient safety

## PURPOSE STATEMENT

- Highlight the importance, accuracy and feasibility of gastric ultrasound to identify patients with a full stomach prior to upper endoscopy procedures to prevent pulmonary aspiration, especially if they are on GLP-1 agonists

## CASE SUMMARY

- 49-year-old female, 5'9" and 198lb, body mass index (BMI) 29, scheduled for EGD (esophagogastroduodenography)
- Past medical history: anxiety, type 2 diabetes mellitus, hypertension, mild intermittent asthma, allergies, lumbar spinal stenosis, and gastroesophageal reflux
- Endorsed a feeling of fullness; was belching on arrival to the hospital; clear lung sounds, vital signs stable
- Fasted for 18 hours from solid foods; had been on clear liquids only up until 10 hours prior to procedure
- Prescribed Trulicity (dulaglutide) 1.5mg, taken 6 days ago (a GLP-1 agonist, taken as a once weekly injection)
- After physical assessment, anesthesia team consented the patient and changed the plan to EGD with RSI
- Endoscopist visualized a large amount of solid food at the gastric antrum (as seen in Figure 2)
- Patient was successfully extubated and recovered in post anesthesia care area without incident

## METHODS

- PubMed, EMBASE, and Medline search terms: *gastric antrum, ultrasound, POCUS, upper endoscopy, and endoscopy*; 189 results retrieved
- The addition of *fasting* narrowed results to 10 studies.
- Second search with the terms *upper endoscopy and GLP-1 agonists*. 5 results retrieved.
- Relevant results hand-searched
- 2 prospective observational and 2 prospective cohort studies, 1 retrospective observational and 1 literature review

# Gastric antrum POCUS preanesthetic assessment in upper endoscopy patients on GLP-1 agonists to prevent pulmonary aspiration

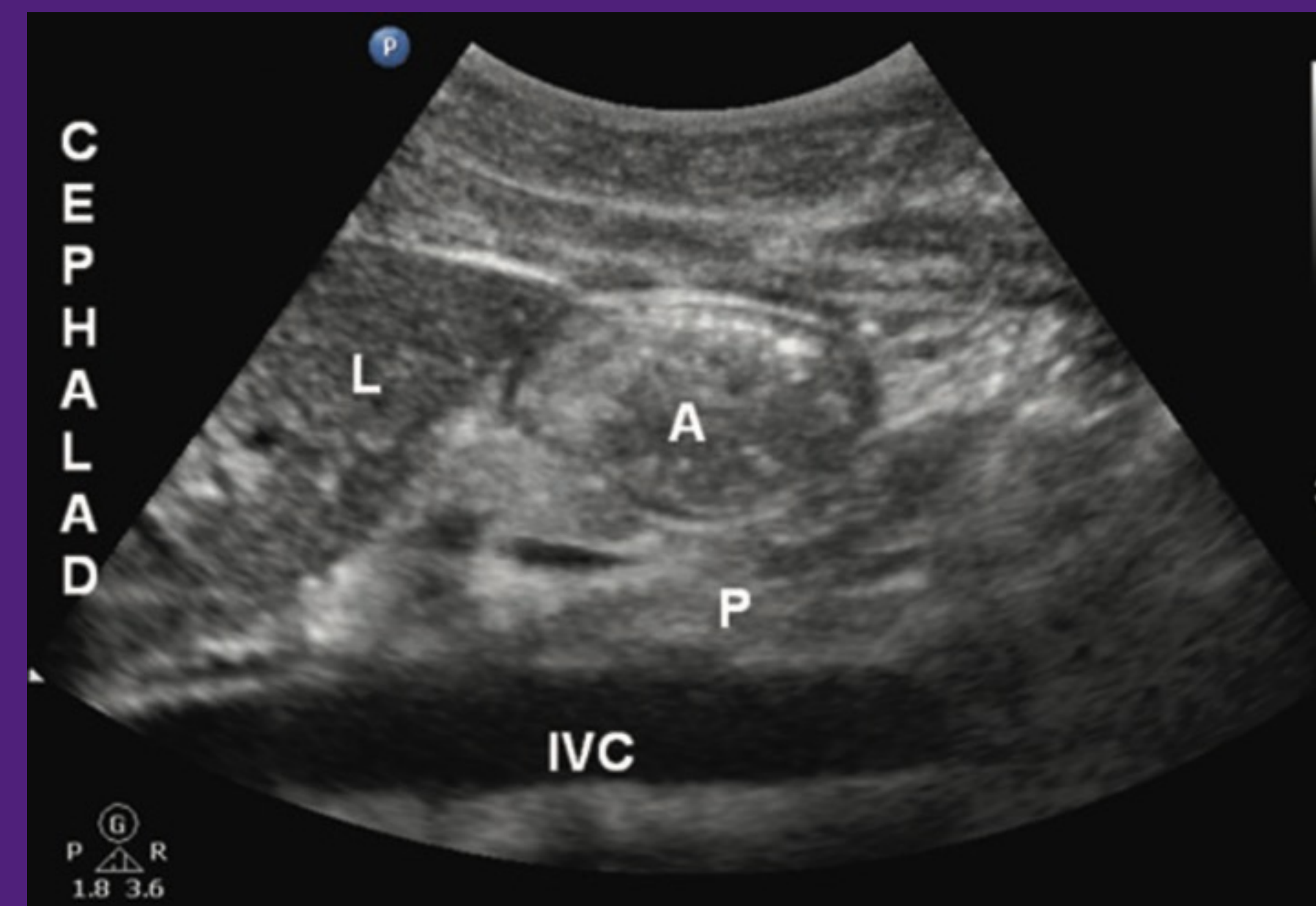


Figure 1: View of a full stomach on gastric ultrasonography using POCUS.<sup>1</sup> L- Liver, A- Antrum, IVC- Inferior Vena Cava

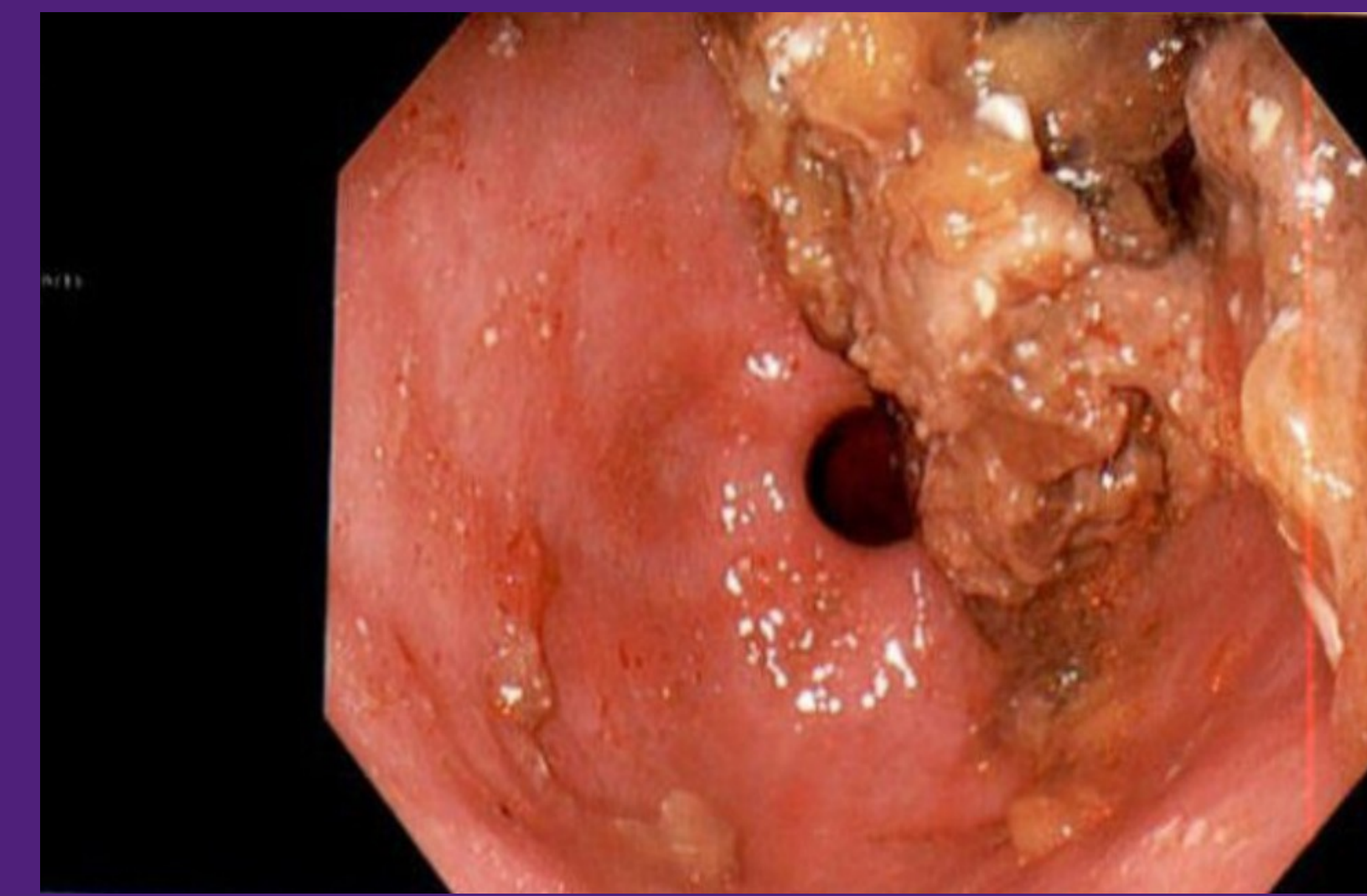


Figure 2: View of the patient's gastric antrum through the endoscope with large amount of solid food.

## CASE CRITIQUE/ALTERNATIVES

- The providers in this case made the right decision to intubate and use RSI, but could have easily chosen not to
- Alternatively, the decision could have been made to delay or cancel the case
- Gastric antrum ultrasound could have revealed the full stomach and helped inform the decision to proceed with EGD

## DISCUSSION / SUPPORTING EVIDENCE

- Patients who followed fasting guidelines pre-procedure still had unsafe levels of residual gastric contents to undergo general anesthesia without airway protection (4% and 7.7% of fasted patients)<sup>2,3</sup>
- GLP-1 agonists found to increase gastric residual contents, even when the ASA preoperative fasting guidelines followed (7.3% of fasted patients; 11 vs. 1 GLP-1 agonist patients vs. no GLP-1 agonist,  $P < 0.004$ )<sup>5,9</sup>
- Gastric ultrasonography is an accurate, non-invasive way to assess gastric residuals<sup>1</sup> before a procedure (correlation between antral CSA and gastric fluid volume Pearson correlation coefficient ranging between 0.6 and 0.91)<sup>1</sup>
- Not all changes related to airway protection increased intervention or time spent (pre- and post-ultrasonography results distribution  $P = 0.008$ , Bowker's test of symmetry; 40% of the changes were a de-escalation of aspiration risk management).<sup>12</sup>
- Pulmonary aspiration risk, though low overall, highest in upper endoscopy procedures<sup>11</sup>
- Outside influences on whether a patient should proceed or needs RSI can be easily refuted with a gastric scan
- Gastric POCUS is noninvasive and does not require new equipment most of the time because providers already have US for procedures like nerve blocks or line placement.<sup>1</sup>

## RECOMMENDATIONS for PRACTICE / CONCLUSIONS

- Consider implementing gastric antrum POCUS scanning for all upper endoscopy patients, especially those with conditions known to cause gastroparesis or on GLP-1 agonists
- In this case report providers did not have outside factors (production pressure, equipment/room change, etc) affecting decision to RSI; gastric POCUS would have shown unequivocally RSI or cancellation were the only appropriate courses of action<sup>1</sup>
- Had providers simply followed fasting guidelines (not read GLP-1 agonist case reports), could have led to another conclusion; case could have had a deleterious end in pulmonary aspiration<sup>9</sup>
- Patients presenting for upper endoscopy should have gastric antrum POCUS scans, with a priority on scanning those who are on GLP-1 agonists
- Gastric antrum POCUS as a routine preanesthetic assessment is accurate<sup>1</sup> can reduce risk, and does not negatively impact the procedure schedule.<sup>12</sup>

# TCU

The TCU IRB determined the case report is exempt from IRB/IACUC approval as defined by 45 CFR 46.102.

