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The Management of GI bleeding after Gastric Bypass Surgery

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Introduction

Obesity rates in the United States continue to increase. Currently, 34.9%of adults are considered obese (BMI>30mg,/kg^2) [1,2], 5.1% of these individuals qualify as morbidly obese (Body Mass Index>40mg/kg^2) and are at increased risk of obesity-related complications including early death [3].

Roux-en-Y gastric bypass (RNYGB) has consistently demonstrated good results in long-term weight loss and improvements in obesity-related comorbidities, and is similarly increasing in frequency [4]. However, gastric remnant pathology presents a diagnostic challenge, and although rare, bleeding and ulceration from peptic ulcer disease has been reported and can be fatal [3,5-8].

We present a case of life-threatening hemorrhage from multiple gastric ulcerations in a patient after RNYGB, and a management algorithm.

Case

A 38 year-old female with a history of psoriatic arthritis on chronic NSAID use, and obesity underwent a RNYGB in 2010. In 2013, she presented to an outsidehospital with massive GI bleed, requiring multiple transfusions and ICU monitoring. Subsequently, she underwent both upper and lower endoscopy, angiography, capsule endoscopy, and exploratory laparotomy—however, the source of her bleed was ultimately never found and her symptoms resolved spontaneously.

In 2014, she presented to our ED with complaint of melanotic stool and diffuses abdominal pain of several weeks. She was initially tachy cardic, mildly hypotensive, and her initial hemoglobin levels was 7.4g/dl. She was immediately resuscitated. Given her prior history and negative work-up, our team opted to perform a Technetium-99m (99mTc) red blood cell scan initially. This was inconclusive, however there was a "questionable faint focus of uptake confined to the left upper quadrant", which persisted on subsequent scans (Figure 1).

The patient was taken to the operating room the following day for laparoscopy, and an intra-operative endoscopy via gastrostomy of the gastric remnant. This revealed the gastric remnant to be distended and full of clotted blood. At this time, completion gastrectomy was performed and multiple ulcerations approximately 1cm in size were noted along the greater curvature of the excised stomach (Figures 2,3). Pathology noted antral and fundic gland mucosa with ulceration, hemorrhage, and submucosal fibrin deposition. Infection with Helical pylori was negative. Post-operatively, the patient recovered well and has had resolution of her symptoms.

Figure 1: Technetium-99m (tagged RBC scan) with faint uptake in the left upper quadrant.

Discussion

In the management of morbid obesity, RNYGB reduces risk in developing obesity-related cardiovascular, infectious, endocrine, psychiatric and mental disorders [9]. The need for gastric bypass continues to increaseas the rate of obesity increases worldwide [10].

Ulceration in the gastric remnant is a rare complication that can occur months to years later and often present a diagnostic challenge. Historically, bleeding occurs from the staple lines with an incidence of 0.4 to 4.4% and occurs due to ulceration at the gastrojejunal staple line in the majority of cases, but may also occur from the duodenal stump or jejunojejunoal anastomosis [11].

Traditionally, occult bleed in gastric bypass was managed with intraoperative endoscopy via gastrostomy. However, Kuga et al. achieved successful visualization of the gastric remnant in 35/40 (85%) patients with double-balloon push endoscopy and speculate

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Figure 2: Excised gastric remnant distended with blood.

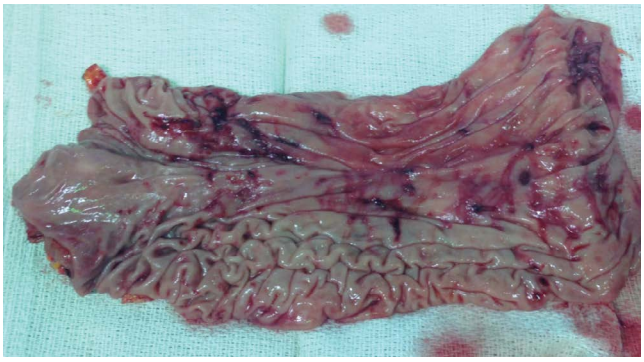

Figure 3: Gastric lumen with several gastric ulcerations along fundus (arrows).

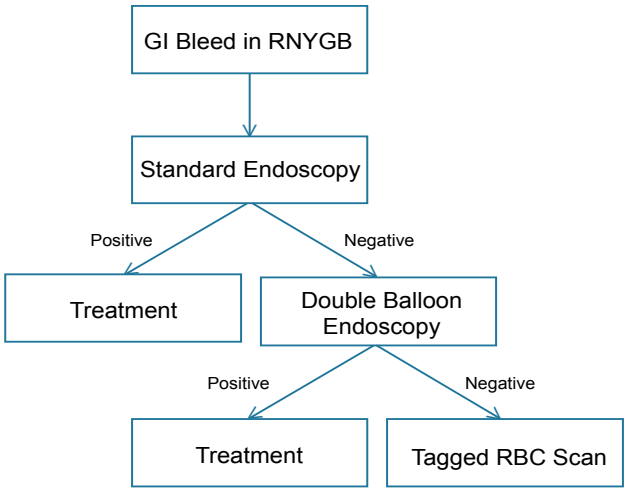

Figure 4: Proposed algorithm for the management of GI bleeds after RNYGB in the hemodynamically stable patient

that with newly developed endoscopes, therapeutic intervention may soon be possible [12]. Alternatively, Sundbom et al. described successful endoscopic evaluation via percutaneous gastrostomy [13]. Authors have described advanced imaging techniques (i.e. CT virtual gastroduodenoscopy) to detect gastric remnant lesions—however this may not be helpful in acute situation or in a hemodynamically unstable patient [14]. It will be interesting to see if these modalities will be useful as surveillance of the bypassed segment in the future.

In patients who present with massive hemorrhage or are hemodynamic unstable, the best option may still be operative intervention with open or laparoscopic gastrostomy and endoscopy [7]. Furthermore, patients who are found with duodenal ulcer would likely benefit from completion gastrectomy to reduce the risk of re-bleeding.

Ultimately in our patient, operative intervention was performed after a tagged red blood cell scan suggested left upper quadrant pooling. In our review, this approach had been reported once in a case reportin 1987 by Spires et al. [15]. Technetium-99m scans are extremely sensitive, able to detect bleeding at the rate of 0.1 cc/hr, and may be repeated revealing increased uptake over successive scans [16]. Thus, tagged red blood cell scans offer a unique solution in patients for which gastric remnant bleeding is suspected.

In the management of UGI bleed after RNYGB in the hemodynamically stable patient, we recommend direct evaluation with UGI endoscopy as the standard initial management. Advanced endoscopic maneuvers can be considered if the gastric remnant cannot be visualized, such as double balloon endoscopy. Following this, tagged red blood cell scan should be considered if the diagnosis is still lacking. Finally, if this continues to be negative, a laparoscopic endoscopy via gastrostomy of the gastric remnant is the final and most invasive test (Figure 4). Diagnostic laparoscopy and intraoperative endoscopy may also be considered in the hemodynamically unstable patient for whom the suspicion for gastric remnant hemorrhage is high.

Gastric and duodenal ulceration from the bypassed segment is most commonly due to marginal ulcer and reported to have a 7% incidence rate [17], but other sources of bleed include bile gastritis, helical pylori infection, and gastric cancer. In our review, this is the first report of multiple gastric fundus ulcerations causing hemorrhagic bleed after RNYGB. It is likely these ulcers formed secondary to NSAID use for psoriatic arthritis.

Sasse et al. similarly described a possible link between NSAID use and ulceration of the gastric remnant, and now advocate a "zero tolerance" policy for gastric bypass patients [18]. Additionally, avoidance of alcohol, tobacco, and continuation of empiric PPI therapy is advocated in several studies to prevent ulcer formation.

Conclusion

Increasing obesity rates in the US and worldwide will continue to provide the need for gastric bypass surgery. Gastric remnant bleeding presents a diagnostic challenge and may impact patient morbidity and mortality if not discovered expediently. Traditionally, gastric bleeding was managed with operative gastrostomy and endoscopy. This may still be the best option in the unstable patient. However, less invasive techniques, particularly double-balloon endoscopy are very promising, and if this is not available or the patient is not amenable to endoscopic intubation, a tagged red blood cell scan may be considered as intermediary steps in diagnostic management.

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