Case Reports

Transcatheter Intra-arterial Vasopressin Infusion for Gastric Pouch Bleeding after Roux-en-Y Gastric Bypass: Report of a Case

Chih-Kun Huang1,2, Chih-Min Tai1,3, I-Chang Lin4, Kuei-Ching Pan1,5, Li-Chun Lin1,5

Roux-en-Y gastric bypass has been accepted as one of standard treatment procedures for morbidly obese patients. During the early postoperative stage, gastrointestinal hemorrhage is a complicated condition to manage. Management involves different strategies according to the patient’s condition. Observation, blood transfusion, endoscopic hemostasis, or re-operation is the most frequently adopted method. Here, we report on a 51-year-old morbidly obese patient who developed early postoperative hemorrhage from the gastric pouch. Neither medical treatment nor endoscopy succeeded in stopping the bleeding. In order to obviate the possibility of embolization of the only arterial supply to the gastric pouch from the left gastric artery (LGA), we infused transcatheter intra-arterial vasopressin and successfully achieved hemostasis. We believe, this is the first case using this type of intervention to manage gastric pouch hemorrhage after laparoscopic Roux-en-Y gastric bypass (LRYGB). We advocate that this method be accepted as one of the treatment modalities before considering re-operation.

Key words: gastrointestinal hemorrhage, transcatheter arteriography, LRYGB

Gastrointestinal (GI) hemorrhage is a complication that may cause serious concern in the perioperative management of patients undergoing Roux-en-Y gastric bypass (RYGBP). It can occur early, usually within the first five postoperative days, or later up to 20 years after the operation. The risk of bleeding after open gastric bypass is reported to be 0.6%, while the incidence of hemorrhage after laparoscopic Roux-en-Y gastric bypass (LRYGB) ranges from 1.1 to 4%. Podnos et al reported that the rate of GI hemorrhage after laparoscopic RYGBP was higher than that of open RYGBP (1.9% vs. 0.6%). Bakhos et al reported a higher incidence of early postoperative hemorrhage in the laparoscopic group (5.1% vs. 2.4% in the open group). Older age, increased use of prophylactic anticoagulants, stapler use and stapler mechanics, and surgeon inexperience or the learning curve associated with laparoscopic gastric bypass have been postulated as causes for the observed higher incidence of bleeding. The cause of GI tract bleeding is presumed to be bleeding from the gastric remnant, the gastrojejunostomy (GJ), or the jejunojejunostomy (JJ) staple line. Those patients in whom hemorrhage occurred earlier (13.8 vs. 25.9 h, p=0.039) and was more severe (4.1 vs. 2.3 transfused blood units, p=0.007) required surgical re-exploration.
Case Report

A 51-year-old obese man (weight 109 kg, height 1.68 m, body mass index [BMI] 38.6) with type II diabetes mellitus and hypertension underwent an LRYGBP. Preoperative survey showed hematocrit 44.1% and hemoglobin 15.5 g/100 ml. A linear stapler, 35 mm (ETS Flex 45, Ethicon), was used in gastric transection and GJ anastomosis. After surgery, the patient experienced nausea and hematemesis in the recovery room; 12 h later, the hematocrit and hemoglobin levels were 41.5% and 14.0 g/100 ml, respectively. Hematemesis persisted even after the patient was given a proton pump inhibitor and fluid resuscitation. Diagnostic work-up with upper endoscopy showed fresh blood in the gastric pouch, but the staple line could not be approached (Fig 1). Eight units of packed RBCs were transfused and octreotide was prescribed, but this his condition continued to deteriorate, and he became hemodynamically unstable. Hematocrit and hemoglobin dropped to 25.0% and 8.2 g/100 ml, respectively. Emergent celiac angiography showed increased vascularity on the right wall of the gastric pouch. But no gross contrast leakage from the left gastric artery (LGA) or superior mesenteric artery branches could be discovered (Fig 2). We placed a microangiocather in the branch of the LGA and began to infuse vasopressin at the rate of 2.8 units/h. Hematemesis was soon controlled in 4 h and we tapered the dose of vasopressin gradually. After 24 h, vasopressin treatment was terminated. Upper endoscopy on the fifth day showed no active bleeding; only a marginal ulcer was found (Fig 3). The patient was discharged on the sixth day and a proton pump inhibitor was prescribed for 3 months. One year later, he was doing well and his weight loss was considered satisfactory (Body weight 67 kg). His hypertension and diabetes had resolved. Routine upper endoscopy showed no ulcer at GJ site (Fig 4).

Discussion

The most common source of early postoperative GI bleeding after LRYGB is in the gastric pouch or at the gastric staple line. The causative lesion may lie at the tissue edges of the staple line, possibly related to a vessel transection. Some methods for prevention have been suggested, including the use of a stapler with a shorter staple height (3.5 mm for the stomach and 2.5 mm for the small bowel), meticulous hemostasis of all staple-line edges, oversewing of the staple line, or routine use of...
reinforcement products. Saber et al reported that reinforcement with an intraluminal bioabsorbable glycolide copolymer staple-line educed bleeding complications to a statistically significant degree, (from 15 to 0%). However, all these methods are still under investigation. Most bleeding episodes can be managed conservatively without surgical re-intervention. Fernandez-Esparrach et al also reported successful early (within 24 h of surgery) endoscopic identification of post-LRYGB bleeding and treatment by injection of epinephrine in all patients in their series. There were no complications, and patients were spared the need for re-operation. However, for patients who fail medical treatment and therapeutic endoscopy, surgery and transcatheter arteriography and intervention (TAI) should be considered. Re-operation might also be considered, but this poses a risk of hindering the healing process of GJ. Mostly, surgical intervention is indicated in patients presenting with hemodynamic instability, such as the presence of hypotension and tachycardia with decreasing hematocrit, or patients presenting with early GI hemorrhage within the initial 6 h after the operation. TAI should also be considered as a treatment option in patients with upper GI bleeding, particularly those at high risk for surgery and has been considered to have a low rate of major complications, with a prolonged clinical success in at least 65% of patients. Spaw and Husted also support the use of arteriography to localize bleeding as a diagnostic maneuver, but assert that embolization is contraindicated because of the hazard of devascularizing the fresh staple lines. We reported our LRYGB experience earlier, and in almost all our patients GJ hemorrhage resolved with the use of either proton pump inhibitors alone or in combination with therapeutic upper gastrointestinal endoscopy. The present case is the first that required angiography and subsequent vasopressin infusion. In conclusion, transcatheter intra-arterial vasopressin infusion could be adopted as an alternative treatment in early gastric pouch bleeding after LRYGB.

References

胃繞道術後胃囊出血處置：病例報告

黃致銳1,2  戴啟明1,3  林義昌4  潘奎靜1,5  林麗君1,5

經口Roux-en-Y胃繞道手術已被視為病態性肥
胖患者標準治療的項目之一。在術後早期階段，胃腸
繞道出血是的相當複雜的一種情況，必須根據病患的臨
床狀況來給予不同的處置。持續觀察、輸血、內視鏡
治療或者再手術是一般被採取的方法。我們報告一位
51歲的病態性肥胖患者在術後出現胃囊出血。輸血、
藥物和內視鏡都不能止血。我們經由左胃動脈輸注
血管收縮劑而順利地止血，也是台灣的第一例報告。
在考慮再手術之前，這個方法應可接受為治療方式的
選項之一。