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MULTIMEDIA ARTICLE

Endoscopic Gastrojejunal Revision (Transoral Outlet Reduction) for Persistent Hypoglycemia After Gastric Bypass

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Abstract

Background The patient presented with symptomatic postprandial biweekly hypoglycemic seizures. Her hypoglycemic episodes were aggravated by stress and also occurred during sleep. She managed these hypoglycemic episodes with an endocrinologist, trying both nutritional and medical management without successful control of her symptoms. An endoscopic gastrojejunal revision (EGJR) was recommended to provide more restriction and prolong transit time into the Roux limb to decrease the chance of postoperative dumping syndrome and subsequent hypoglycemia.

Methods This video is a case study of an EGJR done for persistent postoperative hypoglycemia. The gastroscope was introduced and using Argon Plasma Coagulation at a flow of 8 liters/min and 30 watts; the mucosa around the gastrojejunal stoma was ablated circumferentially. This was done to decrease bleeding from needle placement and to promote adherence of the mucosa after the sutures were placed. The purse-string technique was favored for this procedure due to an inherent reduction in suture tension. Several full-thickness bites were taken to narrow the stoma from 20 to 4 mm in diameter.

Results The patient was discharged home the same day following the procedure. She was placed on a two week liquid bariatric postoperative diet. At two week follow-up, the patient reported normal blood sugars and no hypoglycemic episodes since surgery. At six month follow-up, the patient reported significant improvement in her hypoglycemia symptoms, and no further syncopal episodes or seizures.

Conclusion We believe this case demonstrates that endoscopic gastrojejunal revision (or EGJR) is an effective treatment option for postprandial hypoglycemia following Roux-en-Y gastric bypass.

Keywords EGJR · Hypoglycemia · Bypass · Endoscopic · Dumping

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Background

Dumping syndrome is a common postoperative complication following gastric bypass surgery, with incidence ranging from 41 to 75% [1, 2]. Symptoms present postprandially either early or late due to rapid gastric emptying [3]. In patients who have had gastric bypass, dumping syndrome can be associated with dilated gastrojejunostomy and rapid emptying of the gastric pouch. Treatments include dietary changes (e.g., increased meal frequency, increased protein content) and medical therapy (e.g., octreotide, acarbose, diazoxide) [4, 5]. For patients with refractory symptoms, endoscopic gastrojejunal revision (EGJR) has been shown to be a promising novel surgical treatment for dumping syndrome [6, 7].

This case demonstrates the use of EGJR for late dumping syndrome and persistent hypoglycemia after gastric bypass. The patient presented with symptoms of late dumping syndrome, most notably postprandial hyperinsulinemic hypoglycemia and resultant hypoglycemic seizures. Her hypoglycemic episodes occurred during sleep and were aggravated by stress. These hypoglycemic episodes were medically managed by an endocrinologist. Interventions included actively monitoring her blood sugars with a subcutaneous continuous monitoring device, nutritional management, and pharmacologic management. The patient ate four to six small meals per day and avoided food with an excess of sugar. She limited carbohydrate intake to 30–60 g in a single meal and 15 g for snacks. The medications used to manage her hypoglycemic episodes included glucagon injections during episodes, maximum dose of acarbose, and 80 mg diazoxide three times a day. None of these treatments successfully controlled her symptoms. An EGJR was recommended to provide more restriction and prolong transit time into the Roux limb to decrease the occurrence of dumping and subsequent hypoglycemia.

Methods

This video is a case study of an endoscopic gastrojejunal revision (EGJR) performed to treat persistent postoperative hypoglycemia. The gastroscope was introduced and advanced to the efferent jejunal loop. A site of hiatal narrowing at 38 cm from the incisors and a gastric pouch 4 cm in length from the GE junction to the gastrojejunal anastomosis were visualized. The gastrojejunal anastomosis was characterized by healthy-appearing mucosa and traversed. An overtube was placed over the endoscope. The mucosa around the gastrojejunal stoma was ablated circumferentially using Argon Plasma Coagulation at a flow of 8 L/min and 30 W. Coagulation was utilized to decrease bleeding from needle placement and to promote adherence of the mucosa to make the reduction more permanent. The scope was exchanged for a dual lumen scope with an endoscopic full-thickness suturing device loaded. A 2-0 polypropylene permanent suture was placed around the stoma using a purse-string technique starting at 6 o'clock and working counterclockwise. The purse-string technique was favored for this procedure due to an inherent reduction in suture tension. Gastric mucosa was grasped using a tissue helix and pulled into the jaws of the suturing device, enabling placement of a full-thickness stitch. The stoma was narrowed from a diameter of 20 to 4 mm. Bites were taken about 3 mm apart; however, this distance may vary depending on original stoma size and tissue pliability. The intent of stich placement was to achieve a uniform distribution of tension throughout the suture and a uniform circumferential narrowing of the stoma. Deploying a cinch plug at the distal end of the suture, with the needle body as proximal suture anchor, closed the running purse-string stitch. Manual adjustments of suture tension enable control over final stoma size.

Results

The patient was discharged home the same day following the EGJR procedure. She was placed on a 2-week liquid bariatric postoperative diet, after which she progressed to pureed, soft foods, and onto general foods six weeks after the procedure. Two weeks after EGJR, the patient reported normal blood sugars in the 90s and no hypoglycemic episodes since surgery. Six months following EGJR, the patient reported no further syncopal episodes or seizures, and significant improvement in her hypoglycemia symptoms.

Conclusion

This case demonstrates that EGJR is an effective treatment option for postprandial hypoglycemia that follows Roux-en-Y gastric bypass.

Source Funding NorthShore University HealthSystem

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Informed Consent For this type of study, formal consent is not required.

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