



Clinical Case Study

Speedboat Submucosal Dissection (SSD) Gastric POEM for Refractory Gastroparesis Using Speedboat Inject, Bringing Safety and Precision

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Patient History

A 46 year old female presented with a chief complaint of post-prandial vomiting containing food particles 2-3 hours after meals, for two months. She also complained of post-prandial fullness that had lasted five years. She had no history of significant weight loss, abdominal pain or altered bowel habits. She was previously diagnosed with Type 2 Diabetes (Controlled , HBA1c 6.7 %) and hypertension, for which she is receiving regular treatment.

The patient was evaluated in the hospital previously and her OGD, contrast enhanced CT abdomen and colonoscopy results were normal. There was partial relief with oral prokinetics.

She recently underwent gastric emptying studies. A 99m Tc Sulphur colloid Solid gastric emptying study showed negligible emptying from the stomach into the intestine during Dynamic study. Significant retention of tracer was noted in the stomach at the end of the study. Emptying at 60 min was 4 %. She was diagnosed with gastroparesis and underwent Gastric POEM after informed consent.



Procedure

The G-POEM procedure was performed using a therapeutic UGI endoscope (Fujinon) with a working channel diameter of 3.8 mm. A transparent hood was attached to the tip of the endoscope to enhance the submucosal view. In this case we used a Speedboat Inject; this is a multimodal device that includes a boat-shaped blade with front and lateral cutting edges, an insulated upper surface, and a protective hull. The device provides a one-to-one rotational feel and there is a 26 G injection needle allowing submucosal injection and irrigation. This Advanced Bipolar device uses radiofrequency energy for cutting (400 kHz and 35W) and Super High Frequency Microwave for coagulation (frequency 5.8 GHz, power setting 10W). A designated electrosurgical generator is required while using the CROMA Advanced Energy Platform. G-POEM was performed in left lateral position under general anesthesia and tracheal intubation.



The G-POEM procedure was performed according to the following steps:

1. Mucosal Incision. After a submucosal injection of saline solution (a mixed solution of 100 ml saline, 1 ml indigo carmine). (b) A longitudinal mucosal incision (1.5 cm in length) was made 5 cm from the pylorus in the greater curvature of the stomach. The Speedboat device was tilted to an angle to provide a clean cut.

Figure 1



Mucosal Incision.
After submucosal injection, the mucosa was incised using the Speedboat device.

2. A submucosal tunnel was created from the mucosal entry to the pyloric ring. The Speedboat device was helpful in creating the tunnel as there was no collateral damage and precise delivery of energy ensured no mucosal burns or muscle breach during the procedure. The haemostasis could be achieved with microwave coagulation without the need of exchanging the device.



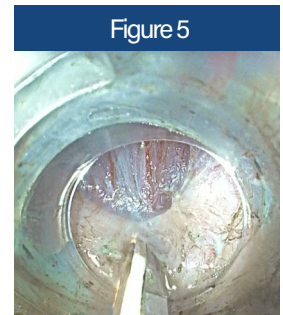
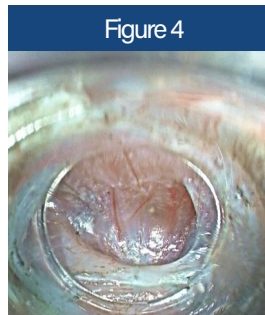
Submucosal dissection with pre-coagulation of vessel using super high frequency energy

3. A full-thickness myotomy was performed from distal to proximal fashion, starting from the pyloric ring and extending 1.5 cm proximally in the gastric antrum. Again, the device was tilted vertically to achieve muscle incision.

4. After haemostasis, the mucosal entry was closed with metal clips. During the procedure, no mucosal injury occurred. Post-procedure, the patient was stable and symptomatically better.



Completed submucosal dissection with separation of mucosal layer from the muscle layer. The hull of Speedboat is facing the muscle layer.



Myotomy was performed from the distal end to proximal

Outcome

A) Technical success - The procedure of endoscopic pyloromyotomy was successfully achieved with adequate relaxation of pylorus as assessed by endoscopy.

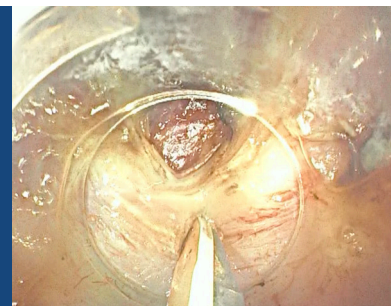
B) Adverse events - There were no intra-procedural complications such as bleeding or mucosal perforation. Delayed complications such as delayed bleeding or mucosal dehiscence were not noted.

C) Post-operative clinical response - There was significant improvement in symptoms with improvement of GCSI score

D) Post-operative Gastric Emptying showed normalisation

Conclusion

We demonstrated that a case of gastric peroral endoscopic myotomy can be successfully performed using advanced energy and the Speedboat Inject device. The use of this multi-functional device has many advantages including precise delivery of energy minimising collateral injury, and the reduction in the need for instrument exchanges for coagulation, therefore, reducing operative time significantly.



Completed myotomy of approximately 1.5 cm, releasing the spasm at pyloric channel.



Completely relaxed pylorus after the myotomy