A Novel Approach to the OrVil™ circular stapler for an esophagojejunostomy anastomosis

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Background

- Many techniques are available for facilitation of an esophagojejunostomy anastomosis (EJA)
- No prior literature available for endoscopic guided technique for EJA
- With technically difficult EJA creation, adjuncts to laparoscopic and laparotomy approaches must be considered

Question

- Can a successful EJA be created with endoscopic assistance?
- Could the use of the Gauderer-Ponsky technique be relevant to facilitate this EJA creation?

Case Description

- 73F with mesoaxial volvulus, known paraesophageal hernia requiring laparoscopic reduction with conversion to open total gastrectomy for necrotic stomach
- During reconstruction, difficult mediastinal anatomy with shortened esophageal stump led to the decision to pass the oral circular stapler using Gauderer-Ponsky technique via endoscopy (Figure 1)
- Importantly, patient had no major complications including anastomotic leak, abscess formation, SSI, wound dehiscence.
- Patient was followed up post-operatively with outpatient visits and imaging
- Surgical pathology was negative for malignancy

Figures

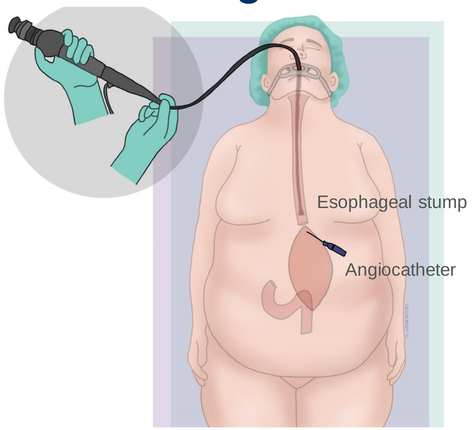


Figure 1: Use of endoscopic Gauderer-Ponsky technique to facilitate passing of oral circular stapler anvil.
The endoscopic operator goes to the head of the bed while surgeon remains sterile in the open abdomen

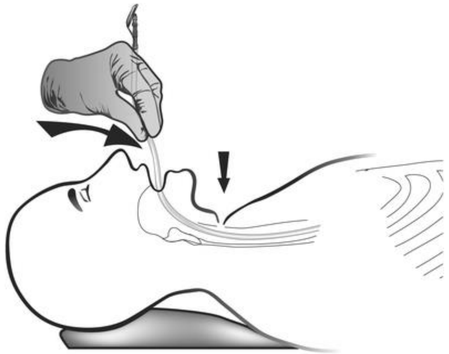


Figure 3: The OrVil anvil is a transoral anvil which is used to pass like an orogastric tube to facilitate foregut anastomosis creation with an EEA circular stapler.
In our case, the silk tie is secured to the end of the OrVil anvil. Then pulling the distal end of the silk by the surgeon in the sterile field via the Gauderer-Ponsky technique
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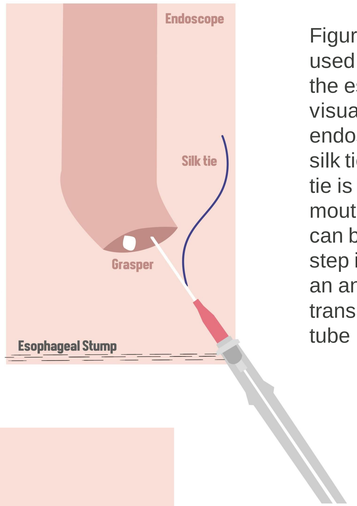


Figure 2: An angiocatheter is used to pass a 2-0 silk tie into the esophageal stump. Once visualized a grasper from the endoscope is used to grab the silk tie. Once grabbed, the silk tie is brought up through the mouth. Then the OrVil anvil can be tied to the silk. This step is analogous with placing an angiocatheter transabdominally for a PEG tube

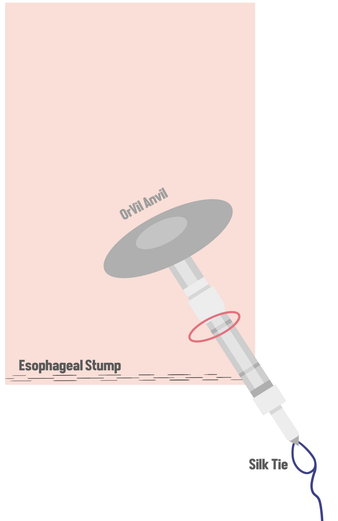


Figure 4: The silk tie is pulled back through the abdomen to bring the anvil to the esophageal stump. Once secured, the anvil can then be positioned into the EEA circular stapler to create the EJA.

Key Findings

- Based upon this case study, endoscopic assistance for creation of an EJA with technically difficult anatomy can be achieved in a safe fashion using the Gauderer-Ponsky maneuver

Conclusion

- Data at present for creation of EJA is exclusive to laparoscopic total gastrectomy for gastric cancer.
- No data has been published about an endoscopic adjunct for the creation of EJA for additional disease processes.
- We hypothesize that this new endoscopic technique will limit the size of the esophagotomy and therefore increase tissue apposition and decrease leak rates for EJA.
- The Gauderer-Ponsky technique is commonly used and well established for other procedures; therefore, we believe it is something easily transferable for technically difficult cases such as ours.
- Further data needs to be published regarding the safety and efficacy of the Gauderer-Ponsky technique for creation of EJA.

Acknowledgements:

Illustration by Caitlin Brady AIA

***Figure 3 Courtesy of: Knight, B.C., Rice, S.J., Devitt, P.G. *et al.* Proximal Anastomosis Using the OrVil™ Circular Stapler in Major Upper Gastrointestinal Surgery. *J Gastrointest Surg* **18,** 1345–1349 (2014). https://doi.org/10.1007/s11605-014-2478-4