

When One Stent Fails, Another One to the Rescue: A Novel Approach to Managing Small Post - Op Gastric Leaks Following Laparoscopic Sleeve Gastrectomy

Lafleur R, MD,Pharm.D¹; Dayrit J.,BSc, MD Candidate²; Ramdhaney S, MD AGAF^{1,2}; Ahmed, L MD FACS; Iqbal S¹. MD, FACC, FASGE

¹Wyckoff Heights Medical Center, ²St George’s School of Medicine, Grenada WI.



Background

- Obesity remains a public health challenge in the US, with 42% of the adult population classified as obese (BMI > 30).
- Laparoscopic sleeve gastrectomy (LSG) is a well-accepted surgical procedure in the management of obesity.
- One of the most feared complications of LSG is gastric leak, which occurs in about 3% of patients. This can be fatal if not addressed immediately and precisely.
- Traditionally, endoscopic management of LSG involve placement of a fully covered esophageal metal stent. Often complications such as stent migration, as in this case have been reported in 30-50% of cases. Currently, limited endoscopic alternatives exists when that option fails to provide a safe alternative and quick recovery for the patient as well as simple and effective technological method of drainage for the surgeon or endoscopist.

Introduction

We present a case of a novel alternative in managing a small post-op gastric leak, which was difficult to define radiographically by CT scan images but was visible endoscopically and clearly causing the patient’s symptoms.

Case Description

- 47 year old female with history of prior LSG, hiatal hernia, pernicious anemia presented for revision of her LSG for continued weight gain and hernia repair for dyspepsia. Surgery was uneventful but on post-op day 25 she developed fever (101.5 F), tachycardia (HR125), (BP 131/74, RR 18, Sat 96%. Suspecting gastric leak, CT scan was performed which showed only extraluminal bubbles (Fig 1, Arrowhead). Despite a negative upper GI series, she was placed on prophylactic antibiotics and 3 days later an EGD performed confirmed the presence of white fluid 3-4 cm below GE junction consistent with an anastomotic leak. (Fig 2)
- A therapeutic 23 x 150 mm fully covered esophageal metal stent was placed (Fig3), however 6 days later she developed nausea, vomiting and left upper quadrant pain. Abdominal x-ray showed distal migration of the esophageal stent (Fig4) confirmed by subsequent EGD (Fig 5).
- Realizing that the stent had migrated distally into the stomach and beyond the leak site, it was determined to place a 7 Fr x 7 cm plastic double pigtail stent for drainage of still purulent extraluminal fluid into the stomach (Fig 6). Successful drainage of the abscess was achieved and confirmed by repeat EGD on post-op day 83 indicating normal gastric mucosa. The pigtail stent was subsequently removed. The patient has since been asymptomatic.

Images

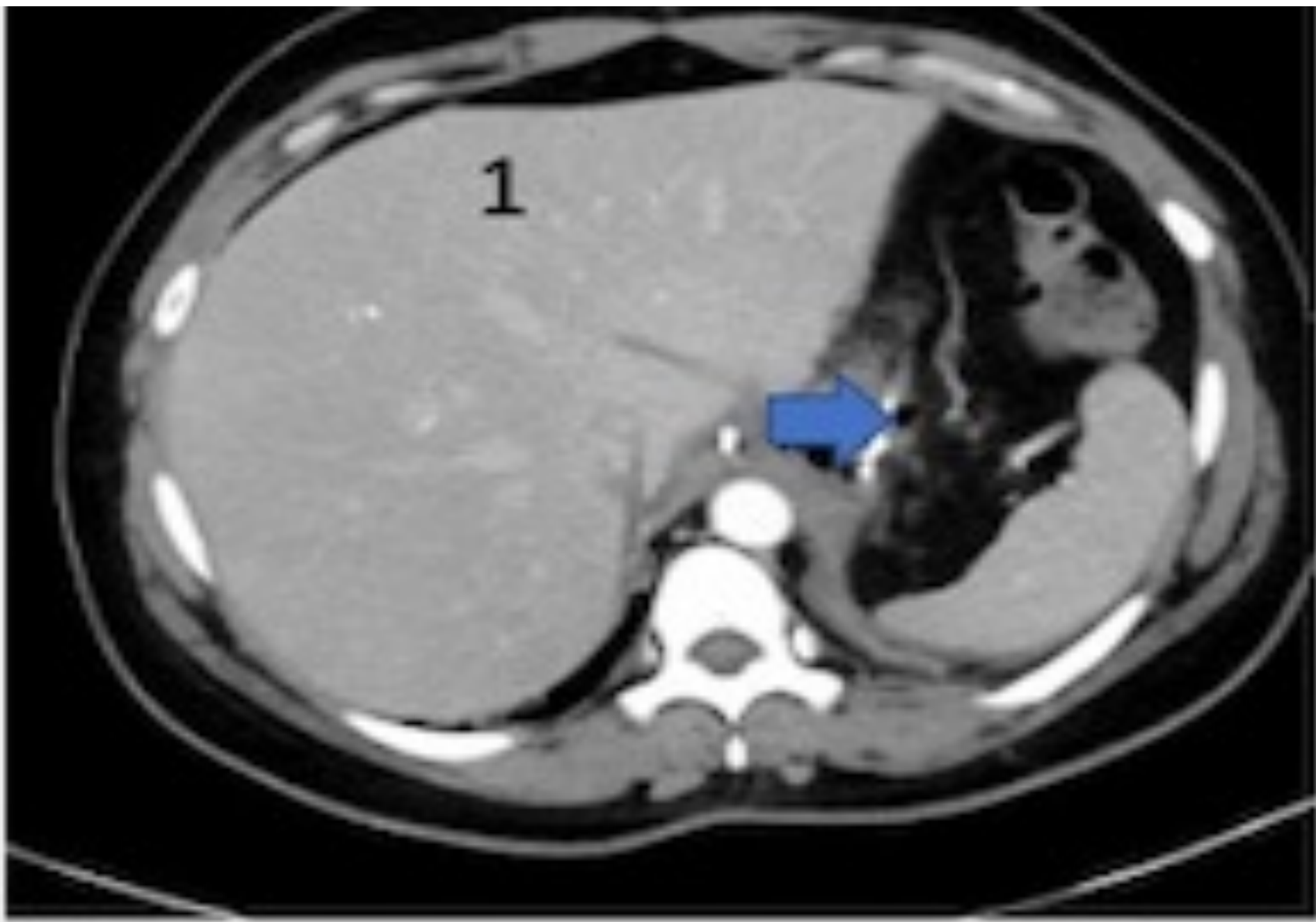


Fig 1. CT Abd/Pel showing gastric bubbles indicating gastric leak

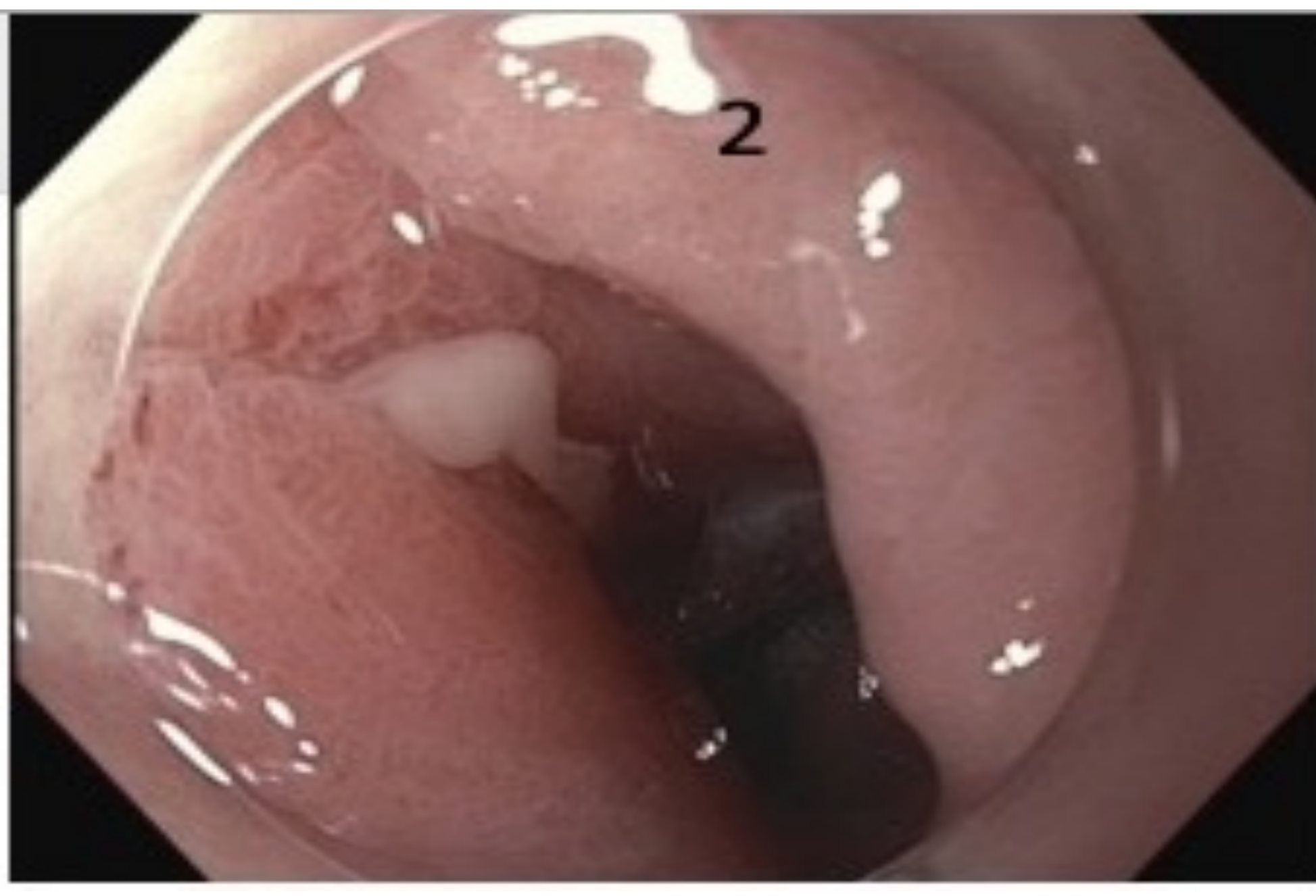


Fig 2. EGD showing gastric leak (white fluid) below GE Junction



Fig 3. EGD showing fully covered 23x150 mm stent in place



Fig 4. Chest Xray showing stent migration

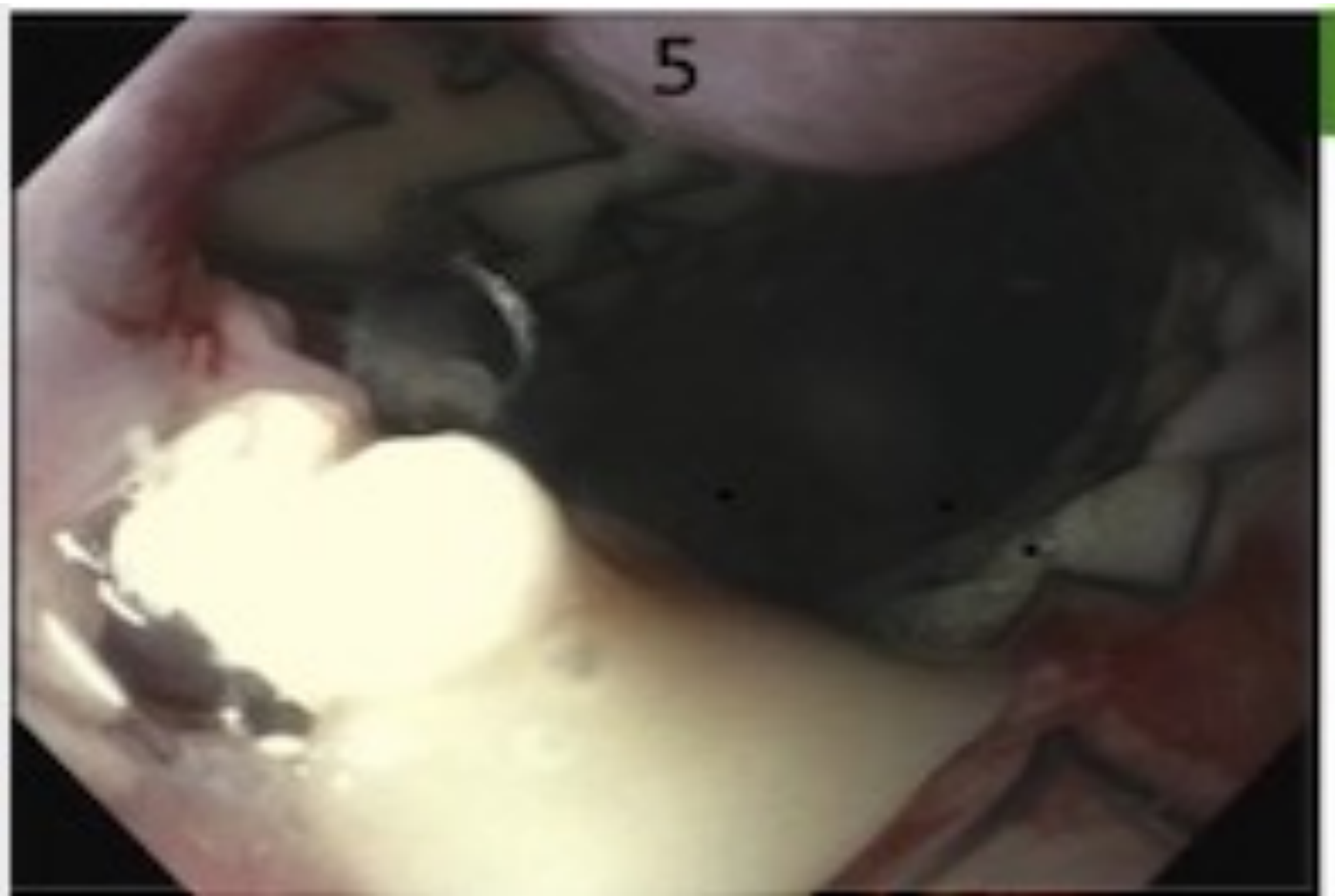


Fig 5. EGD showing downward migration of esophageal stent.

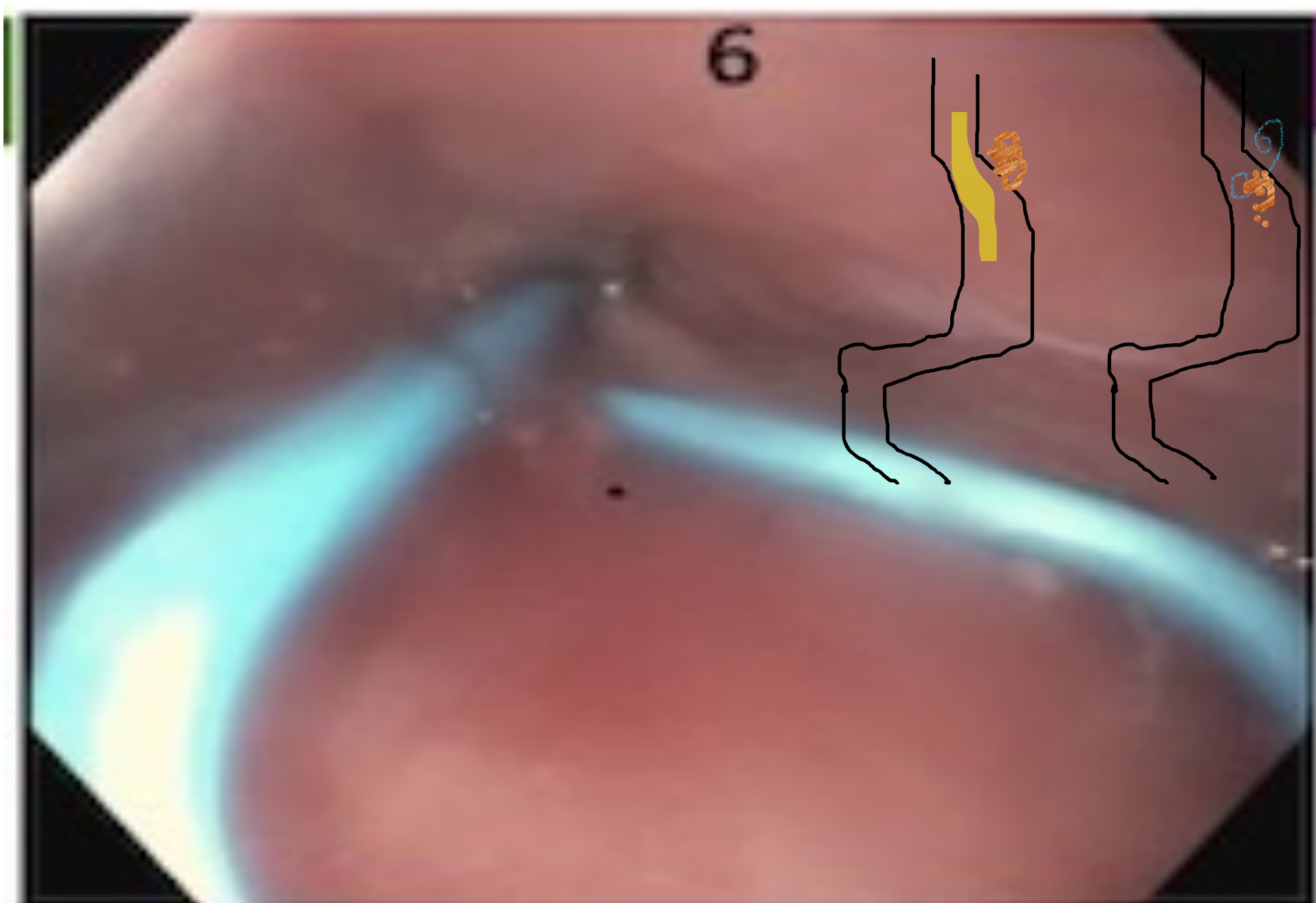


Fig 6. EGD showing PDPS placed into the collection, draining into the stomach

Discussion

- Placement of a covered self-expanding metal stent has been widely used to manage gastric leak by closing off the cavity and draining the fluid extra-luminally
- Other endoscopic techniques to manage post-op gastric leaks are over-the-scope clip (OTSC) positioning, fibrin glue injection (Tissucol), endo-sponge application, Endoscopic vacuum (E-Vac) have been attempted in cases when stenting fails but have limited success for various reasons such as requiring multiple endoscopies for sponge changes as in the endo-sponge use and anaphylaxis and thromboembolism with fibrin glue and anastomotic stricture formation with e-Vac use.
- In our case when the initial stent malfunctioned, transgastric drainage using plastic double pigtail stents (PDPS) is a less invasive alternative to laparoscopic surgical drainage and mitigates patient discomfort from complications of a partially migrated fully covered esophageal metal stent. It is cost effective , less invasive and does not require multiple endoscopies. A similar approach of drainage using PDPS mimics what we have been using to drain pancreatic cysts by creation of a cystgastrostomy.
- Limitations in using PDPS include this single case experiment and not knowing its functionality in a patient without prior LSG. More studies are needed with institution based interdisciplinary collaboration.

Conclusion

The endoscopic placement of double pigtail stents to drain small extraluminal leaks following bariatric surgery should be considered as first line therapy given its potential for rapid implementation and speedy recovery of the patient.

More guided studies need to be performed to determine if this indeed should be implemented as the standard of care in bariatric surgery and interventional endoscopy in the future.

Acknowledgment

Thanks to the Gastroenterology Division of Internal Medicine and the Surgery Department at Wyckoff Heights Medical Center for assisting with this project.

References

- Garofalo F, Noreau-Nguyen M, Denis R, Atlas H, Garneau P, Pescarus R. Evolution of endoscopic treatment of sleeve gastrectomy leaks: from partially covered to long, fully covered stents. Surg Obes Relat Dis. 2017 Jun;13(6):925-932
- Vedantam S, Roberts J. Endoscopic Stents in the Management of Bariatric Complications: Our Algorithm and Outcomes. Obes Surg. 2020 Mar;30(3):1150-1158
- Puig CA, Waked TM, Baron TH Sr, Wong Kee Song LM, Gutierrez J, Sarr MG. The role of endoscopic stents in the management of chronic anastomotic and staple line leaks and chronic strictures after bariatric surgery. Surg Obes Relat Dis. 2014 Jul-Aug;10(4):613-7.
- Alazmi W, Al-Sabah S, Ali DA, Almazeedi S. Treating sleeve gastrectomy leak with endoscopic stenting: the Kuwaiti experience and review of recent literature. Surg Endosc. 2014 Dec;28(12):3425-8.

Contact

Reginald Lafleur, MD
Wyckoff Heights Medical Center
Brooklyn, NY
Email: Reggielafleur@gmail.com
Phone: 347-398-4079