Technical Challenges in Robotic-assisted Exploration for Migrated LAMS stent Causing Small Bowel Obstruction

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Abstract

Biliary disease, particularly choledocholithiasis, in patients with previous gastric bypass poses a unique and challenging problem. Due to the reconstructed anatomy, common bile duct cannulation through typical endoscopic retrograde cholangiopancreatography is not feasible and interventions to sweep the biliary tree or perform sphincterotomy must be achieved through alternative methods. One such method includes forming a gastro-gastric fistula between the gastric pouch and gastric remnant through an endoscopically placed lumen opposing metallic stent (LAMS). Following completion of the ERCP through the LAMS, the stent should be removed, however no clear recommendations or guidelines have been made as far as the timeline for removal. We report an unusual case of small bowel obstruction secondary to migrated gastro-gastric stent.



Figure 1: Computed Tomography (CT) scan of the abdomen and pelvis; coronal view (left); axial view (right).

Case Description

A 51-year-old female with history of Roux-en-Y gastric bypass and simultaneous cholecystectomy presented with an inflamed gallbladder remnant and choledocholithiasis. She subsequently underwent a LAMS procedure, ERCP and sphincterotomy followed by robotic cholecystectomy of the gallbladder remnant a month later. She was scheduled to have the stent removed 3 months later, however the patient failed to follow up. She presented to the ED one month later with a small bowel obstruction with a transition point at the site of a migrated metallic stent **.** An upper double balloon enteroscopy was unable to identify and retrieve the stent. Subsequently, a robot-assisted diagnostic laparoscopy was performed. The LAM stent was located distal to the jejuno-jejunal anastomosis. A 2 cm enterotomy along the axis of the small bowel was made and the gastric stent was retrieved and exteriorized. The patient tolerated the procedure well and her postoperative course was uneventful. She was discharged on POD6.

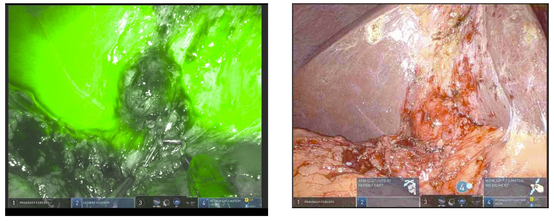


Figure 2: Robotic-assisted laparoscopic resection of remnant gallbladder.

Discussion

A solution to this challenge is to create a gastro-gastric fistula with a lumen opposing metallic stent (LAMS) to allow for easier endoscopic access to the biliary tree. LAMS procedures, however, are not without adverse events. These include bleeding1 and buried LAMS syndrome. Stent dislodgement and migration, as presented in the above case, is also not uncommon. Discussion regarding our operative approach revolved primarily around two technical questions. Firstly, when considering using a robotic approach there was a concern of difficulty locating the stent due to the lack of haptic feedback with robotic instruments. This did not, however, turn out to be a significant obstacle. Despite the lack of haptic feedback, when running the bowel from the ligament of Treitz distally, it was relatively easy to determine the location of the stent based on visual feedback. Once the stent was identified, we faced our second technical dilemma regarding the technique for extraction of the stent. We considered making a proximal enterotomy and “milking” the stent retrograde in a similar fashion to that of the operative technique in the treatment of gallstone ileus. Due to the rough edges of the stent, however, we feared this would tear the bowel lumen causing significant injury. We therefore made the enterotomy directly overlying the stent in a longitudinal fashion and extracted the stent. The enterotomy was closed in two layers transversely to decrease the likelihood of developing a stricture in the future.

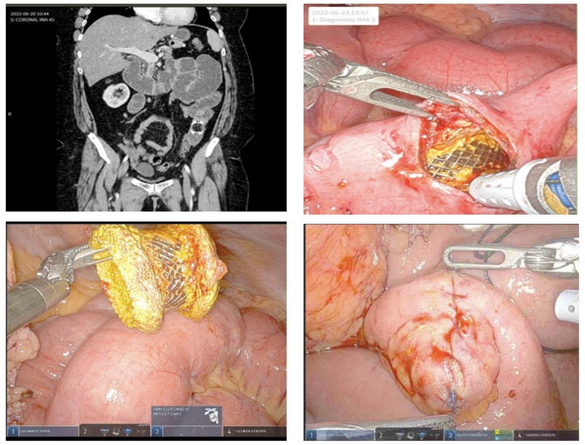


Figure 3: Robotic-assisted laparoscopic removal of stent.

Conclusion

Adverse events are not uncommon after placement of a gastro-gastric LAMS for biliary access following a Roux-en-Y gastric bypass. 1 such event as presented indication for above is migration of the stent into the small intestine causing small bowel obstruction. Diagnostic laparoscopy to locate the stent and remove it through intentional enterostomy with primary closure seems to be an effective and safe operative treatment. Furthermore, this can be done utilizing a robotic approach despite the lack of haptic feedback. The enterotomy should be done directly overlying the stent due to its rough edges to avoid injury to the bowel. The enterotomy should also be made in a longitudinal fashion and closed transversely to reduce the likelihood of developing a stricture

References

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