

## Continuing Medical Education Exam: May 2020

**Karthik Ravi, MD, William Ross, MD, Ara Sahakian, MD, Brian Weston, MD,**

*Co-Editors, CME Section*

**Prasad G. Iyer, MD, Amit Rastogi, MD, Editors, CME Section**

**Michael B. Wallace, MD, MPH, Editor-in-Chief, Gastrointestinal Endoscopy**

### Instructions:

The GIE: *Gastrointestinal Endoscopy* CME Activity can now be completed entirely online. To complete do the following:

1. Read the CME articles in this issue carefully and complete the activity:

Shiwaku H, Inoue H, Sato H, et al. Peroral endoscopic myotomy for achalasia: a prospective multicenter study in Japan. *Gastrointest Endosc* 2020;91:1037-44.

Jirapinyo P, Kumar N, Alsamman MA, et al. Five-year outcomes of transoral outlet reduction for the treatment of weight regain after Roux-en-Y gastric bypass. *Gastrointest Endosc* 2020;91:1067-73.

Cheesman AR, Zhu H, Liao X, et al. Impact of EUS-guided microforceps biopsy sampling and needle-based confocal laser endomicroscopy on the diagnostic yield and clinical management of pancreatic cystic lesions. *Gastrointest Endosc* 2020;91:1095-104.

Gerges C, Beyna T, Tang RSY, et al. Digital single-operator peroral cholangioscopy-guided biopsy sampling versus ERCP-guided brushing for indeterminate biliary strictures: a prospective, randomized, multicenter trial (with video). *Gastrointest Endosc* 2020;91:1105-13.

2. Log in online to complete a single examination with multiple choice questions followed by a brief post-test evaluation. Visit the Journal's Web site at [www.asge.org](http://www.asge.org) (members) or [www.giejournal.org](http://www.giejournal.org) (nonmembers).
3. Persons scoring greater than or equal to 75% pass the examination and can print a CME certificate. Persons scoring less than 75% cannot print a CME certificate; however, they can retake the exam. Exams can be saved to be accessed at a later date.

You may create a free personal account to save and return to your work in progress, as well as save and track your completed activities so that you may print a certificate at any time. The complete articles, detailed instructions for completion, as well as past Journal CME activities can also be found at this site.

### Target Audience

This activity is designed for physicians who are involved with providing patient care and who wish to advance their current knowledge of clinical medicine.

### Learning Objectives

Upon completion of this educational activity, participants will be able to:

1. Assess the safety and efficacy of peroral endoscopic myotomy (POEM) in patients with achalasia.
2. Explain transoral outlet reduction for the treatment of weight regain after Roux-en-Y gastric bypass.
3. Determine the impact of EUS-guided microforceps biopsy and needle-based confocal laser endomicroscopy on pancreatic cystic lesions.
4. Compare differences in efficacy between single-operator cholangioscopy and cholangiography for tissue acquisition and diagnosis of indeterminate biliary strictures.

### Continuing Medical Education

The American Society for Gastrointestinal Endoscopy (ASGE) is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

The ASGE designates this Journal-based CME activity for a maximum of *1.0 AMA PRA Category 1 Credit*™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Activity Start Date: May 1, 2020

Activity Expiration Date: May 31, 2022

### Disclosures

Disclosure information for authors of the articles can be found with the article in the abstract section. All disclosure information for GIE editors can be found online at <http://www.giejournal.org/content/conflictinterest>. CME editors, and their disclosures, are as follows:

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## Continuing Medical Education Questions: May 2020

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### QUESTION 1 OBJECTIVE:

Assess the safety and efficacy of peroral endoscopic myotomy (POEM) in patients with achalasia.

### Peroral endoscopic myotomy for achalasia: a prospective multicenter study in Japan

#### Question 1:

A 40-year-old man without any significant medical history presents with 2 years of slowly progressive dysphagia for liquids and solids. He now complains of dysphagia with every meal and regurgitation on a daily basis. He also notes occasional chest pain but denies any significant weight loss. A barium esophagram is performed and reveals a dilated esophagus to 30 mm with a “bird beak” narrowing at the gastroesophageal junction. An EGD is performed, and an “opening pop” is described while traversing the gastroesophageal junction, but the procedure is otherwise unremarkable. A high-resolution esophageal manometry is then performed and is consistent with Type 2 achalasia per the Chicago classification version 3.0. You discuss treatment options with the patient, and ultimately the decision is made to proceed with peroral endoscopic myotomy (POEM). Which of the following is true regarding POEM in this patient?

#### Possible answers: (A-E)

- A. Technical success of POEM is reported in approximately 80% of similar patients.
- B. Over 95% of similar patients will have continued symptom response 1 year after POEM.
- C. His risk of LA grade A through D erosive esophagitis after POEM is 10% at 1 year.
- D. His risk of severe adverse events is 15% after POEM.
- E. He is more likely to have continued symptom response 1 year after POEM with an anterior rather than posterior myotomy.

**Look-up:** Shiwaku H, Inoue H, Sato H, et al. Peroral endoscopic myotomy for achalasia: a prospective multicenter study in Japan. *Gastrointest Endosc* 2020;91:1037-44.

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### QUESTION 2 OBJECTIVE:

Explain transoral outlet reduction for the treatment of weight regain after Roux-en-Y gastric bypass.

### Transoral outlet reduction for the treatment of weight regain after Roux-en-Y gastric bypass

#### Question 2:

A 50-year-old woman with a dilated gastrojejunal anastomosis undergoes transoral outlet reduction for management of significant weight gain several years after Roux-en-Y gastric bypass. Based on the findings of the current study, which of the following is true?

#### Possible answers: (A-D)

- A. Total weight loss is maintained at 5 years.
- B. Additional therapies for weight regain are required in 10%.
- C. Procedure technique is standardized.
- D. Severe adverse events occur in 10%.

**Look-up:** Jirapinyo P, Kumar N, Alsamman MA, et al. Five-year outcomes of transoral outlet reduction for the treatment of weight regain after Roux-en-Y gastric bypass. *Gastrointest Endosc* 2020;91:1067-73.

**QUESTION 3 OBJECTIVE:**

Determine the impact of EUS-guided microforceps biopsy and needle-based confocal laser endomicroscopy on pancreatic cystic lesions.

**Impact of EUS-guided microforceps biopsy and needle-based confocal laser endomicroscopy on the diagnostic yield and clinical management of pancreatic cystic lesions****Question 3:**

A 60-year-old woman is referred to you for a 3 cm pancreatic head cyst that was an incidental finding on cross-sectional imaging. No worrisome features are noted on imaging. The patient has no personal or family history of pancreatic disease. In discussing the EUS evaluation of her lesion, she enquires about new techniques to enhance the yield of fine-needle aspiration (FNA) and cyst fluid analysis. Based on the study by Cheesman et al in this month's issue, you can inform your patient that:

**Possible answers: (A-D)**

- Microforceps biopsy (MFB) does NOT increase risk of adverse events.
- MFB and needle-based confocal laser endomicroscopy (nCLE) decreased the number of patients referred for surgical evaluation.
- Both MFB and nCLE more than double diagnostic yield of standard evaluation of EUS-FNA and cyst fluid analysis.
- Procedure time is comparable to standard evaluation of FNA and cyst fluid analysis.

**Look-up:** Cheesman AR, Zhu H, Liao X, et al. Impact of EUS-guided microforceps biopsy sampling and needle-based confocal laser endomicroscopy on the diagnostic yield and clinical management of pancreatic cystic lesions. *Gastrointest Endosc* 2020;91:1095-104.

**QUESTION 4 OBJECTIVE:**

Compare differences in efficacy between single-operator cholangioscopy and cholangiography for tissue acquisition and diagnosis of indeterminate biliary strictures.

**Digital single-operator peroral cholangioscopy-guided biopsy sampling versus ERCP-guided brushing for indeterminate biliary strictures: a prospective, randomized, multicenter trial****Question 4:**

A 67-year-old man presents with jaundice. CT scan of the abdomen demonstrates severe dilation of the intrahepatic biliary tree proximal to the biliary bifurcation. A plan is made for endoscopic retrograde cholangiography with brush cytology and digital single-operator cholangioscopy with intraductal biopsy. According to the current study by Gerges et al, which of the follow is accurate?

**Possible answers: (A-D)**

- Adverse events are more common in cholangioscopy with intraductal biopsy compared with cholangiography with brushing.
- Visual impression of the stricture with cholangiography is more sensitive for diagnosis than with cholangioscopy.
- Visual impression of the stricture with cholangioscopy is no more accurate for diagnosis than with cholangiography.
- Cholangioscopy with intraductal biopsy is more sensitive than cholangiography with brushing for diagnosis of indeterminate biliary strictures.

**Look-up:** Gerges C, Beyna T, Tang RSY, et al. Digital single-operator peroral cholangioscopy-guided biopsy sampling versus ERCP-guided brushing for indeterminate biliary strictures: a prospective, randomized, multicenter trial (with video). *Gastrointest Endosc* 2020;91:1105-13.

## Continuing Medical Education Answers: May 2020

### QUESTION 1

#### CORRECT RESPONSE: B

##### Rationale for correct response:

Achalasia is a relatively uncommon disorder, characterized by failure of the lower esophageal sphincter to relax with the absence of normal esophageal peristalsis.<sup>1,2</sup> Current treatment strategies focus on the gastroesophageal junction to improve esophageal emptying, using endoscopic therapies including pneumatic dilation or botulinum toxin injection to surgical treatment consisting of Heller myotomy with partial fundoplication. Peroral endoscopic myotomy (POEM) has recently emerged as a potentially effective and noninvasive treatment option for achalasia. The primary advantages of POEM include the potential to achieve a longer myotomy than the traditional surgical approach, although reports of high rates of gastroesophageal reflux have been reported.<sup>3</sup> Initial reports suggested POEM was effective and safe in achalasia. This included a prospective multicenter trial from 5 centers in North America and Europe, which demonstrated 97% symptom response to POEM at 3 months and 82% at 12 months among 70 and 51 achalasia patients, respectively.<sup>4</sup> However, a more recent multicenter retrospective study of over 1300 patients from Japan reported clinical efficacy of POEM in 95% after 1 year.<sup>5</sup> The discrepancy between these studies may be due to the fact that approximately 50% of patients in the previous multicenter prospective trial had previous endoscopic therapy for achalasia. Further, experience with POEM has increased considerably in recent years. Consequently, the actual efficacy of POEM in achalasia may be greater than previously reported.

In this month's issue of *GIE*, Shiwaku and colleagues<sup>6</sup> report the efficacy and safety of POEM in a multicenter prospective study of 233 achalasia patients from 8 centers in Japan.<sup>6</sup> Previous pneumatic dilation or Heller myotomy were reported in only 18% and 3% of included patients, respectively. Forty-six percent of patients met criteria for type 1 achalasia, 34% for type 2 achalasia, and only 6% for type 3 achalasia. Technical success of POEM was reported in 100% of patients, with a mean myotomy length of  $10.5 \pm 3.3$  cm in the esophagus. Adverse events occurred in 10% of patients but were all mild to moderate, including mucosal injury with or without perforation, hematoma, and single cases of pleurisy and peritonitis, which were all able to be managed conservatively. Clinical efficacy was defined by an Eckardt score  $\leq 3$ , achieved in 97.1% at 3 months and 97.4% at 1 year, suggesting a durable response. Clinical efficacy was compared based on the technical aspect of a posterior or anterior myotomy and the patient-specific aspect of achalasia subtype, with no differences seen. Finally, clinical assessment of GERD identified symptoms in 14%, proton pump inhibitor use in 21%, and erosive esophagitis in 54% at 1-year follow-up. However, notably, only 5.6% of patients had severe esophagitis characterized by LA Grade C or D. Age, gender, achalasia subtype, and myotomy length did not predict GERD on multivariate analysis, although this was limited by the relatively small sample size.

**Take-home message:** This study demonstrates that POEM is a highly effective and safe treatment in patients with achalasia, which appears to be durable out to at least 1 year. GERD does appear to be a relatively common consequence after POEM, but severe erosive esophagitis is relatively uncommon. Future prospective studies assessing long-term efficacy of POEM in disparate patient populations, efficacy in achalasia subtypes, and comparative studies with conventional therapy including surgical myotomy are still needed.

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**QUESTION 2****CORRECT RESPONSE: A****Rationale for correct response:**

Weight regain after Roux-en-Y gastric bypass (RYGB) is a common problem.<sup>1,2</sup> Although etiologies may be multifactorial, dilation of the gastrojejunal anastomosis (GJA) is a frequent cause, with dilation of the GJA >15 mm considered an indication for possible endoscopic intervention.<sup>1,3</sup> Endoscopic management with transoral outlet reduction (TORe) to reduce the size of the dilated GJA is now commonly performed. The procedure involves strategic placement of endoscopic sutures at the GJA using a full-thickness suturing device.<sup>4,5</sup> Although the procedure is not yet standardized, optimal techniques continue to evolve with experience including use of mucosal ablation before suturing, suture pattern, use of reinforcement sutures, and final GJA size.<sup>1</sup>

Previous studies have demonstrated TORe is effective in the short term permitting 8.4% total weight loss at 1 year with sustained weight loss up to 3 years.<sup>5,6</sup> The current study sought to assess the long-term outcomes of TORe for weight regain after RYGB for up to 5 years. Weight regain was defined as gaining  $\geq 15\%$  of maximal weight initially lost. At 1, 3, and 5 years, TORe was successful at preventing weight gain in 87.4%, 79%, and 77% of patients, respectively. Average total weight loss (TWL) was  $8.5\% \pm 8.5\%$ ,  $6.9\% \pm 10.1\%$ , and  $8.8\% \pm 12.5\%$ , respectively. This is clinically important because improvement in several obesity-related comorbidities is associated with weight loss of at least 5% TWL.<sup>1,5</sup> Pre-TORe GJA size was  $23.4 \pm 6.0$  mm, which decreased to  $8.4 \pm 1.6$  mm after TORe. After initial TORe, 39.3% received additional therapy for weight regain including repeat endoscopic therapy in 28.7%, pharmacotherapy in 18.7%, and surgery in 1.2%. Significant predictors of %TWL at 5 years included %TWL at 1 year and performance of an additional endoscopic procedure for weight regain.

TORe is minimally invasive and appears safe. No severe or fatal adverse events occurred in the current study. Moderate adverse events occurred in 3.2%. Mild adverse events occurred in 7%.

**Take-home message:** Transoral outlet reduction for the treatment of weight regain after Roux-en-Y gastric bypass appears effective, safe, and durable at 5 years.

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**QUESTION 3****CORRECT RESPONSE: C****Rationale for correct response:**

Evaluation of pancreatic cystic lesions is frequently frustrating to provider and patient because standard workup with EUS-FNA and cyst fluid analysis is commonly nondiagnostic. In this month's issue, Cheesman et al<sup>1</sup> present their retrospective analysis of their experience in 44 patients with pancreatic cyst lesions (median size 33.5 mm), adding micro-forceps biopsy (MFB) and needle-based confocal laser endomicroscopy (nCLE) to the standard evaluation. They report more than double the diagnostic rate with either modality when combined with standard evaluation results, and this was statistically significant. Combining all 3 techniques, the diagnostic rate reaches 93%. Given the small sample size (N=44), there was no statistical difference between MFB versus nCLE or the combination. Yet there was a 2% risk of significant adverse events as an infected cyst prompted a 6-day hospitalization and endoscopic drainage procedure. Three other patients had self-limited adverse events. Use of MFB has been reported in 2 retrospective studies with significant adverse event rates of 3% to 4% (pancreatitis and bleeding).<sup>2,3</sup> Similar rates of pancreatitis have been reported with nCLE as well.<sup>4</sup> The rate of referral to surgery was the same or higher with the more intensive workup. Data on time required to perform all the additional maneuvers are not given, but others report image acquisition time with nCLE of over 7 minutes.<sup>4</sup>

Therefore, the patient can be informed that the diagnostic rate will increase with these modalities whether used individually or in combination. However, that higher yield will come at a price of higher adverse event rates. As with the use of any new technique, it remains to be seen whether the improved diagnostic yield will be seen outside of referral centers particularly with nCLE where consensus in interpretation of images is a work in progress.<sup>5,6</sup> In addition, this was a



select group of patients with generously sized cysts largely outside the pancreatic head; the utility and safety of these techniques in smaller cysts and those in regions of the head difficult to access with a 19-gauge needle is unknown.

**Take-home message:** Both nCLE and MFB significantly improve the diagnostic yield over standard EUS-FNA and cyst fluid analysis but at cost of increased adverse event rate.

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1. Cheesman AR, Zhu H, Liao X, et al. Impact of EUS-guided microforceps biopsy sampling and needle-based confocal laser endomicroscopy on the diagnostic yield and clinical management of pancreatic cystic lesions. *Gastrointest Endosc* 2020;91:1095-104.
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**QUESTION 4:**

**CORRECT RESPONSE: D**

**Rationale for correct response:**

Indeterminate biliary strictures often present a unique diagnostic challenge. While endoscopic ultrasound is most frequently used for tissue acquisition for distal biliary strictures secondary to pancreatic head cancer, endoscopic retrograde cholangiography (ERCP) is still considered the modality of choice for strictures that reside more proximally in the bile duct.<sup>1</sup> Owing to its ease of use and safety profile, brush cytology remains the most commonly used method of tissue sampling with ERCP. Despite these advantages, brush cytology is considered suboptimal in its diagnostic sensitivity, which has been reported up to 60% in a large series.<sup>2</sup> Due to the low sensitivity of standard sampling techniques, digital single-operator cholangioscopy (DSOC) with intraductal biopsy has been studied as an alternative method of tissue acquisition. A review of 10 studies including 456 patients demonstrated a pooled sensitivity and specificity of 60% and 98%, respectively.<sup>3</sup> However, it has been shown that visual impression of biliary strictures with DSOC can improve diagnostic sensitivity compared to DSOC-guided biopsy alone.<sup>4</sup>

In this issue of *GIE*, Gerges et al<sup>5</sup> have compared DSOC-guided biopsy with ERCP-guided brushing in a multicenter, randomized, comparative, study. A total of 61 patients were randomized to ERCP-guided brushing or DSOC-guided biopsy. The sensitivity of DSOC-guided biopsy (68.2%) was significantly higher than for ERC-guided brushing (21.4%). Visual impression of the stricture improved the sensitivity and accuracy to 95.5% and 87.1% in the DSOC arm and 66.7% and 65.5% in the cholangiography arm, both of which were significantly higher in the ERC-guided brushing group. There were no differences between the groups in specificity, positive predictive value, and negative predictive, or rate of adverse events.

**Take-home message:** Digital single-operator cholangioscopy-guided biopsy affords a higher sensitivity for diagnosis of indeterminate biliary strictures compared with endoscopic retrograde cholangiography-guided biopsy. Visual impression of cholangioscopy and cholangiography further increases diagnostic sensitivity and accuracy.

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