

Question 6

Which are the main risk factors in cases with Barrett's esophagus for a lethal outcome?

Answer- C and D- lifestyle related risks, and cardiovascular risk factors increase lethal outcomes in Barrett's esophagus.

Question 7

Which of the following FLIP (functional luminal imaging probe) Panometry patterns is most likely to be observed in a patient with type I achalasia?

Answer- C

Evaluation of esophageal motility with FLIP Panometry parallels high-resolution manometry. Esophageal motility disorders with impaired lower esophageal sphincter relaxation, such as achalasia, have reduced EGJ opening on FLIP, i.e. low EGJ distensibility index and low EGJ diameters. Esophageal motility disorders with absent primary peristalsis, including achalasia, also commonly have absent secondary peristalsis, i.e. an absent contractile response on FLIP Panometry. Thus, common FLIP Panometry findings in patients with non-spastic achalasia (e.g. type I achalasia as defined on high-resolution manometry) involve reduced EGJ opening and an absent contractile response.

Question 8

The most appropriate marker for success of endoscopic eradication therapy for Barrett's related neoplasia is?

Answer- D.

Complete eradication of intestinal metaplasia is the hallmark of successful EET. Complete eradication of dysplasia is important but not considered completed therapy in most patients. R-IM is recurrence of intestinal metaplasia and R0 resection is relevant to ESD or surgery for esophageal cancer not EET.

Question 9

Which of the following statements is true regarding acid suppression and Endoscopic eradication therapy for Barrett's related neoplasia?

Answer- B.

Acid suppression is the most important aspect of successful EET. Patients who do not achieve CE-IM by 3-4 sessions, should have consideration for reflux physiologic testing before further treatment. Acid suppression is independent of successful EET and must be continued indefinitely unless an antireflux procedure is performed.

Question 10

A patient is referred with a small 7mm nodule in the setting of a long segment of Barrett's esophagus. Biopsies of the nodule demonstrate esophageal adenocarcinoma. In regards to Tumor (T) staging for esophageal superficial neoplasia, which of the following provides accurate differentiation between intramucosal carcinoma (T1a) and submucosal carcinoma (T1b)?

Answer- B

Endoscopic mucosal resection provides large and intact histologic specimens that allow pathologists to determine tumor depth with greater interobserver agreement compared to biopsy specimens, which are subject to crush artifact and limited depth and orientation. EUS is limited in superficial neoplasia and more appropriate for evaluation of nodal disease in cases with superficial lesions in the setting of Barrett's esophagus. Confocal Laser Endomicroscopy may demonstrate areas that are suspicious for neoplasia, but not accurately provide depth of invasion of a tumor. The differentiation of T1a versus T1b is important since T1a lesions may be amenable to endoscopic eradication therapy, whereas T1b lesions may carry sufficient risk of lymph node metastasis to consider esophagectomy.

References

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Question 11

The most common form of anatomic failure after a laparoscopic fundoplication is:

Answer- B.

The most common form of failure after lap fundoplication is a recurrent hernia. This is in contrast to the open fundoplication era when a slipped fundoplication was the most common form of fundoplication failure.

Question 12

You are evaluating a 32 year old female with dysphagia for solids and liquids for the past year. She has had a recent EGD with no definitive findings which you intend to repeat. In the interim you have ordered a timed barium swallow (TBE) to assess esophageal emptying. Which endpoints offer the best indication of an abnormal study:

Answer- C

A timed swallow measures esophageal emptying upright at 1,2 and 5 minutes after drinking 100-250 cc of barium followed by a 13 mm tablet. More than 1 cm of retained liquid at 5 minutes and retention of the barium tablet at that same 5 minute time point are most reliable in suggesting abnormal emptying. This is an extremely useful and underutilized study, especially for patients who do not tolerate HRM and for those who do not have endoflip.

Question 13

Which of the following is true regarding baseline impedance in the esophagus?

Answer- D

Baseline impedance is decreased when there is reflux induced mucosal damage, and therefore values are inversely proportional to acid exposure time calculated from reflux monitoring. Baseline impedance is measured in ohms, since it represents resistance to flow of an electric current across two electrodes. It is typically calculated during night time hours when the patient is asleep, since the pH impedance tracing does not have artifacts from swallowing or movement during sleep hours. Although the initial description extracted mean nocturnal baseline impedance as the average of three 10 min periods an hour apart, recent reports indicate that averaging the entire supine period provides a representative value that correlates well with mean nocturnal baseline impedance.

Question 14

A 38 y/o female with frequent throat clearing is referred to be considered for fundoplication to treat refractory laryngopharyngeal reflux (LPR). She reports a two-year history of throat clearing along with intermittent hoarseness. She denies heartburn, regurgitation, dysphagia, and odynophagia. She was diagnosed with LPR based on laryngoscopy performed by an ear-nose-throat specialist. Treatment with PPI twice daily for six months has resulted in no relief. Upper endoscopy is normal, without hiatus hernia or esophagitis. You decide to perform ambulatory reflux monitoring. What is the best choice for reflux monitoring?

Answer- A.

Rationale: This patient has no typical symptoms such as heartburn or regurgitation, endoscopy was negative for hiatus hernia or esophagitis, and PPI therapy has not resulted in any relief. Therefore, whether she has GERD is not clear. 48-hour wireless pH monitoring after stopping PPI for 7 days is the best option to exclude or diagnose GERD.

Question 15

Which of the following statements regarding gastric cancer prevention or early detection is most accurate?

Answer- C

Explanation: *H. pylori* is a human carcinogen. It is the most common trigger for the nonatrophic gastritis-atrophic gastritis-intestinal metaplasia (GIM)-dysplasia-intestinal-type gastric adenocarcinoma histopathologic sequence, also known as the “Correa Cascade”. It is well-established that eradication of *H. pylori* reduces the risk of incident gastric cancer, as well as metachronous gastric cancer. However, gastric neoplasia may still occur even in the absence of ongoing *H. pylori* infection, particularly if there are already gastric preneoplastic mucosal changes (e.g. GIM) (choice A is incorrect). That said, *H. pylori* eradication is still strongly recommended in patients diagnosed with GIM since successful eradication is associated with reduced (but not eliminated) gastric cancer risk and associated mortality. The baseline risk of gastric cancer among individuals diagnosed with GIM is 0.16% per year (Choice D is incorrect), which is similar to the risk of incident esophageal adenocarcinoma among individuals diagnosed with nondysplastic Barrett’s esophagus (choice C is correct). However, this risk may be higher depending on additional risk factors, including extent of GIM, family history of GC, persistent *H. pylori* infection, histological subtype of GIM, and others. The recent American Gastroenterological Association (AGA) evidence-based clinical guidelines on the management of GIM recommend against the routine endoscopic surveillance of GIM (choice B is incorrect). However, this is qualified by the statement that patients with GIM who are higher risk for gastric cancer may reasonably elect for interval surveillance. This risk-based approach to surveillance is similar to other GI societies internationally.

References:

1. Altayar O, Davitkov P, Shah SC, *et al.* American Gastroenterological Association Technical Review on Gastric Intestinal Metaplasia-Epidemiology and Risk Factors. *Gastroenterology* 2020; **158**: 732–744.e16.
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3. Correa P, Piazuelo MB, Wilson KT. Pathology of gastric intestinal metaplasia: clinical implications. *Am J Gastroenterol* 2010; **105**: 493–8.
4. Shah SC, Piazuelo MB, Kuipers EJ, Li D. American Gastroenterological Association Clinical Practice Update on the The Diagnosis and Management of Atrophic Gastritis: Expert Review. *Gastroenterology* 2021; ePub ahead of print.

Question 16

Based on the concept of GERD phenotypes, which of the following phenotypes is unlikely to improve with PPI therapy?

Answer- D, functional heartburn.

Of the GERD phenotypes listed, functional heartburn is less likely to respond to PPI therapy. 30-40% of patients with non-cardiac chest pain have GERD as a cause and are likely to respond to PPI treatment. Some patients with regurgitation do improve with PPI. Patients with non-erosive reflux disease can improve with PPI therapy, particularly if they have ‘true NERD’, with abnormal esophageal acid exposure on pH testing.

Question 17

GI societal guidelines endorse WLE with Seattle biopsy sampling protocol, along with targeted biopsy of any mucosal abnormalities, for surveillance of Barrett’s esophagus with the goal of detecting dysplasia, the current gold standard biomarker for risk stratification. More recently, which of the following biomarkers has received a conditional recommendation from a US GI society for its use along with WLE with Seattle biopsy sampling for risk stratification in Barrett’s esophagus?

Answer- B

The recent ASGE guideline on screening and surveillance of Barrett’s esophagus has given a conditional recommendation (low quality evidence) for the use of WATS-3D in addition to WLE with Seattle biopsy sampling compared to WLE with Seattle biopsy sampling alone.

Question 18

Which of the following best describes what is known about the role of mast cells in esophageal diseases:

Answer- C. Profound degranulation of mast cells has been described in LES muscle of patients with achalasia, suggesting that there might be an allergic form of achalasia. Mast cells are not easily identified by H&E staining, but instead require special staining techniques such as immunohistochemical staining for tryptase or CD117. A recent study found that esophageal mast cell numbers remained elevated in pediatric EoE patients who remained symptomatic after treatment (with PPIs or steroids) had reduced their esophageal eosinophils to levels <15 eosinophils/high power field, suggesting that mast cells have an eosinophil-independent role in producing the clinical manifestations of EoE. Both eosinophils and mast cells secrete numerous products that can affect esophageal smooth muscle contraction and, thus, both activated eosinophils and mast cells might cause motility abnormalities in patients with EoE.

Question 19

Which anti-reflux medication have been shown to have a neuromodulatory effect on the esophagus?

Answer – C

Several studies have demonstrated that ranitidine in doses of 150mg. twice daily can significantly improve heartburn in patients with functional heartburn by increasing perception thresholds for painful intra-esophageal stimuli.

Question 20

Minimally invasive esophagectomy is associated to improved:

Answer- B

Three randomized controlled trials have shown improved post-operative outcomes with MIE. These study demonstrated decreased blood loss, decreased pulmonary complications and improved short-term quality of life.

Long term quality of life and post-operative mortality has been shown to be similar between open and minimally invasive esophagectomy

Mariette, C., Markar, S. R., Dabakuyo-Yonli, T. S. et al. (2019). Hybrid Minimally Invasive Esophagectomy for Esophageal Cancer. *N Engl J Med*, 380(2), 152-162.

Biere, S. S., van Berge Henegouwen, M. I., Maas, K. W. et al. (2012). Minimally invasive versus open oesophagectomy for patients with oesophageal cancer: a multicentre, open-label, randomised controlled trial. *Lancet*, 379(9829), 1887-92.

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Question 21

Which one of the following statements about potassium-competitive acid blockers (P-CABs) is FALSE.

Answer is A.

Justification: Binding of P-CABs to H⁺/K⁺-ATPase is non-covalent; it is ionic and reversible. So, option A is false (*i.e.*, the correct choice) and option C is true (*i.e.*, an incorrect choice). In comparative pharmacodynamic studies between clinically relevant doses of P-CABs and PPIs, the P-CABs have produced both more rapid onset of antisecretory effect and more sustained elevation of intragastric pH. Therefore, both options B and D are true – and, therefore, incorrect choices.