If you’re preparing for the United States Medical Licensing Examination® (USMLE®) Step 3 exam, you might want to know which questions are most often missed by test-prep takers. Check out this example from Kaplan Medical, and read an expert explanation of the answer. Also check out all posts in this series.

This month’s stumper

A 36-year-old man comes to see you with recurrent epigastric pain after treatment for multiple duodenal ulcers, for which he was treated with a PPI, amoxicillin, and clarithromycin. Follow-up stool antigen showed no evidence of active *Helicobacter pylori* infection.

Today’s endoscopy shows three ulcers in the third and fourth portions of the duodenum near the ligament of Treitz. The ulcers are 2 cm in size. Serum gastrin level is elevated, and it does not drop after the administration of IV secretin.

Which of the following would be the most appropriate test for this patient?

A. CT scan and capsule endoscopy.

B. Endoscopic ultrasound and nuclear somatostatin scintigraphy.

C. Gallium and PET scan.

D. MRI and gadolinium.

E. No further testing is needed to guide therapy.
The correct answer is B.

Kaplan Medical explains why

The patient most likely has Zollinger-Ellison syndrome (gastrinoma). The evidence for a gastrinoma is the presence of:

- Ulcers that are large and recurrent after Helicobacter eradication, distal in the duodenum, or multiple.
- High gastrin level with high gastric acid output.
- Failure to suppress gastrin with secretin.

Endoscopic ultrasound and nuclear somatostatin scintigraphy are used to determine if this is a
solitary lesion that should be resected, or metastatic disease that should be treated with a PPI lifelong because it is too widespread to be cured.

**Why the other answers are wrong**

**Choice A and D:** CT scan and MRI lack sensitivity; a gastrinoma is not anatomically very different from normal tissue, so these are cells which are functionally different from normal tissue but look largely the same. Gadolinium is simply the contrast agent used routinely with an MRI to light up structures; gadolinium has roughly the same use and indication as iodinated contrast material.

**Choice C:** Gallium scan detects occult infection and is most useful in detecting the source of fever of unknown origin. Gallium scan has nothing to do with gastrinoma. Positron emission tomography (PET) scan can detect occult pockets of cancer with 18-fluorodeoxyglucose. Cancers have increased glucose metabolism.

**Tips to remember**

- Look for a gastrinoma when ulcers are unusual (e.g., large, recurrent, distal, multiple).
- Gastrinoma will not decrease acid production or drop gastrin level in response to secretin.
- Resect local lesions.
- You can be sure it is a local lesion with endoscopic ultrasound and nuclear somatostatin scan.

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