Clinical Pearls in Gastroenterology 2011

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At the 2001 annual conference of the American College of Physicians, a new teaching format to aid physician learning, Clinical Pearls, was introduced. Clinical Pearls is designed with the 3 qualities of physician-learners in mind. First, we physicians enjoy learning from cases. Second, we like concise, practical points that we can use in our practice. Finally, we take pleasure in problem solving.

In the Clinical Pearls format, speakers present a number of short cases in their specialty to a general internal medicine audience. Each case is followed by a multiple-choice question answered live by attendees using an audience response system. The answer distribution is shown to attendees. The correct answer is then displayed and the speaker discusses teaching points, clarifying why one answer is most appropriate. Each case presentation ends with a Clinical Pearl, defined as a practical teaching point that is supported by the literature but generally not well known to most internists.

Clinical Pearls is currently one of the most popular sessions at the American College of Physicians meeting. As a service to its readers, Mayo Clinic Proceedings has invited a selected number of these Clinical Pearl presentations to be published in our Concise Reviews for Clinicians section. “Clinical Pearls in Gastroenterology 2011” is one of them.

CASE 1

A 27-year-old Asian woman with fistulizing perianal Crohn disease presents for a yearly physical examination and Papanicolaou smear. She has recently experienced progression of her Crohn disease, and initiation of infliximab therapy is planned in several weeks when she returns to see her gastroenterologist. With the exception of recent antibiotics, she has not received other treatment or immunosuppression for the Crohn disease. She has had a negative purified protein derivative (PPD) test result within the past month, as well as normal findings on chest radiography. She lived in China until age 10 years but has lived in Midwestern United States ever since. She denies intravenous drug use and does not recall any past blood transfusions. She has no human immunodeficiency virus (HIV) risk factors. Review of her recent laboratory test results reveals mild anemia of chronic disease (hemoglobin, 10.8 g/dL), with normal thyrotrpin, glucose, aspartate aminotransferase, and alanine aminotransferase levels.

QUESTION

Which one of the following tests would be the most appropriate next step?

a. Hepatitis C virus antibody
b. Hepatitis B surface antigen (HBsAg), anti–hepatitis B core antigen (anti–HBc), and anti–hepatitis B surface antigen (anti–HBs)
c. Enzyme immunoassay for HIV
d. Histoplasmosis serology
e. QuantiFERON assay

DISCUSSION

Reactivation of hepatitis B has been reported with the initiation of chemotherapy, rituximab, and infliximab, although any tumor necrosis factor inhibitor would likely present the same risk. The reactivation can occur at any time during therapy, including on cessation of immunosuppression. Clinical features of reactivation range from an asymptomatic increase in serum transaminase levels to acute hepatitis or fulminant hepatic failure. Laboratory confirmation of hepatitis B reactivation includes recurrence of hepatitis B virus (HBV) DNA in patients with prior resolved or inactive hepatitis B. Individuals who should be tested for chronic or inactive hepatitis B include those initiating chemotherapy or immunosuppression and those undergoing organ transplant. Patients should undergo HBsAg, anti–HBc, and anti–HBs testing. If positive for HBsAg, antiviral therapy should be initiated before chemotherapy or immunosuppression and continued for 6 months after completion. If anti–HBc or anti–HBs results are positive and the anti–HBs positivity is not due to prior immunization for hepatitis B, then serial HBV DNA levels should be checked every 3 months during therapy, with antiviral therapy considered if HBV DNA is detected.

This patient has no reported risk factors for hepatitis C or HIV, and there is no current recommendation that evaluation for these viruses needs to be done before immunosuppression or chemotherapy. Although patients treated with infliximab...
imab have developed systemic histoplasmosis, there is no role for checking serologic studies for this infection in this patient, even though she lived in an at-risk geographic location previously, given that she has no current symptoms and has had normal findings on chest radiography. Similarly, re-activation of tuberculosis has been well-reported with infliximab, and therefore all patients initiating the drug should be tested for latent tuberculosis. The tuberculin skin test using PPD is reasonable in most patients to evaluate for tuberculosis unless they have undergone prior BCG therapy or are immunosuppressed, in which case interferon-γ release assays (QuantiFERON being one example) are preferred. This patient has not been undergoing immunosuppression, so this type of assay is not required. The Centers for Disease Control and Prevention states that while interferon-γ release assays can be used in place of tuberculin skin testing in many patients, they should not be used in addition to a PPD test in these circumstances.

In this patient with Crohn disease who will be starting immunosuppression, full review of her immunization record would also be recommended, and administration of required vaccinations would be prudent, ideally before infliximab is initiated.

**CLINICAL PEARL**

All patients who will be starting chemotherapy or immunosuppression should be tested for chronic or inactive hepatitis B infection given the risk of reactivation.

**CASE 2**

A 46-year-old obese man undergoes esophagogastroduodenoscopy (EGD) to screen for Barrett esophagus because of a long-standing history (>10 years) of reflux symptoms, for which he takes once-daily proton pump inhibitor (PPI) therapy. Apart from his weight, he is healthy and takes no other medications. His father had esophageal cancer at age 68 years, but there is no other relevant family history. The EGD examination reveals a small hiatal hernia but no Barrett esophagus. Six small polyps are detected in the mid stomach, each measuring less than 5 mm, all of which are translucent and with a uniform appearance. Three of the polyps are biopsied, revealing fundic gland polyps (FGPs) with no dysplasia.

**QUESTION**

Which one of the following is the next best step?

a. No further testing  
b. Repeat EGD now and remove all polyps  
c. Stop PPI and repeat EGD in 3 months  
d. *Helicobacter pylori* serology  
e. Colonoscopy

**DISCUSSION**

Cystic FGPs are the most common form of gastric polyps, representing nearly 50% of all gastric polyps seen. They are typically located in the fundus and body of the stomach. Fundic gland polyps may occur in 3 clinical settings: (1) sporadically, (2) in the presence of long-standing PPI use, and (3) in familial cancer syndromes such as familial adenomatous polyposis. Outside of the rare instance of a familial cancer syndrome, FGPs are benign, without malignant potential. When sporadic, they are often multiple (usually <10), range in size from 1 to 5 mm, and have a classic smooth, uniform, translucent sessile appearance. If seen endoscopically, these polyps should be sampled to rule out other neoplasia, but full removal and endoscopic follow-up are not required unless there is a known or suspected familial syndrome. No further testing is recommended in this case.3

Because the polyps in this patient were uniform in appearance and were all small (<1 cm), there would be no reason to repeat EGD for removal of all polyps. If any polyps varied in size or appearance, they would require further sampling and removal; similarly, if dysplasia was noted in any polyp that was not fully removed, repeated EGD for full removal would be warranted. Although retrospective studies have found an association between FGPs and PPI use, prospective studies have not strongly supported this finding. Fundic gland polyps may regress in size after 3 months of PPI cessation, but this would be recommended only in a patient with larger FGPs that were causing complications (such as bleeding). There is no known association of FGPs with *H pylori* infection. A colonic evaluation is recommended for patients with numerous FGPs who are younger than 40 years or if dysplasia is noted histologically to evaluate for familial adenomatous polyposis.3

**CLINICAL PEARL**

Cystic FGPs are common and benign, and endoscopic follow-up is usually not required if there is no history of familial syndromes.

**CASE 3**

A 30-year-old woman presents for evaluation of loose stools and abdominal pain of 4 years’ duration. She experiences lower abdominal pain and bloating 1 to 2 times per week. On those days, she reports 3 to 5 loose stools, predominantly in the morning or after meals. The stools are nonbloody, non-greasy, and never nocturnal. The bowel movements bring relief of her pain. She denies weight loss, and her medical history is unremarkable. She takes no medications and has no family history of gastrointestinal disorders or malignancies. Her examination findings are normal.


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**CASE 4**

A 40-year-old woman with ulcerative colitis presents for a yearly general examination. She has had ulcerative colitis for 5 years, well controlled with high-dose azathioprine, with no flares requiring corticosteroids in the past year. She is otherwise healthy and takes no additional medications. At the end of the examination, you review her vaccination status. You see that she is immune to rubella but has never had clinical features of chicken pox, and her laboratory test results show no evidence of immunity to varicella. She is also noted to have negative results for hepatitis A virus IgG, HBsAg, and anti-HBc and positive results for anti-HB.

It is currently October in Minnesota, and she tells you that she has not yet received the influenza vaccine this year.

**QUESTION**
Which one of the following vaccinations is indicated at this time?

a. Nasal influenza  
b. Varicella  
c. Meningococcus  
d. Hepatitis B  
e. Hepatitis A

**DISCUSSION**
Patients with inflammatory bowel disease (IBD) are deemed to be immunosuppressed if they (1) are currently receiving treatment with corticosteroids (>20 mg of prednisone daily for ≥2 weeks), 6-mercaptopurine, azathioprine, methotrexate, or one of the other immune modulators (infliximab, adalimumab, certolizumab pegol, or natalizumab); (2) had recent discontinuation (within the previous 3 months) of any of the aforementioned medications; or (3) have significant protein-calorie malnutrition.

All patients with IBD who are undergoing immunosuppression are advised to be vaccinated against hepatitis A and B unless they are serologically immune. This patient is immune to hepatitis B but not to hepatitis A, and therefore hepatitis A vaccination would be recommended. Yearly vaccination with the inactive influenza vaccine is recommended, and all patients should receive a pneumococcal vaccine, with a single repeated vaccination in 5 years if still immunosuppressed. Any of the live vaccinations (measles-mumps-rubella, zoster, nasal influenza, and varicella) would be contraindicated within the 1- to 3-month period before initiation of immunosuppression or during current therapy (which our patient is receiving). Immunosuppressed patients with IBD should be vaccinated for meningococcus only if at increased risk of infection, such as those with asplenia or terminal complement deficiencies.

Primary care physicians and gastroenterologists alike should be aware of the vaccination recommendations for these patients because gastroenterologists may rely on the patient’s primary care physician to monitor vaccination status; this reliance may be due to poor understanding by gastroenterologists of the recommendations, as demonstrated in a recent survey in which 20% to 30% of
responding gastroenterologists incorrectly suggested live vaccinations for immunosuppressed patients.7

**CLINICAL PEARL**
The vaccination status of patients with IBD who will be starting or are currently undergoing immunosuppression should be reviewed; live vaccinations are contraindicated immediately before or during therapy.

**CASE 5**
A 38-year-old man presents to the emergency department 6 weeks after Roux-en-Y gastric bypass (performed for morbid obesity) with recurrent abdominal pain, nausea, and bilious vomiting. He has had 3 total episodes during the past month, with each episode being more severe than the last. He describes the pain as a crampy, periumbilical pain that crescendos over an hour or 2, is associated with nausea, and is relieved after vomiting undigested food and bilious fluid. One episode occurred in the middle of the night. During the last 2 episodes, he has gone to the emergency department, where repeated laboratory studies (CBC, liver biochemistries), abdominal radiography, and right upper quadrant ultrasonography yielded normal results. He currently takes a multivitamin containing iron, thiamine, calcium, vitamin D, and vitamin B12 but no other medications. He has no other remarkable medical history. His gallbladder was not removed during his laparoscopic bypass procedure.

**QUESTION**
Which one of the following is the most likely cause of his symptoms?

a. Overeating
b. Internal hernia
c. Biliary colic
d. Stomal stenosis
e. Medication adverse effect

**DISCUSSION**
This patient most likely has an internal hernia, which can occur at any time after bariatric surgery that involves a malabsorptive component, such as with Roux-en-Y gastric bypass (ie, it is not seen after purely restrictive procedures such as gastric banding or gastric stapling). Internal hernias occur more commonly after laparoscopic procedures given there are fewer postoperative adhesions, and therefore the bowel is more mobile and able to slide into mesenteric defects. The herniated loop of bowel may then twist upon itself within the hernia sac, leading to volvulus and ischemia. Clinical features include abdominal pain, nausea, and vomiting, which may or may not be bilious in nature. For a patient who has undergone Roux-en-Y bypass surgery, bilious vomiting suggests obstruction at or below the level of the jejunojejunostomy, which can help facilitate the diagnostic workup. Although computed tomography and dedicated small bowel imaging are often done in the work-up of patients with suspected internal hernias, if results of these studies are negative and clinical suspicion is high, surgical exploration is recommended given the morbidity and mortality associated with missing this diagnosis.8

Although overeating could cause a patient to have nausea, vomiting, and abdominal pain after bariatric surgery, it would not account for the bilious nature of the patient’s emesis, and the symptoms would typically occur shortly after eating a meal due to stretching of the small gastric pouch and not spontaneously in the middle of the night. While biliary stone disease is not uncommon after bariatric surgery, it would not tend to cause the type of obstructive symptoms that this patient has, typified by relief of pain and nausea with decompressive vomiting. Stomal stenosis is an anastomotic stricture at the gastrojejunal anastomosis, and therefore patients have pain, nausea, and vomiting very shortly after eating because food is prevented from exiting the gastric pouch. Neither biliary colic nor stomal stenosis should cause bilious vomiting after Roux-en-Y gastric bypass. Although certain medications, such as those containing iron, may cause mild nausea or gastrointestinal upset, they would not explain the discrete bouts of symptoms prompting emergency department visits.

**CLINICAL PEARL**
Internal hernias are a known complication of bariatric surgery in which there is a malabsorptive component; knowledge of the postsurgical anatomy is essential to effectively manage the postbariatric patient.

**CASE 6**
A 28-year-old man presented 6 weeks ago to the hospital with new-onset melena and coffee-gounds emesis. He noted gnawing epigastric pain for weeks and had taken acetaminophen and over-the-counter PPIs as needed for pain relief. A year previously, he had a similar episode while he was on his annual missionary trip, for which he did not seek medical attention. He was started on intravenous PPI therapy and underwent EGD that revealed a clean-based duodenal ulcer. Gastric biopsies were notable for chronic active gastritis but no H pylori. He denied aspirin or nonsteroidal anti-inflammatory drugs. There had been no weight loss, and he noted 2 to 3 bowel movements per day. He was placed on oral PPI therapy at hospital dismissal and presents to your clinic 6 weeks later for follow-up. His only other medication is amoxicillin, which he has been taking for the past 5 days for a sinus infection. He feels well.
**Question**

Which one of the following is the next best step?

a. No further tests  
b. *H pylori* stool antigen test  
c. Serum gastrin level determination  
d. *H pylori* serology  
e. Repeated EGD with biopsies of the ulcer

**Discussion**

This patient has a high likelihood of *H pylori* infection based on the fact that he has a duodenal ulcer (with *H pylori* being the most common cause), chronic active gastritis (again, with *H pylori* being the most common cause), and previous symptoms suggesting untreated infection. Although the histology was negative for *H pylori*, he had recent bleeding and was on PPI therapy at the time, both of which can affect the yield of histology. If a patient such as this one has clinical features of *H pylori* infection with negative histology in the setting of bleeding, antibiotics, PPI therapy, or bismuth use, a second test to evaluate for *H pylori* is recommended. Given the high pretest probability for *H pylori* infection in this patient, *H pylori* serology is recommended. Although the positive predictive value of serologic testing depends on the prevalence of infection, this patient has several surrogate markers for *H pylori* infection (peptic ulcer disease and chronic active gastritis), making it a helpful test in this individual.9

Performing no additional tests would be suboptimal clinical practice given the patient has not been thoroughly evaluated for an etiology of his current issues, and to overlook and not treat *H pylori* infection would put him at higher risk of future complications. The patient is currently still receiving PPI therapy and an antibiotic, both of which can lead to false-negative stool antigen test results. Urea breath testing and rapid urease tests for *H pylori* are also affected by recent or concurrent use of these same medications. While a gastrinoma should be considered in a patient with *H pylori*-negative, nonsteroidal anti-inflammatory drug–negative peptic ulcer disease, this patient has not been fully deemed *H pylori* negative yet and does not have other features to suggest a gastrinoma, such as diarrhea, esophagitis, multiple ulcers, or ulcers in unusual locations. Unlike gastric ulcers, duodenal ulcers are very unlikely to be malignant, and therefore endoscopic follow-up to evaluate for ulcer healing is not recommended.

**Clinical Pearl**

False-negative results can occur when testing for *H pylori* in the setting of gastrointestinal bleeding or with the use of antibiotics, PPI therapy, or bismuth; confirmation of negative results with a second test is recommended if there is clinical suspicion of infection.

**References**


Correct answers: Case 1. b, Case 2. a, Case 3. c, Case 4. e, Case 5. b, Case 6. d