1. A 30 y/o male presents with dysphagia and "heart burn." An EGD was performed and biopsies were obtained. Based on the histology what is the best diagnosis?
   a. Severe reflux esophagitis
   b. "Pill" esophagitis
   c. Barrett's esophagitis
   d. Eosinophilic esophagitis
   e. None of the above

Answer: D. Eosinophilic esophagitis usually has multiple hpfs of at least 15 eosinophils or one hpf with at least 25 eosinophils. Eosinophils tend to be more lumenally associated and often form small "microabscesses."

2. All of the following are characteristic of lymphocytic colitis, EXCEPT:
   a. Surface epithelial damage
   b. Association with use of ranitidine
   c. Thickened basement membrane
   d. Lamina propria plasmacytosis
   e. Association with celiac disease

Answer: C. A thickened basement membrane is what characterizes the difference between lymphocytic and collagenous colitis. Lymphocytic colitis has been associated with the use of different medications, including ranitidine and Cyclo 3 Fort. There is also an association with celiac disease. (Odze, page 237)

3. A 40 y/o female undergoes an EGD. Multiple nodules are noted in the stomach. Based on the images shown, what is the best diagnosis?
   a. Menetrier's disease
   b. Juvenile polyp
   c. Hyperplastic polyp
   d. Fundic gland polyp
   e. Adenoma

Answer: D. This is an example of a fundic gland polyp. They show distorted glands with both chief and parietal cells. Hyperplastic polyps can have similar appearances, but the glands are lined by foveolar epithelium. In fundic gland polyps, the foveolar epithelium is atrophic. (Odze, p. 271-279)

4. A patient is found to have multiple small nodules during a colonoscopy. Histology showed a monomorphic infiltrate of small to intermediate sized lymphoid cells with an irregular nuclear membrane. Which of the following FISH studies would most likely be positive?
   a. t(11;14)
   b. t(14;18)
   c. t(8;14)
   d. t(2;5)

Answer: A. Mantle cell lymphoma is associated with t(11;14), which joins the cyclin D1/bcl-1 gene on chromosome 11 with the IgH chain on chromosome 14. Follicular lymphoma is associated with t(14;18) BCL-2/IgH. Burkitt lymphoma is associated with t(8;14) c-myc/IgH, and anaplastic large cell lymphoma is associated with t(2;5). Sometime c-myc may be translocated with the λ gene on chromosome 22 – t(8;22) or the κ gene on chromosome 2 – t(2;8) in Burkitt lymphoma. *Test taking strategy* The lymphoma translocations should be easy points on the board exam.

5. A 40 y/o HIV positive patient presents with diarrhea. Based on the histologic images, what is the best diagnosis?
   a. Diarrheogenic bacterial colitis
   b. Cryptosporidosis
   c. Whipple disease
   d. Intestinal spirochetosis

Answer: D. Intestinal spirochetosis is common in HIV patients, but its significance is controversial. Most believe it is not pathogenic, but there is some evidence that treatment in patients with diarrhea may be helpful if other etiologies have been excluded. The diagnostic characteristics are of a thickened and deeply staining colonic mucosal brush boarder. A silver stain (Stiener in this case) highlights the organisms. (Sternberg, p. 1498)

6. Which of the following findings has the highest level of sensitivity in identifying gastroesophageal reflux disease?
   a. Intraepithelial eosinophils
   b. Neutrophil infiltration
   c. Intraepithelial lymphocytes
   d. Basal hyperplasia and papillary elongation

Answer: D. Basal hyperplasia and papillary elongation has a sensitivity of ~45-85% compared to intraepithelial eosinophils (~25-55%). Neutrophilic and lymphocytic infiltrates show less specificity. There are usually <10/hpf lymphocytes in the esophageal mucosa, and >20/hpf may be indicative of GERD. (Sternberg, p. 1402)

7. A 36 y/o Mongolian woman presents with disseminated nodule on the peritoneum during an exploratory laporatomy. She has a past history of "stomach cancer" 10 years earlier. Representative images of the histology, including special stains, are shown. What is the best diagnosis?
   a. Poorly differentiated adenocarcinoma
   b. Gastrointestinal Stromal Tumor (GIST)
   c. Melanoma
   d. Epithelioid hemangioendothelioma
   e. Leiomyosarcoma

Answer: B. This case is an example of an epithelioid GIST. These lesions usually have either a spindle cell or epithelioid appearance (some with both). The primary differential diagnosis includes leiomyoma/leiomyosarcoma and schwannoma. Leiomoyoma/sarcoma will express desmin, and schwannomas express S-100. GISTs are CD117 and usually CD34 positive. The simplest way to evaluate these tumors is to use an immunohistochemistry panel consisting of S-100, desmin, CD117, and CD34. GISTs are also stratified into risk for malignancy, which consists of using a combination of size and mitotic index (mitosis/50 hpf). In general, the larger and more mitoses, the more likely the lesion will behave in a malignant fashion. It should be noted that a subset of GISTs will respond to Gleevec (the CML drug). (Odze, p. 506-514)

8. All of the following organisms associated with infectious colitis are known to form true granulomas or microgranulomas EXCEPT:
   a. *Yersinia pseudotuberculosis*
   b. *E. coli* O157:H7
   c. Salmonella species
   d. Campylobactor species
   e. Chlamydia species

Answer: B. *E. coli* O157:H7 falls into the category of hemorrhagic colitis. Hemorrhage and edema within the lamina propria are the most common morphologic findings. True granulomas and microgranulomas are described with the other answers. (Sternberg, p. 1491)

9. Which of the following are characterized by diffuse active colitis?
   a. Ulcerative colitis
   b. Diverticular associated colitis
   c. Crohn colitis
   d. Both A & C are correct
   e. All of the above are correct

Answer: E. Diffuse active colitis (DAC) is described as an active colitis (cryptitis or crypt abscesses) with changes of approximately the same intensity throughout the tissue. While DAC is classically associated with ulcerative colitis, the findings are not specific. This pattern can also be seen in some cases of Crohn colitis and diverticular associated colitis. In diverticular associated colitis, the findings are only in areas of diverticula. This is why it is critical to always correlate biopsy findings with the clinical endoscopic findings. (Sternberg, p. 1488-89)

10. Based on the colon biopsy findings, what is the best diagnosis?
   a. Brown bowel syndrome
   b. Melanosis coli
   c. Chronic hemorrhage with hemosiderin pigmentation
   d. Ceroidosis

Answer: B. This is an example of melanosis coli, which has been related to chronic laxative use and ingestion of members of the antracene group. Ceroidosis is also referred to as "The Brown Bowel Syndrome" and is characterized by lipofuscin in smooth muscle of the lamina propria. Melanosis coli is characterized by lipofuscin-like pigment within macrophages in the lamina propria. (Sternberg, p. 1516)

References:

Sternberg's Diagnostic Surgical Pathology. Mills, SE, *et al*. Fourth Edition. 2004.

Surgical Pathology of the GI Tract, Liver, Biliary Tract, and Pancreas, Odze, R. *et al*. 1st Edition. 2004.

Notes for question set:[1]

[1] PathMD strives for the highest quality and accuracy. However, the *PathMD: Board Review Letter* is for review purposes and not meant for clinical decision making. It should not be used in place of review of primary reference texts and the current medical literature. If inaccuracies are identified, please notify us so that a correction may be published. (info@PathMD.com)

