USMLE Step 2: How should AAA repair complications be managed?

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If you’re preparing for the United States Medical Licensing Examination® (USMLE®) Step 2 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 71-year-old man is brought to the operating room for elective repair of a growing abdominal aortic aneurysm (AAA). The aneurysm has been followed closely for three years, but has grown 1 cm over the past year, to 5.8 cm. The operation is uncomplicated, and the patient is extubated and brought to the surgical ICU postoperatively for management.

He remains hemodynamically stable and his lower extremities remain warm and well perfused. On post-op day one his creatinine increases from 1.1 mg/dL to 1.3 mg/dL, but his urine output remains approximately 40 mL/h. On post-op day two, he complains of abdominal pain and has an episode of bloody diarrhea. A stat complete blood count shows that hemoglobin has dropped from 10 g/dL to 9 g/dL, and white blood cell count has elevated from 12,000/mm3 in the morning to 15,000/mm3.

What is the next step in management?

A. CT scan of the abdomen and pelvis.

B. Repeat labs in six–to-eight hours.

C. Send *Clostridium difficile* toxin assay and start oral metronidazole.

D. Transfuse two units of whole blood stat.
E. Urgent colonoscopy.

The correct answer is E.

Kaplan Medical explains why

The diagnosis is ischemic colitis, a well-recognized complication of AAA repair, open or endovascular. Often, the origin of the inferior mesenteric artery is covered by the aortic graft, and patients who do not have adequate collateralization via the marginal artery of Drummund are at risk for ischemia of the descending and sigmoid colon. The rectum is not involved because it has a different arterial blood supply.

Bloody diarrhea and leukocytosis in the postoperative period are essentially diagnostic of this condition, but the gold standard remains endoscopic visualization of a cyanotic or shedding mucosa, via either colonoscopy or flexible sigmoidoscopy. Management almost exclusively requires a colonic resection with colostomy, and lack of prompt intervention could result in sepsis and death.

Why the other answers are wrong

Choice A: CT scan of the abdomen and pelvis may show a thickened colonic wall consistent with colitis or, in more severe cases, pneumatosis intestinalis. CT scan will more often be negative and provide no diagnosis. It also will not provide information to differentiate the etiology (i.e., ischemic versus infectious). Furthermore, postoperative intra-abdominal fluid and edema may obscure the images. Moreover, the use of IV contrast, needed for the abdominal CT scan, is not appropriate, given this patient's increasing creatinine.

Choice B: Repeating the laboratory tests is always a good idea to confirm abnormal findings, but it is
not the best option, especially in a clinically deteriorating patient. Diagnosis needs to be made immediately.

**Choice C:** Although diarrhea and an increasing leukocytosis are worrisome in *Clostridium difficile* infections, the diarrhea is typically watery and foul-smelling, not bloody. Cytotoxin assay is the gold standard for the diagnosis of pseudomembranous colitis. The clinical presentation is worrisome for an ischemic complication from the AAA repair and not *C. difficile*, and this route should be investigated first.

**Choice D:** The decrease in hemoglobin and bloody stools are to be taken into account. Even though the decrease in hemoglobin is mild and this patient's AAA puts him at risk for other atherosclerotic conditions, he is not likely to need a transfusion yet. If the patient's condition warrants transfusion, packed red blood cells, not whole blood, is administered.

**Tips to remember**

- Ischemic colitis is a known complication of AAA repair secondary to occlusion of the inferior mesenteric artery.
- Prompt recognition and diagnosis with colonoscopy allows for timely resection of the colon with a colostomy to prevent sepsis and death.

For more prep questions on USMLE Steps 1, 2 and 3, view other posts in this series.

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