Kaplan USMLE Step 3 prep: Woman with right lower quadrant pain

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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 22-year-old college student comes to the emergency department with severe right lower quadrant pain. She says the pain started about six hours ago and has progressively worsened. She has no significant medical problems and her only medication is oral contraceptive pills. She is sexually active with one partner, her boyfriend. Her last menstrual period was two weeks ago.

Vital signs are: temperature 37 °C (98.6 °F), blood pressure 120/70 mmHg, pulse 80 beats per minute. Abdominal examination is significant for focal tenderness in the right lower quadrant. Pelvic exam reveals exquisite tenderness in the right adnexa, a closed cervical os, and clear vaginal discharge. Laboratory studies show:

Beta-hCG – Negative

Leukocyte count – 7,300/mm3

Hemoglobin – 14.0 g/dL

Which of the following is the most likely etiology of this patient’s symptoms?
A. Acute appendicitis.
B. Diverticulitis.
C. Ovarian torsion.
D. Ruptured ectopic pregnancy.
E. Tuboovarian abscess.

The correct answer is C.

Kaplan Medical explains why

Ovarian torsion is the most likely cause of abdominal pain localized to the right adnexa in this patient. She has no significant medical problems and presents with an acute onset of right lower quadrant pain in the absence of fever or other laboratory signs of an infectious process.

Ovarian torsion often occurs in the setting of other ovarian pathology, such as a cyst or other lesions in the ovary that cause it to twist upon its vascular supply. Ovarian torsion is quickly diagnosed by ultrasonography of the pelvis with the demonstration of absence of flow to the ovary. This is an urgent diagnosis and surgery is required to restore blood flow.
Why the other answers are wrong

Choice A: Acute appendicitis is not a likely cause of abdominal pain in this patient. Acute appendicitis is an infectious process that results from obstruction of the appendix (usually by a fecalith) and subsequent bacterial infection. It usually presents with right lower quadrant pain, fever, and leukocytosis. The presence of peritoneal signs such as rebound tenderness raises the suspicion for a ruptured appendix.

Choice B: Diverticulitis is not a likely cause of abdominal pain in this patient. Diverticulitis is an infectious process that typically affects older patients who have diverticulosis. This most often affects the sigmoid colon, although diverticulosis can occur anywhere in the colon. Signs and symptoms of diverticulitis include lower abdominal pain, fever, nausea, vomiting, and leukocytosis.

Choice D: A ruptured ectopic pregnancy is not a likely cause of abdominal pain in this patient. This diagnosis must be considered in any pregnant woman who presents with abdominal pain, vaginal bleeding, and symptoms of shock, and is a surgical emergency. This patient has a negative serum beta-hCG, which rules out the possibility of an intrauterine or ectopic pregnancy.

Choice E: A tuboovarian abscess is not a likely cause of abdominal pain in this patient. A tuboovarian abscess is an advanced form of pelvic inflammatory disease (PID) most often caused by the spread of bacteria from the lower genital tract. The most common bacterial pathogens are anaerobic. Risk factors for PID include patients with an increased risk of contracting a sexually transmitted disease, early age of first sexual encounter, multiple sexual partners, history of sexually transmitted disease, and douching.

In addition, women using intrauterine devices for contraception are at increased risk for PID and tuboovarian abscess. Symptoms of tuboovarian abscess include pelvic pain, fever, leukocytosis, and abnormal cervical or vaginal discharge in the setting of PID.

Tips to remember

- The sudden onset of severe lower abdominal pain in the presence of an adnexal mass is presumptive evidence of ovarian torsion.
- Beta-hCG should be negative, and ultrasound is used to confirm the diagnosis.

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

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