Ectopic Pregnancy: Review Questions

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QUESTIONS

Choose the single best answer for each question.

1. **A 21-year-old woman presents to the emergency department with acute onset of left lower abdominal pain that started several hours prior to admission. She describes the pain as crampy and intermittent. Her last normal menstrual period was approximately 6 weeks ago, and she reports spotting for several days prior to admission. Physical examination reveals a tender lower abdomen with guarding, no rebound, no vaginal discharge or cervical motion tenderness, a slightly enlarged soft uterus, and no palpable adnexal masses. The patient's blood pressure is 110/70 mm Hg, and her heart rate is 80 bpm without orthostatic changes. Which of the following is the most appropriate diagnostic test?**
   (A) Abdominal-pelvic computed tomography (CT) scan
   (B) Abdominal radiograph
   (C) Complete blood count
   (D) Human chorionic gonadotropin (hCG)
   (E) Progesterone level

2. **A 24-year-old woman who is 7 weeks pregnant with no complaints presents for routine prenatal care and undergoes transvaginal ultrasonography (TVUS), which fails to reveal an intrauterine gestation. The endometrial lining is 4 mm, the ovaries appear normal, and there is a 1.5-cm mass adjacent to the right ovary. There is no gestational sac, yolk sac, or embryo seen in the uterus or adnexae, and no fluid is seen in the cul-de-sac. Serum quantitative hCG level is 4500 mIU/mL. What is this patient's most likely diagnosis?**
   (A) Complete abortion
   (B) Ectopic pregnancy
   (C) Incomplete abortion
   (D) Missed abortion
   (E) Threatened abortion

3. **What is the most appropriate treatment for a hemodynamically stable patient diagnosed with an unruptured ectopic pregnancy via ultrasound without evidence of fetal heart activity (hCG level, 2000 mIU/mL)?**
   (A) Oral methotrexate (MTX)
   (B) Intramuscular MTX
   (C) Laparoscopic salpingostomy
   (D) Laparoscopic salpingectomy
   (E) Laparotomy with salpingostomy

4. **What is the most common etiologic factor for ectopic pregnancy?**
   (A) Genetically abnormal embryos
   (B) History of pelvic inflammatory disease (PID)
   (C) Prior abortion
   (D) Prior tubal surgery
   (E) Use of progesterone-only intrauterine devices

(turn page for answers)

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ANSWERS AND EXPLANATIONS

1. **(D) hCG.** Any woman of reproductive age presenting with pain and irregularity of the menstrual cycle should be tested for pregnancy. Qualitative urine tests for hCG are as sensitive for detecting early pregnancy as serum tests. If the test is negative, the differential diagnosis would include PID and abnormalities of the genital tract (eg, ovarian cysts, fibroids), urinary tract (eg, kidney/ureteral stones), or gastrointestinal tract (eg, diverticulitis, appendicitis). Diagnostic tests, such as complete blood counts, radiography, ultrasonography, and CT scans, may then become useful. If the test is positive, the location of the pregnancy must be established to rule out ectopic pregnancy. TVUS would therefore be the next most useful test after pregnancy is established. Serum progesterone levels would be useful to distinguish viable from nonviable pregnancies, although this will not indicate the location of the pregnancy. High progesterone levels (> 20 ng/mL) are usually associated with fetal viability, whereas low levels (< 5 ng/mL) are usually associated with nonviable pregnancies.[1]
2. **(B) Ectopic pregnancy.** Distinguishing between early pregnancy complications is critical. Diagnosing ectopic pregnancy is particularly important, as it is the leading cause of pregnancy-related death in the first trimester. Critical pieces of information are the patient's lack of bleeding and serum hCG level. First trimester bleeding is always a symptom with incomplete, complete, and threatened abortion, which are typically accompanied by abdominal cramps. In an incomplete abortion, products of conception are still in the uterus and the cervical os remains open. In complete and threatened abortions, the cervical os is closed; all products of conception are expelled in a complete abortion, whereas, the products of conception remain in the uterus in a threatened abortion. With a missed abortion, there is embryonic death or lack of development of an embryo (ie, anembryonic gestation). In this patient, the lack of an intrauterine gestational sac on ultrasound would be most consistent with either a complete abortion or an ectopic pregnancy. The patient has a serum hCG value of 4500 mIU/mL, and an intrauterine gestation, if present, should be visualized with TVUS. (1500 mIU/mL is the approximate hCG level when an intrauterine gestation can be visualized.) If the patient had bled heavily with cramping and symptoms had resolved, complete abortion would be a possible diagnosis. If this were the case, serum hCG levels would decline significantly.[1,2]
3. **(B) Intramuscular MTX.** The treatment of ectopic pregnancy has evolved toward a predominantly nonsurgical approach. Laparotomy with unilateral salpingo-oophorectomy, favored for many years, gave way to salpingectomy with ovarian preservation and salpingostomy. The laparoscopic approach to these procedures was demonstrated to be safe and effective. Medical therapy (MTX) for ectopic pregnancy began in the 1980s and has supplanted surgery for most stable patients. MTX is a folic acid antagonist that deactivates dihydrofolate reductase, thereby depleting a cofactor necessary for DNA and RNA synthesis, and thus preventing trophoblast cells of an early pregnancy from rapidly dividing. Most MTX regimens utilize single- or multiple-dose treatment with intramuscular injections. Contraindications or factors that increase the failure rate of MTX therapy include hemodynamic instability, presence of fetal cardiac activity, and elevated hCG levels. There is no consensus on what hCG level is considered an absolute contraindication to MTX therapy.[3,4]
4. **(B) History of PID.** PID is the leading cause of ectopic pregnancy. Plical agglutination within the endosalpinx of the fallopian tubes can prevent normal passage of the blastocyst through the tubes to the uterus. At least 50% of first ectopic pregnancies are associated with a history of PID. In most other cases, no risk factor can be identified. Prior tubal surgery is associated with an elevated risk for ectopic pregnancy but is not as common as PID. Progesterone-only intrauterine devices decrease the overall risk of ectopic pregnancy when compared with no contraception. However, should conception occur, the risk of ectopic implantation is about 5%. A history of 2 or more prior abortions may be associated with an elevated risk for ectopic pregnancy, although 1 prior abortion has not been shown to increase the risk.[1] Structurally abnormal embryos appear to increase risk for ectopic implantation, but genetic abnormalities do not.

REFERENCES

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