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Ob/Gyn Sonography Review

2nd Edition

Obstetrics & Gynecology A Q&A Review for the ARDMS Specialty Exam

Continuing Education Activity

SDMS-Approved

12

CME Credits

KATHRYN A. GILL | JIM BAUN | TRACI B. FOX

Ob/Gyn Sonography Review

A Q&A REVIEW FOR THE ARDMS OBSTETRICS & GYNECOLOGY EXAM

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A Q&A REVIEW FOR THE ARDMS OBSTETRICS & GYNECOLOGY EXAM

2nd Edition

2018

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Preface to the 2nd Edition

THIS MOCK EXAM is Step 2 in Davies' 1-2-3 Step Ultrasound Education & Test Preparation system. Together, the three publications in this system form a targeted, integrated, silver-bullet method that prepares sonographers to take, and *pass*, the Ob/Gyn specialty examination given by the American Registry for Diagnostic Medical Sonography (ARDMS). You can learn more about the companion volumes—Step 1, *Ob/Gyn Sonography: An Illustrated Review*, and Step 3, *ScoreCards for Ob/Gyn Sonography*—by visiting Davies' website at www.daviespublishing.com.

The second edition of *Ob/Gyn Sonography Review* has been revised, expanded, and fully updated to cover all the topics identified on the ARDMS exam content outline—and more. We have added nearly 200 questions and updated more, for a total of 700 registry-like items, and the mock exam now contains 230 images, schematics, and anatomic illustrations.

The actual ARDMS exam contains approximately 170 questions. Mastery of these 700 registry-like items and their underlying concepts—as explained in the companion Step 1 review text by Jim Baun, *Ob/Gyn Sonography: An Illustrated Review*—will thoroughly arm you to pass this ARDMS specialty exam to obtain the RDMS credential or simply to cross-train for added expertise. Designed as an adjunct to your regular study, this mock exam will help you precisely determine your strengths and weaknesses and gives you clear explanations and page-specific references to Davies' Step 1 text so that you can study most effectively. The Step 3 flashcard component, *ScoreCards for Ob/Gyn Sonography*, ensures your mastery of basic facts, values, and principles—and also your ability to think on your feet—with numerous image-based questions. We also highly recommend Kathryn Gill's masterful *Ultrasound in Obstetrics and Gynecology: A Practitioner's Guide*, which, with its particular strengths in clinical protocols, tips, and pitfalls, forms a valuable complement to the Step 1 review text. All these study aids come with SDMS-approved CME credit and are resources that sonographers will want to keep in their reference libraries.

Facts about *Ob/Gyn Sonography Review*:

- ▶ This mock exam covers the material on the ARDMS exam content outline in effect as of 2018. Readers are advised to check the ARDMS website, www.ardms.org, for the latest updates. This mock exam itself is continuously updated and revised as necessary.
- ▶ This mock exam focuses exclusively on the Obstetrics and Gynecology specialty exam to ensure thorough coverage of even the smallest subtopic and task on the exam. (For those preparing for the Sonography Principles and Instrumentation exam, see Davies' *Ultrasound Physics Review: SPI Edition*, available at www.DaviesPublishing.com.)
- ▶ In preparing this mock exam, we have referred to the last best ARDMS content outline as a guideline for coverage. At the same time, we have organized the content using a comprehensive, subject-driven approach to ensure that all important topics are fully addressed. The ARDMS exam content *outline* provides a generalized categorical overview together with very specific clinical tasks, but it can omit and assume the mastery of key intermediate topics you must know to pass the *examination*. Hence our hybrid approach gives you the best of both worlds.
- ▶ This second edition of *Ob/Gyn Sonography Review* contains 700 registry-like questions—37% more than the first edition. Twice as many questions are now illustrated, with over 230 images and schematics.

- ▶ While otherwise in ARDMS exam format, this Davies mock exam makes deliberate and judicious use of answer-choice formats that occasionally depart from those on the ARDMS exam. We use multiple-choice items with five, not four, possible choices—thereby increasing both the difficulty of each question and the time needed to answer it. We also sprinkle in a few answer-choice variants (such as “A and B” and “not/except” items). The point? To give you not only practice for the registry exam but also an educational tool that will exercise those neural pathways in more than one direction. Registry candidates who stretch beyond the standard format and master these items at an average rate of 1 minute apiece will be exceptionally well prepared for the actual exam.
- ▶ The answer key located in Part 5 contains not only the answers but also concise explanations that are clear and authoritatively referenced for fact checking and further study. We recommend that you have a copy of the Davies Step 1 review text, *Ob/Gyn Sonography: An Illustrated Review* by Jim Baun, for extended and well-illustrated coverage of your weak areas, as well as Kathryn Gill’s *Ultrasound in Obstetrics and Gynecology: A Practitioner’s Guide*. The answer key provides page-specific references to these integrated texts along with other authorities. No more searching for sources and pages!
- ▶ This mock examination has been approved by the Society of Diagnostic Medical Sonography (SDMS) as a CME activity. A CME application form, quiz, and full submission instructions are included in Part 6. Passing this quiz will qualify the applicant for 12 CME credits. A modest administrative processing fee applies at the time of submission, and more than one sonographer may submit this activity for CME credit. These credits are accepted by ARDMS, the Alliance for Physician Certification and Advancement (APCA), the American Registry of Radiologic Technologists (ARRT), and other organizations toward meeting their CME requirements. Some credentials carry stipulations regarding specialty areas in which CME credits may be earned. Always check with the organization that governs your credential(s). All the credits in this activity may be applied to maintain the RDMS credential.
- ▶ A bibliography of current authoritative text references appears in Part 7. It includes the all-important Step 1 review text by Jim Baun, the Step 3 *ScoreCards for Ob/Gyn Sonography* by Traci B. Fox, and the complementary *Ultrasound in Obstetrics and Gynecology* by Kathryn A. Gill.
- ▶ Finally, Part 8 functions as an index to the ARDMS exam content outline. Here you will find the full outline, complete with all tasks, as published on the ARDMS website. Each task on the exam outline is cross-referenced to any and all questions in this Ob/Gyn mock exam that pertain to that task, for your convenience in targeting your study on specific tasks. We also encourage you to consult the ARDMS website at www.ardms.org for the latest information and updates on the Ob/Gyn specialty examination.

ARDMS Advanced Item Type (AIT) Questions

All the ARDMS exams now include Advanced Item Type (AIT) questions that assess practical sonography instrumentation skills. For the Ob/Gyn specialty exam, these AIT questions include what ARDMS calls “Hotspot” questions. Hotspot items display an image and question, requiring you to indicate the correct answer by marking directly on the image using your cursor. This type of question is considered advanced because it requires a higher level of clinical thinking and processing than required when you are answering a conventional multiple-choice question. In Davies’ mock exam, similar questions are identified as *AIT—Hotspot* questions. These items ask you to identify what an arrow in the image is pointing at or to indicate the label on an image that corresponds to the correct answer.

Another type of AIT question, the *AIT—SIC* (Semi-Interactive Console) item, requires the examinee to use a semi-interactive console to correct a problem with the image presented. These items are currently limited to the Sonography Principles and Instrumentation (SPI) examination, but as a bonus feature we have identified such items for your reference.

Finally, PACSim items—case-based Picture Archive and Communication Simulation questions—are not included in this Ob/Gyn sonography mock exam due to the multifaceted interactive nature of these questions. Currently there are approximately two PACSim questions on the Ob/Gyn exam. These items are designed to simulate a reading workstation experience, a picture archive and communication system. Each item presents a brief case description, or clinical history. Candidates must read the case/clinical history of the patient, evaluate existing image(s), and complete the ultrasound report by selecting options from a drop-down menu. PACSim questions move the examinations closer to clinical practice, improving the level of certainty that the test taker has demonstrated the basic levels of skill, knowledge, and abilities when the ARDMS awards a credential. Davies recommends that those taking the Ob/Gyn specialty exam visit the ARDMS website at <http://www.ardms.org/Pages/PACS.aspx> to access the PACSim User Guide, read FAQs, see sample questions, and watch a video tutorial.

How to Use This Mock Exam

Ob/Gyn Sonography Review effectively simulates the content of the ARDMS Ob/Gyn specialty exam. Current ARDMS standards call for approximately 170 multiple-choice questions to be answered during a three-hour period. That is, you will have an average time of just over 1 minute to answer each question. Timing your practice sessions according to the number of questions you need to finish will help you prepare for the pressure experienced by Ob/Gyn candidates taking this exam. It also helps to ensure that your practice scores accurately reflect your strengths and weaknesses so that you can study more efficiently and with greater purpose in the limited time you are able to devote to preparation—especially if you use Davies’ integrated 1-2-3 Step test prep products.

IMPORTANT NOTE: *Although many of our customers remark on similarities between our questions and those of the actual exam, do not be misled into thinking you should memorize these questions and answers. They are here to give you practice, to teach you things you may not know, and to reveal your strengths and weaknesses so that you know where to put your energy as you prepare for the exam.*

ARDMS test results are reported as a “scaled” score that ranges from a minimum of 300 to a maximum of 700. A scaled score of 555 is the passing score—the “passpoint” or “cutoff score” for all ARDMS examinations. The scaled score is simply a conversion of the number of correct answers that also, in part, takes into account the difficulty of a particular question. You can search on the Internet for “Angoff scoring method” if you want to learn more about scaled scoring. Suffice it to say that it helps to ensure the fairness of the exams.

We include below and strongly recommend that you read “Taking and Passing Your Exam,” by Don Ridgway, RVT, who offers useful tips and practical strategies for taking and passing the ARDMS examinations.

Finally, you have not only our best wishes for success but also our admiration for taking this big and important step in your career.

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Taking and Passing Your Exam

by Don Ridgway, RVT*

Preparing for Your Exam . . .

Study. And then study some more. Knowing your stuff is the most important factor in your success. Start early, set a regular study schedule, and stick to it. Make your schedule specific so you know exactly what to study on a particular day. Write it down. Establish realistic goals so that you don't build a mountain you can't climb.

As to what you study, don't just read aimlessly. Focus your efforts on what you need to know. Rely on a core group of dependable references, referring to others as necessary to firm up your understanding of specific topics. Let the ARDMS exam outline guide you. And use different but complementary study methods—texts, flashcards, and mock exams—to exercise those neural pathways.

Ease down on studying the week before. Wind down, reduce stress, build confidence, and rest up. Don't cram! And no studying the night before. You had your chance. Watch a movie, relax, go to bed early, and sleep well.

Organize your things the night before. Lay out comfortable clothes (including a sweater or sweatshirt in case the testing center is cold), pencils, your ARDMS test-admission papers, car and house keys, glasses, prescriptions, directions to the test center, and any other personal items you might need. Be prepared!

The Day of Your Exam . . .

Eat lightly. You do not want to fall asleep during the exam. Go easy on the coffee or tea so your bladder doesn't distract you halfway through the exam.

Arrive early. Plan to arrive at the test center early, especially if you haven't been there before. Take directions, including the telephone number of the testing center in case you have to make contact en route. You don't need a wrong-offramp adventure.

Be confident. As you wait for the exam to begin, smile, lift both hands, wave them toward yourself, and say, "Bring it on."

During the Exam . . .

Read each question twice before answering. Guess how easy it is to get one word wrong and misunderstand the whole question!

Try to answer the question before looking at the choices. Formulating an answer before peeking at the possibilities minimizes the distractibility of the incorrect answer choices, which in the test-making business are called—guess what?—*distractors*.

*Don Ridgway is the author of *Introduction to Vascular Scanning: A Guide for the Complete Beginner* and editor of *Vascular Technology Review*. He is Professor Emeritus at Grossmont College in El Cajon, California.

Knock off the easy ones first. First answer the questions you feel good about. Then go back for the more difficult items. Next, attack the really tough ones. Taking notes on long or tricky questions often can jog your memory or put the question in new light. For questions you just cannot answer with certainty, eliminate the obviously wrong answer choices and then guess.

Guessing. Passing the exam depends on the number of correct answers you make. Because unanswered questions are counted as incorrect, it makes sense to guess when all else fails. The ARDMS itself advises that it is to the candidate's advantage to answer all possible questions. Guessing alone improves your chances of scoring a point from 0 (for an unanswered question) to 25% (for randomly picking one of four possible answers). Eliminating answer choices you know or suspect are wrong further improves your odds of success. By using your knowledge and skill to eliminate two of the four answer choices before guessing, for example, you increase your odds of scoring a point to 50%.

Pace yourself; watch the time. Work methodically and quickly to answer those you know, and make your best guesses at the gnarly ones. Leave no question unanswered.

Don't despair 50 minutes into the exam. At some point you may feel that things just aren't going well. Take 10 seconds to breathe deeply—in for a count of five, out for a count of five. Relax. Recall that you need only about three out of four correct answers to pass. If you've prepared reasonably well, a passing score is attainable even if you feel sweat running down your back.

Taking the Exam on Computer . . .

Some candidates express concern about taking the registry exam on a computer. Most folks find this to be pretty easy; some find it offputting, at least in prospect. But the computerized exams are quite convenient: You can take the exam at your convenience (a far cry from the days of one exam per year), you know whether or not you passed before you leave the testing center (compare that to waiting weeks and even months, as used to be the case), and you can reschedule the exam after 90 days if you happen not to pass the first time (rather than waiting another six months to a year). Another good point: The illustrations are said to be clearer on computer than in the booklets at a Scantron-type exam.

Taking the test by computer is not complicated. The center even gives you a tutorial to be sure you know what you need to do. You sit in a carrel with a computer and answer the multiple-choice questions by pointing and clicking with a mouse. There is a clock on the display letting you know how much time is left. Use it to pace yourself. Scratch paper is available; make liberal use of it.

You can mark questions for answering later. A display shows which questions have not been answered so you can return to them. When you have finished, you click on "DONE," and you find out immediately whether you passed.

It's nothing to be afraid of. The principles are the same as those for any exam. Be methodical and keep breathing.

Summary . . .

Preparing for the exam:

- Study.
- Use flashcards.
- Join a study group.
- Wind down a week before.
- Don't cram.
- Relax!

The day of your exam:

- Eat lightly, avoid coffee.
- Arrive early.
- Take a sweater.
- Be confident!

During the exam:

- Read each question twice.
- Answer the question before looking at the answer choices.
- Answer the easy ones first.
- Guess when necessary.
- Pace yourself.
- Don't despair.

Taking the exam on computer:

- Just point and click.
- Take notes.
- Mark and return to the hard questions.
- Use the on-screen clock to pace yourself.
- Be methodical.
- Breathe!

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PART 1

Obstetrics

First trimester

Second and third trimesters

Placenta

Assessment of gestational age

Complications

Amniotic fluid

Genetic studies

Fetal demise

Fetal abnormalities

Coexisting disorders

First Trimester

Gestational age

Gestational sac

Yolk sac

Embryonic development

Ovaries/corpus luteum

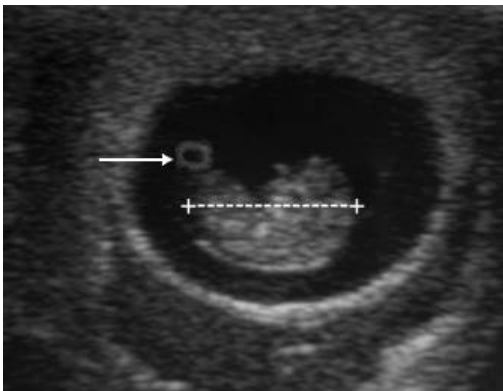
Cul-de-sac

Ectopic pregnancy

Pregnancy failure

1. When sonographers use the term *gestational age*, they mean:
 - A. Weeks or days since conception
 - B. Weeks or days since fertilization
 - C. Weeks or days since implantation
 - D. Weeks or days since the first day of the last menstrual period
 - E. Weeks or days since the last day of the last menstrual period
2. Up to 10 weeks' gestational (menstrual) age, the mean diameter of the normal gestational sac should grow approximately:
 - A. 0.5 mm per day
 - B. 1.0 mm per day
 - C. 2.0 mm per day
 - D. 3.0 mm per day
 - E. 4.0 mm per day
3. A successful pregnancy outcome is associated with a yolk sac that:
 - A. Occupies more than 30% of gestational sac volume
 - B. Has a round shape
 - C. Measures less than 2 mm in diameter at 8–10 weeks
 - D. Measures greater than 6 mm in diameter
 - E. Has irregular echogenic borders
4. Which sonographic finding is associated with an abnormal pregnancy?
 - A. Spherical gestational sac within the uterus
 - B. Double sac sign within an intrauterine gestational sac
 - C. Oval gestational sac within the uterus
 - D. Defined double decidual ring around the intrauterine gestational sac
 - E. Embryo with a calcified yolk sac

5. An *incomplete abortion* is defined as:
- A. Spontaneous abortion with retained products of conception
 - B. Anembryonic abortion
 - C. Heterotopic pregnancy
 - D. Subchorionic hemorrhage
 - E. Ectopic pregnancy without bleeding
6. When does the trilaminar embryonic disc form?
- A. During organogenesis
 - B. During implantation
 - C. During transit through the fallopian tube
 - D. During neurulation
 - E. During gastrulation
7. A patient presents with a positive pregnancy test and bright red spotting. By dates she is 8–9 weeks. What does this transverse image demonstrate?



- A. Second gestational sac
 - B. An anembryonic pregnancy
 - C. Normal amnion
 - D. Subchorionic hemorrhage
 - E. Placental abruption
8. What is being measured in the image in question 7?
- A. Gestational sac
 - B. Biparietal diameter
 - C. Crown-rump length
 - D. Embryonic disc
 - E. Abdominal circumference

AIT—Hotspot.*

*Advanced Item Type (AIT) Hotspot items marked here are similar to Hotspot items on the ARDMS exam. On the exam, these Hotspot items require you to indicate the correct answer by marking directly on the image using your cursor. In Davies' Ob/Gyn mock exam, similar questions are identified as AIT—Hotspot and ask you to identify what an arrow in the image is pointing at or to indicate the label on an image that corresponds to the correct answer. Another type of AIT question, the AIT—SIC (Semi-Interactive Console) item, requires you to use a semi-interactive console to correct a problem with the image presented. These items are currently limited to the Sonography Principles and Instrumentation (SPI) examination, but as a bonus feature we have also identified these items in this mock exam.

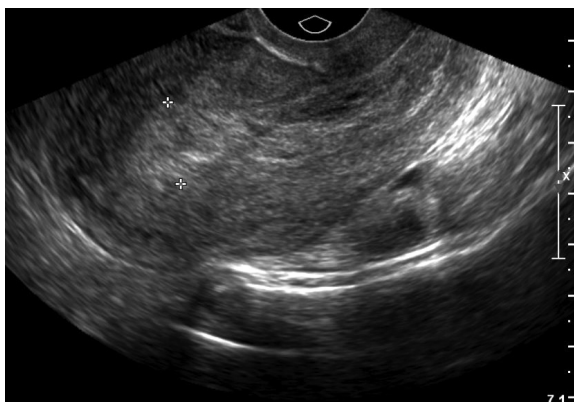
9. In the image in question 7, what is the arrow pointing to?
- Amniotic cyst
 - Fetal head
 - Gestational sac
 - Yolk sac
 - Umbilical cord

AIT—Hotspot.

10. Your patient relates a history of amenorrhea for 7 weeks. Her home pregnancy test was negative, but her serum beta-hCG exceeds 4000 mIU/ml. What does the image below demonstrate?



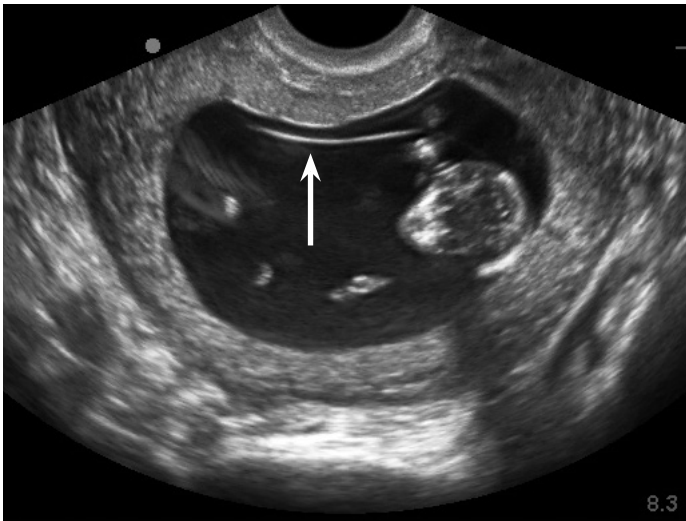
- Pseudocyesis with an endometrial cyst
 - Fluid contained within the endometrial cavity
 - Normal early intrauterine pregnancy
 - Degenerating submucosal fibroid
 - Normal empty uterus with periovulatory endometrium
11. This patient presented with bleeding and cramping. Her pregnancy test is weakly positive. Three days prior, a living IUP was documented in the uterus. This transvaginal image suggests:



- Normal intrauterine pregnancy
- Incomplete abortion

- C. Ectopic pregnancy
 - D. Pseudocyesis
 - E. Placental abruption
12. The primitive hindbrain can be seen as a cystic structure within the embryonic head. What is the name of this structure?
- A. Prosencephalon
 - B. Mesencephalon
 - C. Encephalocele
 - D. Diencephalon
 - E. Rhombencephalon
13. What is a *heterotopic* pregnancy?
- A. A cervical ectopic pregnancy
 - B. A fertility-assisted pregnancy
 - C. An abdominal ectopic pregnancy
 - D. Coexisting intrauterine and ectopic pregnancies
 - E. A twin ectopic pregnancy
14. In a ruptured ectopic pregnancy, which section of the fallopian tube is potentially the most life-threatening?
- A. Ligamentous
 - B. Ampulla
 - C. Interstitial
 - D. Fimbrial
 - E. Isthmic
15. Which statement about ectopic pregnancies is NOT true?
- A. Interstitial ectopics are more serious than those located in the ampulla.
 - B. The ovary is the second most common site for ectopic pregnancy.
 - C. The increased incidence of ectopic pregnancies is mostly attributable to sexually transmitted diseases.
 - D. The most common clinical symptom is pain.
 - E. If a patient has had a previous ectopic pregnancy, she is at increased risk for a recurrent ectopic pregnancy.
16. A longitudinal image shows an intrauterine gestational sac that occupies one-half of the endometrial canal. The sac size indicates that the gestational age of the pregnancy should be:
- A. 4 weeks
 - B. 6 weeks
 - C. 8 weeks
 - D. 10 weeks
 - E. 12 weeks

17. A patient presents with a positive pregnancy test, bleeding, and cramping. The sonogram reveals an intrauterine gestational sac containing an echogenic structure but no heartbeat. Measurement of the structure shows it to be 11 mm in length. The most likely diagnosis is:
- A. Anembryonic pregnancy
 - B. Missed abortion
 - C. Placenta previa
 - D. Partial mole
 - E. Early pregnancy failure
18. What is the arrow pointing to in this image?



- A. Amnion
- B. Yolk sac
- C. Septum
- D. Chorion
- E. Synechiae

AIT—Hotspot.

19. Which of the following is NOT an indication of ectopic pregnancy?
- A. Fluid in the cul-de-sac
 - B. Adnexal mass
 - C. Double decidual ring
 - D. Fluid within the endometrial cavity
 - E. Fluid in the right upper quadrant

20. This sagittal transvaginal image demonstrates a normal-appearing intrauterine gestational sac. The hypoechoic structure indicated by the calipers most likely represents:



- A. Leiomyoma
- B. Ovary
- C. Engorged vessel
- D. Artifact
- E. Cyst

AIT—Hotspot.

21. The image in question 20 shows the uterine position to be:
- A. Unidentifiable
 - B. Retroflexed
 - C. Dextroposed
 - D. Anteverted
 - E. Levoposed
22. At 5–10 weeks, the secondary yolk sac is considered abnormal if it measures:
- A. <2 mm
 - B. <3 mm
 - C. <4 mm
 - D. <5 mm
 - E. <6 mm
23. Prior to 10 weeks, the normal yolk sac diameter measures:
- A. 1–4 mm
 - B. 2–6 mm
 - C. 3–5 mm
 - D. 4–8 mm
 - E. 5–10 mm

24. All of the following characteristics suggest an abnormal early pregnancy EXCEPT:
- A. Fundal implantation
 - B. Dilated cervix
 - C. Poor decidual ring
 - D. Fluid around the sac
 - E. Irregular sac shape
25. Which of these drugs may be used to treat an early unruptured ectopic pregnancy in order to preserve fertility?
- A. Pergonal
 - B. Methotrexate
 - C. Diethylstilbestrol (DES)
 - D. Thalidomide
 - E. Danazol
26. What is the arrow pointing to in this image?

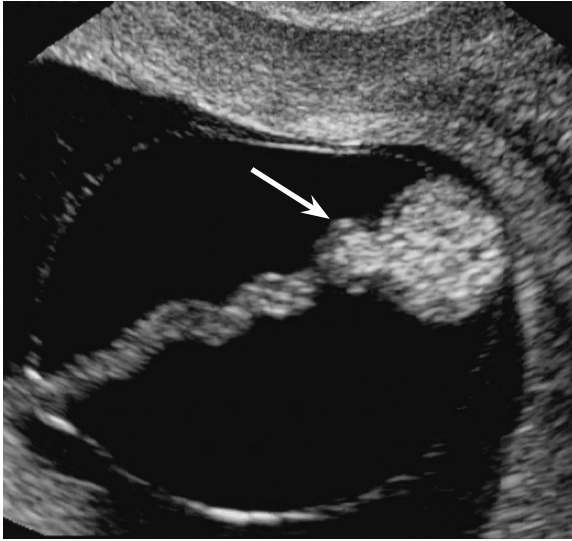


- A. Cystic mass
- B. Amnion
- C. Embryo
- D. Ovum
- E. Yolk sac

AIT—Hotspot.

27. The *double bleb sign* refers to the sonographic presentation of:
- A. The amnion and adjacent yolk sac
 - B. A heterotopic pregnancy
 - C. A bicornuate uterus
 - D. The amnion and chorion
 - E. Two intrauterine gestational sacs

28. What is the arrow in this image of a 10-week fetus pointing to?



- A. Umbilical vein thrombosis
- B. Single umbilical vein
- C. Normal embryonic midgut herniation
- D. Omphalocele
- E. Gastroschisis

AIT—Hotspot.

29. Normal embryonic midgut herniation occurs at approximately:
- A. 6 menstrual weeks
 - B. 8 menstrual weeks
 - C. 10 menstrual weeks
 - D. 12 menstrual weeks
 - E. 14 menstrual weeks
30. Physiologic herniation of fetal intestine outside the fetal abdomen is usually not seen after which gestational age?
- A. 6–8 weeks
 - B. 8–10 weeks
 - C. 10–12 weeks
 - D. 12–14 weeks
 - E. 14–16 weeks
31. To differentiate an early intrauterine pregnancy from a pseudogestational sac, it helps to visualize the:
- A. Decidualized endometrium
 - B. Yolk sac
 - C. Vitelline duct
 - D. Corpus luteum cyst
 - E. Chorionic villi

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