DAVIES

LIFE IS A TEST...PASS IT!

1-2-3 Step Ultrasound Education & Test Preparation

Step 1
Review text

Step 2
Mock examination

Step 3
Q&A memory skills flashcard drill

Ob/Gyn Sonography Review

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

Continuing Education Activity

Approved for 12 hours CME Credit

KATHRYN A. GILL | MISTY H. SLIMAN | PETER W. CALLEN

Ob/Gyn Sonography Review

Test yourself before the ARDMS tests you! *Ob/Gyn Sonography Review* illuminates the facts and principles on which you will be tested, hones your test-taking skills, and reveals your strengths and weaknesses by exam topic. Based precisely on the ob/gyn specialty exam outline published by ARDMS, this review contains 520 registry-like questions together with answers, clear explanations, and quick references for further study. More than 100 image-based cases prepare you to tackle the images on the exam. Coverage includes obstetrics (first through third trimesters, placenta, assessment of gestational age, and complications), gynecology (normal pelvic anatomy, physiology, pediatric, infertility/endocrinology, postmenopausal, pelvic and extrapelvic pathology), patient care, patient preparation, and technique—all in the same proportion as the exam itself. *Ob/Gyn Sonography Review* is very effective in combination *Ob/Gyn Sonography: An Illustrated Review* and *Ob/Gyn CD-ROM Mock Exam*. Why are our mock exams so popular and effective? Because they contain the same kinds of thought-provoking questions you will find on the exam! 12 hours' CME credit. Davies catalog #11032.

About the authors . . .

Kathryn A. Gill, MS, RT, RDMS, FSDMS, has been practicing, teaching, and writing about ultrasonography for more than 20 years. She is Program Director of the Institute of Ultrasound Diagnostics in Spanish Fort, Alabama, and the author and editor of *Abdominal Ultrasound: A Practitioner's Guide*, *Breast Sonography Review*, the *CD-ROM Mock Exams* for Ob/Gyn and Breast, and the forthcoming *Ultrasound in Obstetrics & Gynecology: A Practitioner's Guide*. Kathy became a fellow of SDMS in 1993 and a Senior Member of AIUM in 1996. She lives with her family in Alabama, where she teaches, practices, and writes.

Misty H. Sliman, RT, RDMS, is Clinical Director of the Institute of Ultrasound Diagnostics and a clinical sonographer with Medscan in Daphne, Alabama. Previously, Misty was affiliated with the Perinatal Unit at the University of South Alabama, Springhill Memorial Medical Center, and Mississippi Baptist Medical Center.

Peter W. Callen, MD, is Professor of Radiology, Obstetrics, Gynecology, and Reproductive Sciences at the University of California Medical Center, San Francisco. He is editor of the renowned textbook *Ultrasonography in Obstetrics and Gynecology*, and the author of numerous other contributions to the literature.

The *New* CD-ROM Mock Exams from Davies are <u>the</u> most effective and featuresome CDs available. Interactive, fun, and packed with regularly updated peer-reviewed content for SPI, Abdomen, Vascular, Ob/Gyn, Breast, and Fetal Echo. Work in Test Mode or Stud Learn Mode and easily customize your Test and Study sessions to focus on specific exam top Hundreds of continuously variable questions and images in registry format.
Clear, simple explanations and current references. Expert tutorials on key concepts. Additional explanatory images. Test timer keeps you on track. Instant results analysis scores and guides you topic by topic. Automatically review missed questions with one click. Available CME credit. A snap to use. Order toll-free 1-877-792-0005 or download from our website.

DAVIES PUBLISHING

ISBN 0-941022-53-6 www.DaviesPublishing.com

Ob/Gyn Sonography Review

A REVIEW FOR THE REGISTRY EXAM

Ob/Gyn Sonography Review

A REVIEW FOR THE ARDMS OBSTETRICS & GYNECOLOGY EXAM

2014

Kathryn A. Gill, MS, RT, RDMS
Institute of Ultrasound Diagnostics
Daphne, Alabama

Misty H. Sliman, RT, RDMS
Institute of Ultrasound Diagnostics
Daphne, Alabama

Peter W. Callen, MD
UCSF School of Medicine
San Francisco, California
Editor in Chief

Copyright © 2003–2014 by Davies Publishing, Inc.

All rights reserved. No part of this work may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic or mechanical, including photocopying, scanning, and recording, without prior written permission from the publisher.

Davies Publishing, Inc.
32 South Raymond Avenue
Pasadena, California 91105-1935
Phone 626-792-3046
Facsimile 626-792-5308
e-mail info@daviespublishing.com
www.daviespublishing.com

Printed and bound in the United States of America

Library of Congress Cataloging-in-Publication Data

Gill, Kathryn A.
OB/GYN sonography review : a review for the ARDMS obstetrics & gynecology exam, 2002-2003 / Kathryn A. Gill, Misty H. Sliman, Peter W. Callen.
p. ; cm.
Includes bibliographical references.
ISBN 0-941022-53-6
Ultrasonics in obstetrics—Examinations, questions, etc. I. Sliman, Misty H. II. Callen, Peter W. III. Title.
[DNLM: 1. obstetrics—Examination Questions. 2. Genital Diseases, Female—ultrasonography—Examination questions. 3. Pregnancy Complications—ultrasonography—Examination Questions. WQ 18.2 G475o 2003]
RG527.5.U48G55 2003
618.2’07543’076—dc21

2002041681

Preface

THIS MOCK EXAM is a question/answer/reference review of ob/gyn sonography for those RDMS candidates who plan to take the ARDMS Obstetrics and Gynecology specialty examination. It is designed as an adjunct to your regular study and as a method to help you determine your strengths and weaknesses so that you can study more effectively. *Ob/Gyn Sonography Review* covers everything on the current ARDMS exam content outline and in fact follows that outline, which you will find in Part VI of this book.

Facts about *Ob/Gyn Sonography Review*:

- It precisely covers and follows the current ARDMS exam outline.
- It focuses exclusively on the Obstetrics and Gynecology specialty exam to ensure thorough coverage of even the smallest subtopic on the exam. (For the Ultrasound Physics and Instrumentation exam, see *Ultrasound Physics Review*.)
- Topics are covered to the same extent as on the exam itself. Subject headings include the approximate percentage of the exam that a particular topic represents so you know the relative importance of each topic and can study more effectively.
- *Ob/Gyn Sonography Review* contains more than 515 questions, many of which are image-based or otherwise illustrated.
- Explanations are clear and conveniently referenced for fact-checking or further study.
- Each section is keyed to the ARDMS exam outline so that you always know where you are, what you are studying, and how it applies to your preparation.
- A bibliography appears at the end of the book, as does the exam outline and contact information for the ARDMS.

Ob/Gyn Sonography Review effectively simulates content and experience of the 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 1 minute to answer each question. A passing score is between 65% and 75%, depending on the difficulty of the particular exam. Timing your practice sessions according to the number of questions you need to finish will help you prepare for the pressure experienced by RDMS candidates taking this exam. It also helps to ensure that your score accurately reflects your strengths and weaknesses so that you study more efficiently and with greater purpose in the limited time you can devote to preparation. Because the content of this

Q&A review is formatted and weighted according to the registry's outline of topics and subtopics, you can readily identify those areas on which you should concentrate.

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.

Kathy Gill

Kathryn A. Gill, MS, RT, RDMS
Daphne, Alabama

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 outlines 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."

---

[*] Don Ridgway is the author of *Introduction to Vascular Scanning: A Guide for the Complete Beginner* and editor of *Vascular Technology Review 2003*. Don teaches and practices at Grossmont College and Hospital in El Cajon, California.

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*.

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 *in*correct, 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 20% (for randomly picking one of five 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 three of the five answer choices before guessing, for example, you increase your odds of scoring a point to 50%.

Don't second-guess. The common wisdom is that your first answer is more likely than revised answers to be correct. Actual studies indicate that when you return to a question and change the answer, you'll probably be wrong. Change an answer only if you're quite sure you should.

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 computer. Most folks find this to be pretty easy; some find it off-putting, 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 to return 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, arrive early, 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
- Don’t second-guess your first answers
- 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!

Contents

Preface

Taking and Passing Your Exam

PART I **Obstetrics** 1

FIRST TRIMESTER 1

Gestational sac
Yolk sac
Embryo
Ovaries
Cul-de-sac
Pregnancy failure
Ectopic pregnancy

SECOND / THIRD TRIMESTER 10

Cranial
Spine
Heart Thorax
Abdomen
Extremities
Fetal position
Other

PLACENTA 29

Development
Position
Anatomy
Membranes
Umbilical cord
Abruption
Previa
Masses & lesions
Maturity/grading
Doppler
Physiology
Accreta

ASSESSMENT OF GESTATIONAL AGE 36

Gestational sac
Embryonic size / crown-rump length

Biparietal diameter
Femur length
Abdominal circumference
Head circumference
Transcerebellar measurements
Binocular measurements
Cephalic indices
Fetal lung maturity
Other

COMPLICATIONS 40

Intrauterine growth retardation
Multiple gestations
Maternal illness
Antepartum
Fetal therapy
Postpartum

AMNIOTIC FLUID 51

Assessment
Polyhydramnios
Oligohydramnios
Fetal pulmonic maturity studies

GENETIC STUDIES 52

Maternal serum testing
Amniotic fluid testing
Chorionic villus sampling
Dominate/recessive risk occurrence

FETAL DEMISE 54

FETAL ABNORMALITIES 58

Cranial
Facial
Neck
Neural tube
Abdominal wall
Thoracic

COEXISTING DISORDERS 78

Leiomyoma
Cystic
Trophoblastic disease
Solid/mixed
Myometrial contraction
Other

PART II **Gynecology** 82

NORMAL PELVIC ANATOMY 82

Uterus
Ovaries
Fallopian tubes
Supporting structures
Cul-de-sac
Vasculature
Doppler flow
Gynecology-related studies

PHYSIOLOGY 96

Menstrual cycle
Pregnancy tests
Human chorionic gonadotropin
Fertilization

PEDIATRIC 103

Precocious puberty
Hematometra/hematocolpos
Sexual ambiguity
Other

INFERTILITY/ENDOCRINOLOGY 105

Contraception
Causes
Medications and treatment
Ovulation induction (follicular monitoring)
Assisted reproductive technology (GIFT, IVF, ZIFT)

POSTMENOPAUSAL 109

Anatomy
Physiology
Therapy
Pathology

PELVIC PATHOLOGY 112

Congenital uterine malformation
Uterine masses
Ovarian masses
Endometriosis
Polycystic ovarian disease
Inflammatory disease

Doppler flow studies
Gynecology-related studies
Other

EXTRAPELVIC PATHOLOGY ASSOCIATED WITH GYNECOLOGY 121

Ascites
Liver metastasis
Hydronephrosis
Other

PART III **Patient Care Preparation / Technique** **125**

Review charts
Explain examinations
Supine hypotensive syndrome
Bioeffects
Infectious disease control
Scanning techniques
Artifacts
Physical principles

PART IV **Answers, Explanations & References** **130**

Obstetrics
Gynecology
Patient Care Preparation/Technique

PART V **Application for CME Credit** **189**

Objectives of this activity
How To Obtain CME credit
Applicant Information
Evaluation—You Grade Us!
CME Quiz

PART VI **Exam Outline** **218**

PART VII **Bibliography** **220**

Why Continuing Medical Education (CME) Is Important **Inside back cover**

PART I

Obstetrics

First Trimester
Second/Third Trimester (Normal Anatomy)
Placenta
Assessment of Gestational Age
Complications
Amniotic Fluid
Genetic Studies
Fetal Demise
Fetal Abnormalities
Coexisting Disorders

FIRST TRIMESTER [6–8%]

- Gestational sac
- Yolk sac
- Embryo (normal physiologic development/sonographic appearance)
- Ovaries (corpus luteum)
- Cul-de-sac
- Pregnancy failure
- Ectopic pregnancy

1. The pelvic mass most commonly seen during a normal first trimester pregnancy is:

   A. Leiomyoma
   B. Cystic teratoma
   C. Corpus luteal cyst
   D. Theca lutein cysts
   E. Cystadenoma

2. The primitive hindbrain can be seen as a cystic structure within the embryonic head. It is called the:

   A. Diencephalons
   B. Rhombencephalon
   C. Prosencephalon

D. Mesencephalon
E. Encephalocele

3. The maternal side of the developing placenta is referred to as the:

A. Decidua basalis
B. Decidua capsularis
C. Decidua vera
D. Decidua parietalis
E. Decidua chorion

4. Up to 10 weeks gestational age, the mean diameter of the normal gestational sac should grow:

A. 0.5 mm/day
B. 1 mm/day
C. 2 mm/day
D. 3 mm/day
E. 4 mm/day

5. Physiologic herniation of fetal intestine outside the fetal abdomen should not be seen after gestational age:

A. 6 weeks
B. 8 weeks
C. 10 weeks
D. 12 weeks
E. 14 weeks

6. One should be able to image a normal intrauterine gestational sac transabdominally when the International Reference Preparation (IRP) level for hCG is equal to or greater than:

A. 1000 units/liter
B. 1200 units/liter
C. 1800 units/liter
D. 2400 units/liter
E. 3600 units/liter

7. Which of the following is NOT an indication of ectopic pregnancy?

A. Fluid in the cul-de-sac
B. Fluid within the endometrial cavity
C. Double decidual ring
D. Adnexal mass
E. Fluid in the right upper quadrant

8. A missed abortion is defined as:

A. Retention of a dead conceptus for a prolonged period (e.g., 2 months)
B. Retention of products of conception with bleeding

C. Blighted ovum without bleeding
D. Blighted ovum with bleeding
E. Ectopic pregnancy without bleeding

9. All of the following characteristics suggest an abnormal early pregnancy EXCEPT:

A. Irregular sac shape
B. Poor decidual ring
C. Dilated cervix
D. Fundal implantation
E. Fluid around the sac

10. Your patient is 10 weeks by good menstrual dates but presents with pregnancy-induced hypertension. You suspect:

A. Threatened abortion
B. Hydatidiform mole
C. Normal pregnancy
D. Ectopic pregnancy
E. Blighted ovum

11. Your patient has a positive pregnancy test and presents with bleeding and cramping. Of the following sonographic findings, which one would make you suspect an inevitable abortion?

A. Low implantation
B. Irregular sac shape
C. Poor decidual reaction
D. Double yolk sac
E. Dilated cervix

12. A *heterotopic* pregnancy is:

A. An abdominal ectopic pregnancy
B. An ectopic pregnancy with a normal intrauterine pregnancy
C. A twin ectopic pregnancy
D. A cervical ectopic pregnancy
E. A fertility-assisted pregnancy

13. To differentiate an early intrauterine pregnancy from a pseudogestational sac, it helps to visualize the:

A. Decidualized endometrium
B. Chorionic villi
C. Yolk sac
D. Vitelline duct
E. Corpus luteal cyst

14. A yolk sac is considered abnormal when its diameter exceeds:

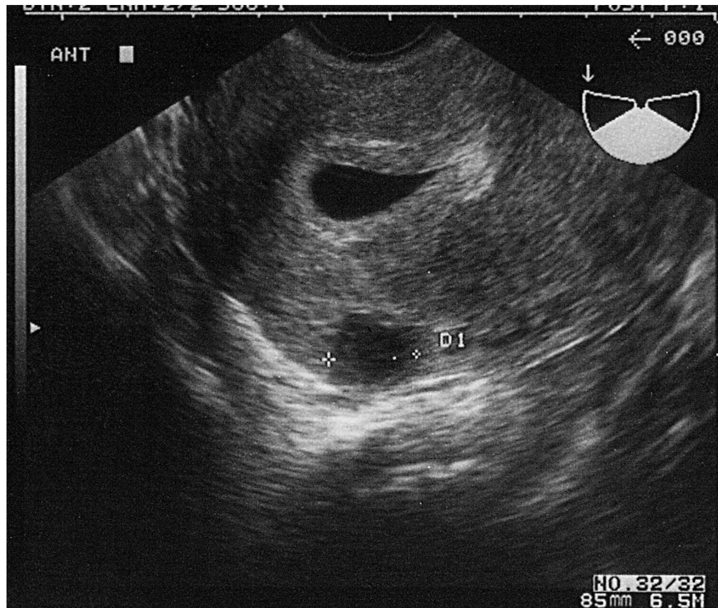
A. 2 mm
B. 3 mm

C. 4 mm
D. 5 mm
E. 6 mm

15. Which of these drugs may be used to treat an early unruptured ectopic pregnancy in order to preserve fertility?

A. Thalidomide
B. Methotrexate
C. Diethylstilbestrol (DES)
D. Pergonal
E. Danazol

This transvaginal image applies to questions 16 and 17.



16. This sagittal transvaginal image demonstrates a normal appearing intrauterine gestational sac. The hypoechoic structure indicated by the calipers most likely represents a(n):

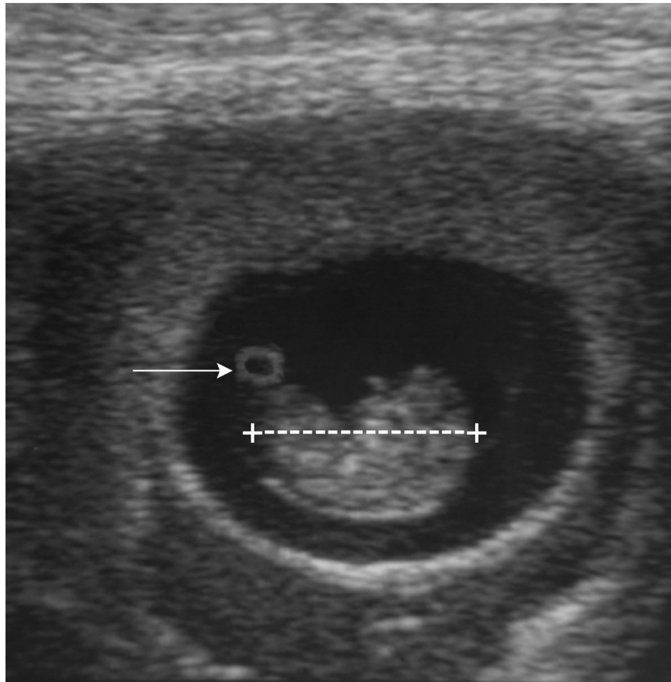
A. Leiomyoma
B. Engorged vessel
C. Cyst
D. Artifact
E. Ovary

17. The previous image shows the uterine position to be:

A. Levoposed
B. Dextroposed

C. Anteflexed
D. Retroflexed
E. Unidentifiable

This transverse image applies to questions 18–21.



18. 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. An anembryonic pregnancy
    B. Subchorionic hemorrhage
    C. Placental abruption
    D. Normal amnion
    E. Second gestational sac

19. What is being measured in this image?

    A. Gestational sac
    B. Embryonic disc
    C. Crown-rump length
    D. Biparietal diameter
    E. Abdominal circumference

20. To what is the arrow pointing?

    A. Gestational sac
    B. Fetal head
    C. Amniotic cyst

D. Yolk sac
E. Umbilical cord

21. Your patient relates a history of amenorrhea for 7 weeks. Her home pregnancy test was negative, but her serum beta-hCG exceeds 4000. What does this image demonstrate?

    A. Normal empty uterus with periovulatory endometrium
    B. Normal early intrauterine pregnancy
    C. Fluid contained within the endometrial cavity
    D. Pseudocyesis with an endometrial cyst
    E. Degenerating submucosal fibroid

22. In a ruptured ectopic pregnancy, which section of the fallopian tube is potentially the most life-threatening?

    A. Interstitial
    B. Ampulla
    C. Isthmus
    D. Fimbria
    E. Ligamentous

23. The *double bleb sign* refers to the sonographic presentation of:

    A. The amnion and chorion
    B. Two intrauterine gestational sacs
    C. The amnion and yolk sac
    D. A heterotopic pregnancy
    E. A bicornuate uterus

24. This patient is 10 weeks by good menstrual dates, but her doctor feels that she is small for gestational age and he cannot hear any fetal heart tones. He orders a sonogram to confirm viability. An M-mode was not included. Referring to the image on the following page, what do you suspect?