

ULTRASOUND LECTURE SERIES

Obstetrics and Gynecology

Comprehensive Examination Answers

1. First- and second-trimester determination of chorionicity relies on:
 - A. "Twin peak" sign.
 - B. Membrane thickness.
 - C. Type/number of placentas.
 - D. Gender.
 - E. All of the above.

Answer: E (from *Ultrasound in Twins*)
2. The appropriate sagittal view is guaranteed after clearly identifying the:
 - A. Endocervical canal.
 - B. External os.
 - C. Internal os.
 - D. All of the above.

Answer: D (from *Sonographic Evaluation of the Uterine Cervix*)
3. The most important sonographic parameter of the cervix in the prediction of prematurity is:
 - A. Funneling.
 - B. Cervical length.
 - C. Dynamic change.
 - D. Presence of a mucus plug.

Answer: B (from *Sonographic Evaluation of the Uterine Cervix*)
4. Risk factors for placenta accreta include:
 - A. Advancing maternal age.
 - B. Placenta previa.
 - C. Prior cesarean delivery.
 - D. All of the above.

Answer: D (from *Placenta and Umbilical Cord*)
5. By 6.2 weeks' gestation, what embryonic heart rate predicts spontaneous abortion?
 - A. <80 bpm.
 - B. <100 bpm.
 - C. <110 bpm.
 - D. <120 bpm.

Answer: A (from *Embryonic Ultrasonography*)
6. Which provides 100% positive predictive value for an abnormal pregnancy outcome?
 - A. Mean sac diameter ≥ 20 mm with no yolk sac.
 - B. Mean sac diameter ≥ 25 mm with no embryo.
 - C. Abnormally shaped gestational sac.
 - D. All of the above.

Answer: D (from *Embryonic Ultrasonography*)
7. The most appropriate TI for use when scanning an embryo is the:
 - A. TIB.
 - B. TIC.
 - C. TIS.
 - D. TLC.

Answer: C (from *Ultrasound Safety*)
8. The corpus callosum forms the roof of which of the following?
 - A. Lateral ventricles.
 - B. Aqueduct of Sylvius.
 - C. Cavum septum pellucidum.
 - D. Thalamus.
 - E. Third ventricle.

Answer: C (from *Ultrasound of the Normal Fetal Neuraxis*)
9. The tissue with the highest absorption coefficient is:
 - A. Blood.
 - B. Bone.
 - C. Fat.
 - D. Muscle.

Answer: B (from *Ultrasound Safety*)
10. Prognosis for a fetus with a chest mass is based principally on:
 - A. Lesion size.
 - B. Size of affected lung.
 - C. Size of unaffected lung.
 - D. Thoracic circumference.

Answer: C (from *Abnormalities of the Fetal Chest*)

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11. Echogenic bowel is diagnosed when the echogenicity of the intestine reaches that of surrounding bone. All of the following are causes of echogenic bowel except:
A. Chromosomal abnormalities.
B. Viral infections.
C. Pregnancy-related bleeding.
D. Cystic fibrosis.
E. Poorly controlled maternal diabetes.
Answer: E (from *Fetal Abdomen*)
12. Which congenital adenomatoid abnormality (CCAM) lesions are more likely to resolve during pregnancy?
A. Microcystic.
B. Macrocystic.
C. Expanding lesions.
D. Lesions associated with mediastinal shift.
Answer: A (from *Abnormalities of the Fetal Chest*)
13. What is the most likely adnexal finding when an ectopic pregnancy is diagnosed?
A. Normal ovaries only.
B. Normal ovaries with a nondescript separate mass.
C. A double-ring or bagel sign.
D. A gestational sac with a yolk sac and fetal pole with or without cardiac activity.
Answer: B (from *Ectopic Pregnancy*)
14. Which cranial anomaly is suggested by these findings: renal cystic dysplasia, encephalocele, and postaxial polydactyly?
A. Agenesis of the corpus callosum.
B. Dandy-Walker malformation.
C. Hydranencephaly.
D. Meckel-Gruber syndrome.
Answer: D (from *Common Cranial Anomalies*)
15. An incidental finding of a thick EM echo on transvaginal ultrasound (>8 mm):
A. Is "cancer until proven otherwise."
B. Should have endometrial sampling.
C. Needs sonohysterography.
D. Is present in 10% to 17% of the population.
E. All of the above.
Answer: D (from *Sonographic Evaluation of Postmenopausal Bleeding*)
16. Which cranial anomaly is suggested by an enlarged posterior fossa and cystic enlargement of the fourth ventricle?
A. Agenesis of the corpus callosum.
B. Dandy-Walker malformation.
C. Hydranencephaly.
D. Meckel-Gruber syndrome.
Answer: B (from *Common Cranial Anomalies*)
17. The neural tube closes by what days of development?
A. 24–26 days.
B. 25–27 days.
C. 26–28 days.
D. 27–29 days.
E. 28–30 days.
Answer: B (from *Spine*)
18. Which structure should NOT be included in the abdominal circumference measurement plane?
A. Left portal vein.
B. Right portal vein.
C. One pair of lower ribs.
D. Umbilical cord insertion site.
Answer: D (from *Common Methods of Ultrasound Dating in Pregnancy*)

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19. Management of IUGR fetuses should be stratified by:
- A. Gestational age.
 - B. Maternal disease.
 - C. Fetal disease.
 - D. All of the above.

Answer: D (from *Ultrasound Evaluation of Abnormal Fetal Weight*)

20. Early studies suggest accuracy of first-trimester dating using crown-rump length measurements is \pm :
- A. 3–5 days.
 - B. 7 days.
 - C. 10 days.
 - D. 14 days.

Answer: A (from *Common Methods of Ultrasound Dating in Pregnancy*)

21. Reversed flow at the middle cerebral artery is often due to:
- A. Fetal pathology.
 - B. Maternal pathology.
 - C. Placental insufficiency.
 - D. Compression of the transducer on the fetal head.

Answer: D (from *Doppler Velocimetry*)

22. Which features are useful for optimizing images of the fetal heart?
- A. Harmonic frequency.
 - B. Speckle reduction.
 - C. Compound imaging.
 - D. All of the above.

Answer: D (from *Fetal Echocardiography: Common Cardiac Anomalies*)

23. An advantage of continuous wave Doppler is that:
- A. High velocities can be recorded.
 - B. The signal can be obtained from a precisely defined location.
 - C. It is not angle dependent.
 - D. It has fewer bioeffects.

Answer: A (from *Doppler Velocimetry*)

24. To optimally evaluate a fetal arrhythmia, the M-mode cursor can be placed through which structures?
- A. Right ventricle and left atrium.
 - B. Right ventricle and right atrium.
 - C. Left ventricle and right atrium.
 - D. Left ventricle and left atrium.
 - E. All of the above.
 - F. A and D.
 - G. B and D.

Answer: F (from *Fetal Echocardiography: Common Cardiac Anomalies*)

25. Cleft lip and palate is most commonly seen with:
- A. Trisomy 13.
 - B. Trisomy 18.
 - C. Trisomy 21.
 - D. All of the above.

Answer: A (from *Chromosomal Anomalies in the Second Trimester*)

26. Which renal anomaly is characterized by a lobular-shaped kidney and noncommunicating various-sized cysts?
- A. Autosomal dominant polycystic kidney disease.
 - B. Autosomal recessive polycystic kidney disease.
 - C. Multicystic dysplastic kidney.
 - D. Severe hydronephrosis.

Answer: C (from *Fetal Genitourinary System*)

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27. The thickened nuchal fold is a sensitive and specific marker for which trisomy?

- A. Trisomy 13.
- B. Trisomy 18.
- C. Trisomy 21.
- D. All of the above.

Answer: C (from *Chromosomal Anomalies in the Second Trimester*)

28. Which diagnosis is suggested by serial scan findings of increasing bladder distension but continued normal amniotic fluid volume?

- A. Bladder exstrophy.
- B. Bladder outlet obstruction.
- C. Megacystis-microcolon-intestinal hypoperistalsis syndrome.
- D. Ureterocele.

Answer: C (from *Fetal Genitourinary System*)

29. During the reproductive years, the best time to schedule elective pelvic scans is

- A. During menses.
- B. Days 5–9.
- C. Days 10–14.
- D. After day 14.

Answer: B (from *Ultrasound Evaluation of the Adnexa*)

30. Typical sonographic features of an ovarian benign cystic teratoma include:

- A. Sonolucent fluid within.
- B. Posterior shadowing of an echogenic core.
- C. Homogeneous solid appearance.
- D. Multiple thin septations.

Answer: B (from *Benign Abnormalities of the Female Pelvis*)

31. To rule in or out blood flow in papillae, which modality should be used?

- A. Power Doppler.
- B. Spectral Doppler.
- C. Color flow Doppler.
- D. Harmonic imaging.

Answer: A (from *Ultrasound Evaluation of the Adnexa*)

32. Which of the following cardiac associations is not correct?

- A. Left atrium – pulmonary veins.
- B. Aortic arch – bifurcation.
- C. Right ventricle – moderator band.
- D. Ductal arch – “hockey stick” appearance.

Answer: B (from *Basic Imaging of the Normal Fetal Heart*)

33. The greatest numbers of oocytes are recovered using which guidance approach?

- A. Transabdominal ultrasound.
- B. Transvaginal ultrasound.
- C. 3D ultrasound.
- D. Laparoscopy.

Answer: B (from *Ultrasound Evaluation of the Infertile Female*)

34. The most accurate and least expensive procedure for diagnosing congenital uterine anomalies is:

- A. 2D ultrasound.
- B. 3D ultrasound.
- C. Magnetic resonance imaging.
- D. Computed tomography.

Answer: B (from *Ultrasound Evaluation of the Infertile Female*)

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35. Besides open neural tube defects, other conditions that elevate MSAFP include:
- A. Multiple gestations.
 - B. Open abdominal wall defects.
 - C. Fetal demise.
 - D. All of the above.

Answer: D (from *Ultrasound Evaluation of Abnormal Midtrimester Serum Screen*)

36. In an image for measurement of nuchal translucency, what portion of the image should be occupied by the fetus?
- A. 10%.
 - B. 20%.
 - C. <25%.
 - D. >50%.

Answer: D (from *First-Trimester Down Syndrome/Aneuploidy Screening*)

37. With what percentage of open neural tube defects is MSAFP increased?
- A. 20%.
 - B. 50%.
 - C. 78%.
 - D. 100%.

Answer: D (from *Ultrasound Evaluation of Abnormal Midtrimester Serum Screen*)

38. The nuchal translucency measurement will be underestimated if the:
- A. Fetal head is flexed with no free space seen between the lower chin and anterior neck.
 - B. Fetal head is extended with an angle between the lower chin and anterior neck of >90°.
 - C. Fetal head is in a neutral position.
 - D. Fetus is lying against the amnion.

Answer: A (from *First-Trimester Down Syndrome/Aneuploidy Screening*)

39. Axial resolution of ultrasound is primarily dependent on the:
- A. Transducer frequency.
 - B. Power.
 - C. Frame rate.
 - D. Beam width.

Answer: A (from *Ultrasound: The Basics*)

40. Advantages of 3D ultrasound include:
- A. Review planes unobtainable by 2D ultrasound.
 - B. Rotate volumes to view all sides.
 - C. Review topographic anatomy of an anatomic organ.
 - D. Highlight elements within a volume.
 - E. All of the above.

Answer: E (from *3D Ultrasound: General*)

41. Compared with a 2-MHz transducer, a 5-MHz transducer will have:
- A. A deeper tissue penetration.
 - B. A lower image resolution.
 - C. No difference in depth penetration or image resolution.
 - D. Both a better resolution image and a greater depth penetration.
 - E. A better image resolution and a lower depth penetration.

Answer: E (from *Ultrasound: The Basics*)

42. The angle of acquisition of a volume can be seen in:
- A. Plane A of a multiplanar display.
 - B. Plane B of a multiplanar display.
 - C. Plane C of a multiplanar display.
 - D. The surface mode.

Answer: B (from *3D Ultrasound: General*)

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43. Which is NOT characteristic of gestational trophoblastic disease?

- A. Intrauterine complex mass.
- B. Gestational sac >3.5 cm.
- C. Multicystic intrauterine echoes.
- D. Theca lutein cysts.
- E. Thickened placenta.

Answer: B (from *Sonographic Evaluation of Early First-Trimester Bleeding*)

44. Limitations of transabdominal sonography as opposed to transvaginal sonography include all of the following *except*:

- A. Attenuation of sound from the body wall.
- B. Need for lower-frequency transducers.
- C. A global view of the pelvis is provided.
- D. A distended urinary bladder is needed to provide a scanning window.

Answer: C (from *Sonography of the Normal Female Pelvis*)

45. Which finding predicts single-dose methotrexate failure for ectopic pregnancies?

- A. Yolk sac seen with vaginal ultrasound.
- B. Gestational sac size >3.5 cm.
- C. Fetal cardiac activity is seen.
- D. All are associated with single-dose methotrexate failure.
- E. None of these are associated with single-dose methotrexate failure.

Answer: D (from *Sonographic Evaluation of Early First-Trimester Bleeding*)

46. A standard pelvic ultrasound exam may be composed of:

- A. Transabdominal sonography.
- B. Transvaginal sonography.
- C. Color Doppler sonography.
- D. All of the above.

Answer: D (from *Sonography of the Normal Female Pelvis*)

47. The architectures of the uterus and ovaries are best demonstrated on

- A. T1-weighted images.
- B. T2-weighted images.
- C. T2*-weighted images.
- D. Proton density-weighted images.
- E. None of the above.

Answer: B (from *Magnetic Resonance Imaging of the Nonpregnant Female Pelvis*)

48. Which is NOT an established role for cancer antigen 125?

- A. Detecting early-stage disease.
- B. Detecting recurrence in women with known ovarian cancer.
- C. Monitoring tumor burden.
- D. Monitoring response to treatment.

Answer: A (from *Update on Sonographic Screening for Ovarian Cancer*)

49. The best first-line imaging modality employed in screening for ovarian cancer is:

- A. Bimanual pelvic exam.
- B. Computed tomography scan.
- C. Magnetic resonance imaging.
- D. Transvaginal sonography.

Answer: D (from *Update on Sonographic Screening for Ovarian Cancer*)

50. Which factor is most closely related to musculoskeletal damage?

- A. Number of studies performed per day.
- B. Number of studies performed per week.
- C. Number of hours holding the transducer without breaks.
- D. Variety of studies.

Answer: C (from *Operator Safety*)