

MULTIPLE CHOICE

OB MATERNAL SURVEILLANCE AND DOPPLER - PRACTICE SET

PROPOSED FOR REVIEW - questions are the author's verbatim Q&A; distractors are auto-selected from other answers in the same bank and must be checked by a subject-matter reviewer (a distractor could coincidentally be correct). Not authoritative assessment content.

1. A biophysical profile score of 4 out of 10 in a term pregnancy is most appropriately interpreted as which of the following?

- A. Normal fetal status, repeat in one week
- B. Reassuring, follow with routine prenatal care
- C. Equivocal, repeat in 24 hours regardless of gestational age
- D. Abnormal, suggesting probable fetal asphyxia and warranting delivery consideration

2. Which finding on cervical ultrasound is most concerning for cervical insufficiency in a patient with a history of mid-trimester pregnancy loss?

- A. A 40 mm cervical length at 22 weeks with no funneling
- B. Progressive painless cervical shortening with funneling of the internal os
- C. Mucus plug visible within the endocervical canal
- D. Anterior placenta covering the lower uterine segment

3. Which fibroid location is most likely to obstruct labor or interfere with fetal lie in pregnancy?

- A. Subserosal fundal fibroid
- B. Lower uterine segment or cervical fibroid
- C. Pedunculated posterior fibroid
- D. Small intramural fibroid in the fundus

4. Absent end-diastolic flow in the umbilical artery is best interpreted as which of the following?

- A. An abnormal finding indicating markedly increased placental vascular resistance
- B. Evidence of fetal anemia requiring transfusion
- C. Evidence of a vein of Galen aneurysm
- D. A normal variant in the first trimester only

5. Each component of the biophysical profile that is present is assigned how many points?

- A. Five points if present, zero if absent
- B. Two points if present, zero if absent
- C. Two points if present, one if equivocal, zero if absent
- D. One point if present, zero if absent

6. The pulsatility index is defined as which of the following?

- A. Peak systolic velocity minus end-diastolic velocity divided by the mean velocity
- B. Peak systolic velocity minus end-diastolic velocity divided by peak systolic velocity
- C. End-diastolic velocity divided by mean velocity
- D. Peak systolic velocity divided by end-diastolic velocity

7. During normal pregnancy, how does the uterine artery Doppler waveform change between the first and third trimesters?

- A. It remains unchanged throughout gestation
- B. It develops continuous reversed end-diastolic flow at term
- C. It progresses from low resistance to high resistance with sharp diastolic notching at term
- D. It progresses from a high-resistance waveform with notching to a low-resistance waveform with continuous diastolic flow

8. The umbilical artery S/D ratio is calculated as which of the following?

- A. Peak systolic velocity divided by end-diastolic velocity
- B. Peak systolic velocity minus end-diastolic velocity divided by mean velocity

- C. Mean velocity divided by peak systolic velocity
- D. End-diastolic velocity divided by peak systolic velocity

9. The normal Doppler waveform of the ductus venosus contains which characteristic components?

- A. A continuous nonpulsatile waveform similar to the umbilical vein
- B. A single sharp systolic spike with no diastolic flow
- C. A reversed a-wave throughout the cardiac cycle
- D. A systolic (S) peak, a diastolic (D) peak, and a forward a-wave during atrial contraction

10. A reversed or absent a-wave in the ductus venosus is best interpreted as which of the following?

- A. A normal first-trimester variant beyond 13 weeks
- B. A sign of advanced fetal cardiac dysfunction or late-stage placental insufficiency
- C. A specific finding of fetal cytomegalovirus infection
- D. A reliable indicator of fetal anemia

11. Which of the following is NOT one of the five components of the biophysical profile?

- A. Fetal heart rate variability on real-time imaging
- B. Fetal tone
- C. Amniotic fluid volume
- D. Fetal breathing movements

12. Which maneuver is recommended during transvaginal cervical length assessment to unmask a dynamic short cervix?

- A. Filling the maternal bladder
- B. Application of transfundal pressure
- C. Placing the patient supine without elevation
- D. Asking the patient to perform a Valsalva for 30 minutes

13. The umbilical artery systolic-to-diastolic (S/D) ratio normally changes how with advancing gestation?

- A. It stays constant from the first trimester to term
- B. It increases as placental resistance rises
- C. It decreases as placental vascular resistance falls
- D. It increases sharply only after 36 weeks

14. Which approach is the standard method for sonographic measurement of cervical length in the second trimester?

- A. Transabdominal with a full maternal bladder
- B. Transvaginal with an empty maternal bladder
- C. Translabial with the patient in Trendelenburg
- D. Transvaginal with a full maternal bladder

15. A nonstress test is most appropriately classified as which type of fetal assessment?

- A. A test of fetal autonomic nervous system function based on heart rate accelerations
- B. A direct measurement of placental resistance
- C. A measurement of fetal cerebral oxygenation
- D. A measurement of umbilical artery blood flow velocity

16. The modified biophysical profile combines which two tests?

- A. Contraction stress test and amniotic fluid index
- B. Biophysical profile and middle cerebral artery Doppler
- C. Nonstress test and umbilical artery Doppler
- D. Nonstress test and amniotic fluid index

17. The middle cerebral artery is best interrogated with Doppler at which anatomic location?

- A. Near its origin from the circle of Willis, just distal to the internal carotid bifurcation
- B. At the junction with the basilar artery
- C. Within the cavernous portion of the internal carotid
- D. At its distal cortical branches near the calvarium

18. In the first trimester, an abnormal ductus venosus a-wave is most strongly associated with which of the following?

- A. A specific marker for neural tube defects
- B. Increased risk of aneuploidy and cardiac defects

- C. A reduced risk of preeclampsia
- D. Increased risk of postdates pregnancy

19. Which Doppler waveform best represents a normal third-trimester umbilical artery?

- A. Reversed flow throughout diastole
- B. Absent diastolic flow with sharp systolic peaks
- C. Continuous forward flow throughout diastole with a low systolic-to-diastolic ratio
- D. High-resistance pattern with diastolic notching

20. In a fetus with severe early-onset growth restriction, which Doppler abnormality is typically the LAST to develop and signals advanced decompensation?

- A. Decreased middle cerebral artery pulsatility index
- B. Reversed a-wave in the ductus venosus or pulsatile umbilical vein flow
- C. Elevated umbilical artery S/D ratio
- D. Bilateral uterine artery diastolic notching

21. Which of the following best differentiates a uterine fibroid from a focal myometrial contraction during pregnancy?

- A. Contractions always demonstrate calcification while fibroids do not
- B. The contraction resolves over time while the fibroid persists with a discrete border
- C. Fibroids always produce a posterior acoustic shadow while contractions do not
- D. Fibroids are transient and resolve while contractions persist

22. Where is the umbilical artery Doppler sample typically obtained for clinical S/D ratio measurement?

- A. At the fetal abdominal cord insertion only
- B. At the placental cord insertion only
- C. Within an intrahepatic portion of the umbilical vein
- D. In a free-floating loop of cord, away from the placental and fetal cord insertions

23. True or false: A nonreactive nonstress test always indicates fetal acidosis and requires immediate delivery.

- A. False
- B. True

24. In the biophysical profile, low amniotic fluid volume is thought to reflect which physiologic mechanism?

- A. Chronic redistribution of fetal cardiac output away from the kidneys with decreased fetal urine output
- B. Acute fetal hypercapnia stimulating swallowing
- C. Increased fetal renal blood flow and diuresis
- D. Maternal dehydration causing reduced placental perfusion only

25. Brain-sparing physiology in a growth-restricted fetus is reflected sonographically as which Doppler pattern?

- A. Reversed flow in the ductus venosus during ventricular systole
- B. Decreased middle cerebral artery resistance with increased diastolic flow
- C. Increased middle cerebral artery resistance with absent diastolic flow
- D. Increased umbilical vein pulsatility during inspiration