ANSWERS: CHAPTER 16

MATCHING

1. e
2. b
3. f
4. c
5. a
6. d

MULTIPLE CHOICE


FILL-IN-THE-BLANK

1a. fetal age
1b. size
2a. smoking
2b. altitude
3. generated

4a. axial
4b. lateral
5. short
6. axial
7. at the edge of the most definite echo observed but should not include the beam width artifact
8. late
9. BPD
10. accurate
11. multiple fetal parameter
12. endovaginal
13. dolichocephalic
14a. growth
14b. cranium
15a. umbilical
15b. portal
15c. spine
16. 4000
17a. BPD/FL
17b. HC/AC
17c. AC/FL
18. fetal spine
19. long
20. 14

SHORT ANSWER

1. The dates of the pregnancy are important for planning the mode and date of delivery, screening evaluation for aneuploidy, determining dates of possible termination, gauging fetal growth, and suggesting whether or not the pregnancy is progressing normally.

2. Premature rupture of membranes (PROM) can result in external uterine pressure on the fetal skull. The BPD measurement carries a small interobserver variance or error (usually <2 mm), but molding and normal morphologic variations of the fetal head have a greater effect on the accuracy of BPD in assessing age. These effects and the lesser reliability of the BPD measurements tend to be greatest after the 33rd menstrual week when extrinsic pressure on the fetal skull is greatest. The resulting fetal skull molding makes the BPD a less accurate parameter for fetal age after that time. The BPD can also be affected by oligohydramnios, which can enhance molding of the skull.

3. A fetus with a long and narrow or dolichocephalic head will have a relatively short BPD measurement, and the CI will be below normal. A fetus whose BPD is relatively wide and whose FOD is short is called brachycephalic; the CI is greater than normal and again suggests an unreliable BPD measurement (CI > 89%).

4. Beam width artifacts at the ends of the linear femur bone is a cause for elongated measurements. Obtain a clean acoustic shadow. Cursors should be placed at the edge of the most definite echo observed but should not include the beam width artifact. The femur nearest the transducer should always be measured.

IMAGE EVALUATION/PATHOLOGY

1. A and B demonstrate separation of the points in axial resolution. B and C and D and E display lateral resolution. The arrow points to the focal range, which is the narrowest point of the beam.

2. 1. Thalamus. 2. Falx. 3. Cavum septum pellucidum.

3. 1. Base of the skull demonstrates the Base X formed by the bilateral sphenoid bones. 2. Petrous bones.

4. 1. BPD. 2. OFD.

5. O₁ is outer to outer FOD. L is leading edge to leading edge BPD.

3. Falx. The measurement is of transverse cerebellar diameter. The cerebellum maintains a relationship to the gestational age and is independent of the shape of the cranium. Cerebellar size is also relatively unaffected by fetal growth disturbances.

7. Image A is a fibula and image B is a tibia.
CASE STUDY

1. The two forearm bones are the radius and ulna of which the ulna is longer, extending into the elbow further than the radial head. Note that both bones end at approximately the same level at the wrist, which is the distal portion.

2. The fetal abdomen is seen in images A and B. Image A is measured with an ellipse and image B is using perpendicular abdominal diameters. Using abdominal diameter measurements, the transverse diameter (TAD) is measured from side to side and the anteroposterior abdominal diameter (APD) is taken from the skin line above the umbilical cord insertion to the skin line just behind the spine. The formula for two point calculation is: \[ AC = 1.57 \times (d_1 + d_2). \] All measurements, ellipse, trace, or diameters, are from the outer skin lines. The favored view will demonstrate the confluence of the umbilical and portal veins in the fetal liver, called the “hockey stick” or “J” view by some. If these veins cannot be visualized owing to fetal position or maternal obesity, then a section demonstrating the fluid-filled fetal stomach is acceptable.